Message

From: Winchester, Erik [Winchester.Erik@epa.gov]
Sent: 10/18/2018 4:19:58 PM
To: Mottley, Tanya [Mottley.Tanya@epa.gov]
CC: Symmes, Brian [Symmes.Brian@epa.gov]; Carmichael, Lea [Carmichael.Lea@epa.gov]; Courtnage, Robert [Courtnage.Robert@EPA.GOV]
Subject: Priority review - Desk Statement – Canada Bans Asbestos.docx
Attachments: Desk Statement – Canada Bans Asbestos.docx

Importance: High

Alison suggested we keep it short and simple since we've yet been able to review the CA rule in detail. The background info is recycled from the last approved asbestos text minus statements about how the press got the purpose of the SNUR wrong.

Source (HERO ID)	Source (Title)	Was this cited in ERG reports?	Reviewer	Product Category
338	Projections of Cancer Risks Attributable to Future Exposure to Asbestos	No	Andy	Other
28518	EVALUATION OF AIRBORNE ASBESTOS FIBER LEVELS DURING REMOVAL AND INSTALLATION OF VALVE GASKETS AND PACKING	No	Andy	Other
524541	Exposure to carcinogens for defined job categories in Norway's offshore petroleum industry, 1970 to 2005	Yes	Andy	Oil field brake blocks
1082293	Evaluation of Asbestos Exposure during Brake Repair and Replacement	No	Andy	Aftermarket auto parts
1788554	Cancer Incidence in a Chlorochemical Plant in Ise`re, France: An Occupational Cohort Study, 1979–2002	No	Andy	Asbestos Diaphragms
2591959	Airborne Asbestos Concentrations Associated with Heavy Equipment Brake Removal	Yes	Andy	Aftermarket auto parts
2601402	Exposure to Chrysotile Asbestos Associated with Unpacking and Repacking Boxes of Automobile Brake Pads and Shoes	Yes	Andy	Aftermarket auto parts
3015760	Airborne asbestos exposures associated with gasket and packing replacement: A simulation study of flange and valve repair work and an assessment of exposure variables	No	Andy	Other

Use Example (or Subcategory)	Physical Form	Route of Exposure
Friction products, A/C pipes, coatings and sealants, paper products, V/A floor tile, gaskets and packing, textiles, A/C sheet, plastics	Solid	Inhalation
Valve Gaskets and packing	Solid	Inhalation
Brake bands in oil field drilling draw works Gaskets.	Solid	Inhalation
Brake repair and replacement	Solid	Inhalation
Chlor-alkali Industry	Solid	Inhalation
Heavy equipment / non-passenger vehicles	Solid	Inhalation
Brake repair and replacement	Solid	Inhalation
Valve Gaskets	Solid	Inhalation

Exposure Concentration (Unit)
Exposure expressed in number of fibers people were exposed to per year. For current uses, data ranges from 200 fibers/year (pipe installation) to 1.56B fibers/year (use of textiles)
PCM: 0.049 to 0.44 f/cc (removal); 0.131 to 0.29 f/cc (installation) TEM: 0.86 to 18.44 structures/cc (removal); 0.40 to 74.32 structures/cc (installation)
0.02-0.03 f/cm3; from brake bands. No data on gasket removal exposure.
0.116 to 2.48 f/ml. Range encompasses cars and trucks.
Epidemiological study, but does not include any measured or estimated asbestos exposure data.
0.024 f/cc (or 0.009 f/cc as 8-hr TWA) for mechanic. Exposure information also available for bystanders.
0.086-0.368 f/cc for unpacking/repacking brake pads; 0.021-0.126 brake shoes.
Exposure (as an 8-hr TWA) ranged from 0.010 to 0.062 f/cc.

Number of Samples	Number of Sites
N/A (fibers/year estimates derived from OSHA data)	N/A
PCM: 108 TEM: 104	1 (isolated room for the purpose of experiment)
Not specified	1
60	30
NA	NA
44 personal; 68 area	2
80 personal; 92 area	1
475 samples, during 23 events.	1

Type of Measurement or Method
N/A (mean level of exposure per year by product category is presented)
Short-term during length of task (approx. 30 min. samples)
Not specified
TWA's calculated from 45 min short-term samples
NA
Short-term during length of task (consecutive 30-minute samples)
Short-term during lenth of task - 15 - 100 minute samples
Short-term (task based) samples and estimated TWA's

Worker Activity (or source of exposure if stationary sampling)	Number of Workers	Type of Sampling
Activities include installation, use, and repair/disposal for the various product categories.	Estimates range from 1265 people who were estimated (in 1983) to be installing "sheet"; to 551,207 people estsimated to be involved in repair/disposal work involving friction products.	N/A
Controlled exposure experiment to determine exposure during valve gasket removal/installation using normal pipefitter techniques.	N/A Controlled study	Personal and Area
Ambient asbestos fibers	Not specified	Area
Brake repair/replacement	60	Personal
NA	NA	NA
Personal sampling during brake removal tasks on heavy-duty construction equipment (10 loader backhoes/2 tractors). Area sampling also conducted in bystander, remote, and ambient air areas.	16 (12 brake/bench work employees; 4 clothes handling employees)	Personal and Area
Personal sampling during the unpacking and repacking of vintage auto parts suppliers (used for 1946-1980 vehicles). Area samples in bystander, remote, and ambient air areas.	1	Personal and Area
Personal samples for mechanic and assistant during all tasks associated with the removal and replacement of valve flange gaskets. Area samples in bystander/distant bystander areas. Also clerance, background, and ambient samples.	2 (mechanic and assistant)	Personal and Area

Sampling Location	Exposure Duration
N/A	Annual/cumulative estimate of number of fibers exposued to per year.
Isolated room for purpose of experiment	Approximately 30 minutes for both removal and installation tasks. Work was repeated several times.
Drilling floor	Not specified; but since ambient - assume "full shift".
Auto repair shops	Samples were short term; but work continues all day.
NA	NA
Two heavy-duty equipment service centers.	30 - 60 minutes
Auto repair shop in Santa Rosa, CA	15, 30, and 100 mins (personal); 30 mins (area)
Enclosed study chamber in Windsor, CA	14-89 min samples

Exposure Frequency
N/A
N/A. experimental conditions
Not specified
Daily
NA
3 brake jobs per shift
N/A. Simulated experiment. Lengthy discussion on frequency
Study assumes 1 to 3 gasket/packing replacements per day

Bulk and Dust Particle Size Distribution
N/A
50-60% chyrsotile asbestos gaskets.
41% asbestos in brake linings
> 30% of fibers were > 1um in diameter.
NA
Table 3 presents a comprehensive summary of fiber size and morphology of asbestos fibers collected on the workers.
Table 4 presents a comprehensive summary of fiber size and morphology of asbestos fibers collected on the workers.
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Engineering Control & %Exposure Reduction	PPE
N/A	N/A
None. Tasks performed under supervision of a pipefitter and representative 1992 work practices implemented, "with little concern for asbestos exposure"	Not specified.
None. Ambient air.	Not specified.
Sources mentions "inadequate LEV"	None shown in photo
NA	NA
None. No ventilation. Shop doors closed.	Not specified.
None. No ventilation. Shop doors closed.	Not specified.
Ventilation. Phase I done with passive ventilation (1.4 ACH); Phase II done with active ventilation (13.6-15.6 ACH).	Source notes "safety equipment provided"

Analytic Method	Type of Data Source	*Domain 1: Reliability*		
		Methodology		
		Score	Associated Meta Data and Rationale	Score
N/A	Reports for Data or Information Other than Exposure or Release Data	3	1983 OSHA Data	1
PCM for f/cc exposure. The data source also presents TEM analysis for structures/cc	Monitoring Data	1	AIHA, NIOSH, NVLAP accredited lab used for analysis.	1
"Electron Microscope"	Monitoring Data	3	Not specified methodology.	2
NIOSH 7400, Asbestos International Association	Monitoring Data	1	NIOSH 7400, Asbestos International Association	3
NA	Reports for Data or Information Other than Exposure or Release Data	1	AMERICAN JOURNAL OF INDUSTRIAL MEDICINE	2
NIOSH 7400, 7402	Monitoring Data	1	Recognized NIOSH methods; analysis by AIHA-accredited lab	1
NIOSH 7400, 7402	Monitoring Data	1	Recognized NIOSH methods; analysis by AIHA-accredited lab	1
NIOSH 7400, 7402	Monitoring Data	1	Recognized NIOSH methods; analysis by AIHA-accredited lab	1

			Domain 2: Representativeness
Geographic Scope	**Applicability**		
Associated Meta Data and Rationale	**Score**	**Associated Meta Data and Rationale**	**Score**
United States	2	Most applicable condition of use was friction products with no indicator it was for aftermarket auto parts	3
United States	2	Valve fitting on industrial pipes, occupational exposure similar to the primary conditions of use	3
OECD country (Norway)	1	Applicable to a current use, if brake blocks contain asbestos.	3
Non-OECD country (Iran)	1	Applicable to maintenance/replacement of brakes (current use)	1
OECD country (France)	1	In-scope use	3
United States	2	Study focused on brake removal from heavy-duty equipment.	2
United States	2	Assigned a 2 since this study is for vintage vehicles; and it only focuses on unpacking/repacking of boxes, not actual brake servicing.	2
United States	2	Occupational exposure, but not one of the four primary conditions of use	1

			Dom
Temporal Representativeness	**Sample Size**		**M**
Associated Meta Data and Rationale	**Score**	**Associated Meta Data and Rationale**	**Score**
1983	3	data estimates total number of fibers workers are exposed to per year, based on 1983 OSHA data. No specifics on tasks.	3
1992 data; but likely still representative of a potential scenario today.	1	Over 100 samples.	2
30 year old data (1988).	3	Number of measurements not reported and statistical characterization not provided.	3
2011	2	Means with standard deviations and ranges are presented.	2
Information from ACC indicates that French processes at this time vary greatly from current methods	3	Not specified sample distribution	1
Data collected between April 2005 and September 2006; but activities are likely similar today.	1	Table 1 provides fully characterized statistical distrubution of samples	1
Data collected during July 2004 (Phase 1) and November 2005 (Phase 2); but activities are likely similar today.	1	Table 1 provides fully characterized statistical distrubution of samples	1
Data collected during March 2011 (Phase I) and November 2011 (Phase II).	1	Table 1 provides fully characterized statistical distrubution of samples	1

ain 3: Accessibility / Clarity	Domain 4: Variability and Uncertainty		Overall Confidence Score
Metadata Completeness	Variability / Uncertainty		
Associated Meta Data and Rationale	Score	Associated Meta Data and Rationale	
No personal/area sampling data.	3	No description of how data is estimated.	**2.56**
Does not have specific durations by sample. Lists average duration at beginning of article for both removal and installation.	1	Controlled experiment and large number of samples.	**1.78**
Only metadata provided is that samples were stationary measurements.	3	Variability not discussed.	**2.44**
A few details lacking (e.g. specific activities assocated with each sample)	2	Limited discussion.	**1.56**
Sources, methods, and assumptions discussed	2	Limited discussion.	**1.89**
Monitoring data is well described.	1	Exposure and work practice variability between workers and shops is discussed.	**1.44**
Monitoring data is well described.	1	Exposure and work practice variability between workers and shops is addressed. Discussion of how work practices during this experiement based on interviews with career auto mechanics and parts suppliers.	**1.44**
Monitoring data is well described.	2	Work was performed by an experienced U.S. Navy mechanic. He did the work in the same manner he did througout his career, but no discussion on variability of work practices; and no other workers used. They did vary ventilation between the two Phases.	**1.33**

1

2

3

4

3079606	Exposure to Airborne Asbestos During Removal and Installation of Gaskets and Packings: A Review of Published and Unpublished Studies	No	Andy	Other
3080516	Fiber Release During the Removal of Asbestos-Containing Gaskets: A Work Practice Simulation	No	Andy	Other
3089885	EV@LUTIL: An Open Access Database on Occupational Exposures to Asbestos and Man-Made Mineral Fibres	No	Andy	Aftermarket auto parts
3093967	Evaluation of Take-Home Exposure and Risk Associated with the Handling of Clothing Contaminated with Chrysotile Asbestos	No	Andy	Other
3361072	Asbestos exposure and the risk of sinonasal cancer	No	Andy	Other
3520523	Factors Associated With Non-compliance of Asbestos Occupational Standards in Brake Repair Workers	No	Andy	Aftermarket auto parts
3531131	Asbestos exposure from gaskets during disassembly of a medium duty diesel engine	Yes	Karen	Aftermarket auto parts

Valve Gaskets	Solid	Inhalation
Valve Gaskets	Solid	Inhalation
Auto Brakes, Gaskets, Asbestos Cement	Solid	Inhalation
Not a current use (Take Home Exposure Associated with Handling of Contaminated Clothes)	Solid	Inhalation
No data and not relevant to current uses.	Solid	Inhalation
Auto Brakes	Solid	Inhalation
Diesel engine overhaul sheet gasket removal/cleaning	solid	Inhalation

Seven simulation studies and four work-site industrial hygiene studies of industrial and maritime settings. The average of the long-term exposures during gasket formation was 0.008 f/cc, with data ranging from 0.001 to 0.017 f/cc. The short-term concentrations collected during dry gasket removal and formation ranged from 0.11 to 1.4 f/cc, the onset of the study both of the samples taken during wet gasket removal were below the limit of detection.
Worker (non-assistant) Exposure (as an 8-hr TWA) ranged from 1.5 to 3.6 f/cc.
This source provides a description of a database (called Evalutil) that has asbestos exposure monitoring data.
15-minute means; 0.014–0.097 f/cc, 30-minute means; 0.006–0.063 f/cc
N/A - No monitoring data
Out of the one hundred three 8-h TWA PCM-Eq personal asbestos concentrations estimated, 24% exceeded the Colombian standard and the US OSHA PEL of 0.1 f/cm3 asbestos occupational limit. Furthermore, 15% of the samples were in compliance but above the USA OSHA PEL action level of 0.050 f/cm3.
nondetect - 0.032 f/cm3 (detection limit as high as 0.12 f/cm3, only 2 samples (both personal) exceeded the LOD); bulk samples of gaskets 15 - 65% chrysotile

300+	11
Three separate studies: Study 1: 28 worker/assistant, 4 background, 36 area; Study 2: 28 worker/assistant (table v), 4 background, 24 area; Study 3: 15 worker/assistant, 4 background, 16 area.	1
Table III describes the number of series measurements by task category. Total number of series of measurements in the asbestos database is 1961.	N/A
12	1
N/A	N/A
103 (8-hr TWA equivalents). Of those 103, 43 for passenger vehicles, 60 for heavy-duty vehicles. Note, there were more individual samples, this number is for TWA-eq.	18
14 personal, 15 area, 33 bulk	1

Short term and TWA
Short-term during scraping/hand wire brushing of small and large flange assemblies, and power wire brushing of large flange assembly
Varies depending on data source in database.
30 minute samples, each with 15 minutes of active handling and 15 minutes of no handling
N/A
30 minute samples, perhaps consecutive
Short-term duration of task (12-54 minutes); short term area, bulk

Removal, repair, and cleaning of packing, flanges, and gaskets	Varies by study	Personal and area
Gasket removal activities including hand scraping, hand wire brushing, and electric wire brushing.	2 (worker and helper)	Personal and Area
Would vary	Not specified	Likely personal and area
Handling clothes containing asbestos	1	Personal and area
N/A	N/A	N/A
Brake riveting	28	PBZ
removal / cleaning of gaskets, as part of diesel engine disassembly (hand scraping, power buffing, power wire-brushing); area sampled 10 feet downwind from task.	1	personal, area, bulk

Various workshops / enclosed environments for simulated studies	15 - 480 min
Exposure Characterization Laboratory (ECL)	15-30 mins (cassettes exchanged)
Not specified	Not specified
Enclosed environment	30 minutes
N/A	N/A
Passenger vehicle and heavy-duty vehicle brake repair shops	Not specified
engine repair shop (in Texas)	13 - 54 minutes

Various
N/A. Simulated experiment.
Not specified
N/A - Simulated experiment
N/A
Not specified, assumed daily
14 asbestos exposed tasks over 3 days in a busy repair shop

Found chrysotile, no amphibole detected in any study
Size distribution not determined. Results are for fibers > 5 um
Not specified
Not specified
N/A
Samples ranged between 5-15% asbestos
fiber type confirmed by TEM or PLM.

Not specified	Not specified.
ECL was ventilated to provide 5 ACH	Disposable protective suits and supplied air HEPA respirators
Not specified	Not specified
N/A - Simulated experiment	N/A - Simulated experiment
N/A	N/A
Not evaluated	none described
open shop with fan, August	None shown in photo

NIOSH 7400, 7402	Monitoring Data	1	Approved NIOSH methods	1
NIOSH 7400 (air samples). ASTM protocol (bulk samples)	Monitoring Data	1	Approved NIOSH/ASTM methods	1
Not specified	Monitoring Data	3	Not specified, likely varies.	3
NIOSH 7400, 7402	Monitoring Data	1	Approved NIOSH methods	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Occupational Medicine	2
NIOSH 7400 airborne sample counts by PCM with TEM used to determine ratio of asbestos fibers; bulk samples by PLM.	Monitoring Data	1	approved NIOSH methods	3
NIOSH 7400 airborne sample counts by PCM with TEM confirmation of fiber type; bulk samples by PLM.	Monitoring Data	1	approved NIOSH methods with confirmation of fiber type	1

United States	2	Occupational exposure, but not one of the four primary conditions of use	3
United States	2	Paper mill powerhouse steam flanges had their gaskets removed. Not in-scope.	2
Not specified, likely from U.S., OECD countries, and non-OECD countries.	1	Very possible some data in the database described in this source has occupational scenarios within scope (e.g., gasket work is described as an example)	3
United States	3	Study describes a controlled experiment simulating handling and shake-out of contaminated work clothing. The volume of asbestos in this study isn't realistic for any of our current uses. There's a photo of someone shaking clothing; and there is visible asbestos in the picture. For our current uses, the only potential to come into contact with such volume of asbestos would be in the chloralkali industry. But folks aren't really coming into contact with bulk asbestos like this (per the ACC and company responses to questions) .	1
OECD - Sweden	3	This data source does not provide any actual monitoring data. It's a retrospective cohort study of Swedish construction workers, with occupational health exam records stored between 1971 and 1992 used. Additionally, workers born after 1958 were excluded since asbestos use ceased by the time they started working in the mid 1970's.	3
Non-OECD country (Colombia)	1	In-scope use	1
United states, applicable to open shop summer time conditions	1	In-scope use	2

Most of the studies looked at in this report are 20 + years old	1	Large number of samples compiled from studies, well characterized	1
Study is from 2002, but activities are likely similar today.	2	Only range and averages are presented.	1
Some data in the database is likely older than 20 years.	1	Figure 4 is an example output from the database on operations on gaskets containing asbestos. N=121 for that example, and data shown with whisker plot.	3
2014	2	Only 6 sampling events	1
Pre 1970's-uses very different from current uses. Asbestos is no longer used as it was back then.	3	No sample data provided in article	4
2016	3	Well-characterized, 18 brake shopes sampled on 3-6 days, however the actual sample data is not given, only whether or not sample value was above guideline values	3
2004 data. Note that diesel vehicles tend to remain in service for decades	2	mostly censored data (below limit of detection, due to short sampling durations)	2

Monitoring data is well described.	2	There is variability between exposures and work practices in the diferrent studies, but it is not discussed	**1.78**
Monitoring data is fairly well described.	2	Limited discussion on variability.	**1.67**
Not specified without accessing the database	3	Not specified without accessing the database	**2.33**
Monitoring data is fairly well described.	2	Limited discussion on variability.	**1.67**
No sample data	3	Does not address variability/uncertainty	**4**
No sample data given	2	Different sites sampled, but limited discussion on variability	**1.78**
all metadata included. Except for task frequency	1	Authors discuss oher data for this sector, state that variability is high in this study due to low fiber counts	**1.44**

3585189	High-Temperature Processing of Asbestos-Cement Roofing Material in a Plasma Reactor	No	Karen	Other
3615571	Asbestos Content of Dust Encountered in Brake Maintenance and Repair	No	Karen	Aftermarket auto parts
3615816	Asbestos Content of Dust Encountered in Brake Maintenance and Repair	No	Karen	Aftermarket auto parts
3970520	NIOSH HHE - Electrode Corporation Chardon, Ohio	Yes	Karen	Asbestos Diaphragms
3970528	Evaluation of Employee Exposuresin a Bus Maintenance Shop	Yes	Karen	Aftermarket auto parts
3827275	Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos	No	Karen	Other
3970695	ANNEX XV RESTRICTION REPORT AMENDMENT TO A RESTRICTION SUBSTANCE NAME: CHRYSOTILE	**No**	Karen	Asbestos Diaphragms
3970696	Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC)	No	Karen	Other
2079050	Patterns of pulmonary dysfunction in asbestos workers: a cross-sectional study	No	Karen	Other

Outside scope - Waste treatment	Solid	N/A
Brake maintenance and repair truck & auto	Solid	Inhalation
Brake maintenance and repair	Solid	Inhalation
chloralkali Industry, diaphragm anodes	Solid	Inhalation
Bus maintenance facility	Solid	Inhalation
Manufacturing, processing, distribution, use, and disposal	N/A	N/A
electrolysis for hydrogen production (Sweden); electrolysis for chloralkali production (Dow Germany)	Solid	Inhalation
see HERO ID 3970695	N/A	N/A
Textile manufacture	Solid	Inhalation

N/A - No monitoring data
1.7 - 7.7 fibers/cc air samples during grinding old truck brakes; 23.7 - 72.0 for bevelling new truck brake linings. Auto 6.6 - 29.4 f/cc near compressed air cleaning of brake drums, 0.1 - 4.2 f/cc 1.5 - 22 meters away. In bulk dust samples, 2-15% chrysotile in U.S. (NYC), all other countries range was 0.5 - 3.2%
NO ACTUAL MONITORING DATA
80-90% chrysotile in bulk anodes; settled dust samples all below limit of detection
all nondetect, with limit of quantification = 1%.
No discussion of monitoring data
No data for Swedish plant; For Dow plant, dumping fibers in mixing vessel, 90% upper confidence limit = 108 fibers per meter cubed (all below limit of detection (LOD, ~100 f/m3)); For flushing and decoupling feed lines, geometric mean 100 f/m3; for waste handling, 90% upper conf limit = 112 f/m3 (all below LOD); assembly of electrolysis cells, 90% upper conf limit 253 f/m3 (4 samples below LOD, 1 at 100 f/m3, one at 300 f/m3); disassembly geometric mean 123 f/m3, 90% upper conf limit 235 f/m3 (4 below LOD, 1 at 200 f/m3, 1 at 290 f/m3); washing anodes/cathodes geometric mean 100 f/m3 (one below LOD, 2 at 100 f/m3). Summary table on page 94. (note that the German OEL is 1000 f/m3, and the EU OEL is 100000 f/m3). [see summary table in HERO 397-696 page 27].
NO NEW DATA - summary table on page 27, of data from 3970695.
> 2mg/m3, the Chinese OEL in the 1970s.

N/A	1
10 bulk from NY city repair shops, 29 bulk from OECD countries, air samples personal and area (23 truck brake repair, 13 auto)	1 truck repair facility; more than one auto repair shop, including a taxi fleet repair shop
N/A	N/A
5 bulk, 3 settled dust (vacuum dust collection at 4 l/min)	1
6 bulk samples (4 brake shoes, 1 brake pad, 1 friction material); 4 settled dust	2 (1 body shop, 1 maintenance shop)
N/A	N/A
0 for Swedish plant; For Dow: six for control room operator dumping fibers into mixing vessel; 2 for technician flushing/decoupling feed lines; for maintenance and cleaning, zero exposure samples; for waste handling, six samples. Assembly of electrolysis cells, six samples; dismantling cells, 9 samples; washing anodes/cathodes, 3 samples.	2 (no data from Swedish site)
N/A	N/A
454	Workers from 1 textile plant in China

chemical analysis of vitrified slag and leachate, e.g. for heavy metals
OSHA methods as of 1975, which are similar to current methods
N/A
bulk and settled dust
bulk and settled dust
N/A
area samples, duration Not specified, volumetric flow rate Not specified.
N/A
Not specified

melting of asbestos roofing material in a plasma reactor to produce vitreous slag which can be recycled	N/A	N/A
truck: grinding/beveling of brake pads auto: compressed air cleaning of brake drums	Not specified	bulk, area air, personal air
Letter to editor re HERO 3615571. mentions 2 earlier "thorough" British studies on brake repair: Hickish & Knight 1970, Knight & Hickish 1970, Lee 1970	N/A	N/A
Receiving anodes from customer that are contaminated from asbestos diaphragm (unpacking crates and placing anodes in washer).	Not specified	bulk, settled dust
bus maintenance	Not specified	bulk, settled dust
N/A	N/A	N/A
AAK (Sweden) uses sealed cells imported from Switzerland (not EU and therefor not subject to REACH restrictions). Dow (Germany) uses diaphragms and reconditions them with asbestos containing brine (made on site), all processes are automated except for maintenance. Exposure scenarios include receiving/storing bulk fiber, dumping fibers into mixing vessel, formation of slurry, filling feed containers, feeding electrolysis cells, flushing feed lines/decoupling hoses, maintenance/cleaning of dry asbestos handling room, and waste handling. Assembly of electrolysis cells; dismantling/cleaning cells, disassembly of cells with cleaning of electrodes.	For dumping fibers in mixing vessel, 1 remote operator in control room; For flushing and decoupling feed lines, 1 technician; waste handling 1 technician. Assembly of electrolysis cells, 4 technicians; disassembly/cleaning electrodes, 3 technicians;	Area samples due to required air volume to achieve LOD <110 f/m3. Sampled in accordance with VDI 3492.
N/A	N/A	N/A
Not specified	277 asbestos workers and 177 control subjects (non-occupational)	Not specified

laboratory scale plasma reactor	N/A
City sanitation department truck repair shop in NYC; auto and taxi repair shops	Not specified
N/A	N/A
Receiving / parts washing	N/A
settled dust from 2 bus brake drums, a rotor lathe, and a wheel on a van	N/A
N/A	N/A
Dow chloralkali plant	For dumping fibers in mixing vessel, 1 hour per day; for Flushing and decoupling feed lines, half hour /day, 10 seconds per coupling/decoupling; for maintenance and cleaning, 2 hours/day; waste handling 8 hours/day. Assembly of electrolysis cells, 8 hours per day for 20 days; disassembly/cleaning electrodes 8 hours/day
N/A	N/A
Not specified	Not specified

N/A
Not specified, but daily assumed
N/A
Not specified
Not specified, but daily assumed
N/A
For dumping fibers in mixing vessel, 2/week; for flushing and decoupling feed lines, 2/week; for maintenance and cleaning, 6 times per year; waste handling 75 days/year. Assembly of electrolysis cells, 4 times per year (20 days each time); disassembly/cleaning electrodes 75 days/year;
N/A
Not specified

N/A
large percentage of asbestos fibers identified by TEM in this study did/do not meet the historical/current counting rules for PCM
N/A
not discussed
not discussed
N/A
not discussed
N/A
Not specified

N/A	N/A
none	none described
Vacuum brushes and funnels	none described
none for receiving, parts washer is used to remove asbestos	disposable masks rated for non-hazardous nuisance dusts (not rated for asbestos).
none described	none described
N/A	N/A
sealed systems at Swedish plant; enclosed systems with remote/mechanical handling at Dow (Germany), wet methods/submersion for open handling: receiving/storing bulk fiber - fully enclosed/sealed containers; dumping fibers into mixing vessel - robotic/remote operation in negative pressure tunnel; formation of slurry - remote/enclosed negative pressure tunnel; filling feed containers - enclosed; feeding electrolysis cells - enclosed; flushing feed lines/decoupling hoses - after flushing with brine, and wet; maintenance/cleaning of dry asbestos handling room - shower out procedures, with washdown of the exit airlock; and waste handling - collected into enclosed plastic barrells containing wet additive, and sent to rotary oven/kiln, whereas wastewater is fed through enclosed system, with waste water sludge pelletized with manual closing of wet pellet barrells before transfer to kiln (thermal treatment at 1300C). Assembly of electrolysis cells - mostly enclosed with mechanical handling; manual handling during sealing step, with natural ventilation; disassembly/cleaning electrodes - wet methods, mechanical handling, natural ventilation	for cleaning the dry asbestos handling room, disposable clothing, dedicated shoes, full face PAPR respirator with P3 cartridges (99.95% efficient, similar to HEPA). For assembly and disassembly of cells, work clothing.
N/A	N/A
Not specified	Not specified

X-ray fluorescent spectrometry analysis	Reports for Data or Information Other than Exposure or Release Data	2	Pol. J. Environ. Stud.	2
PCM, with 8 personal air samples analyzed by TEM	Monitoring Data	2	in accordance with 1975 OSHA methods, which appear to be equivalent to current methods in terms of type of microscopy (oly fibers > 5 um are counted, 3:1 aspect ratio).	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	TUC Centenary Institute of Occupational Health	2
NIOSH 7400 for settled dust, NIOSH 9002 for bulk	Monitoring Data	1	NIOSH methods conducted as part of a NIOSH Health Hazard evaluation	1
NIOSH method 9002 (PLM)	Monitoring Data	1	NIOSH methods conducted as part of a NIOSH Health Hazard evaluation	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	EPA document	1
German VDI 3492 an SEM method for fibrous particles, same 5 um length and 1:3 aspect ratio as NIOSH, only counts fibers < 3um width (NIOSH 7400 does not count fibers less than 2.5 um width). 8-30 liter/min flow rate. [NIOSH flow rate is 0.5 - 16 L/min].	Monitoring Data	1	German method modified to use higher flow rate to achieve a lower LOD.	2
N/A	N/A	N/A	N/A	N/A
Not specified	Reports for Data or Information Other than Exposure or Release Data	1	Journal of Occupational Medicine and Toxicology	2

Conducted in Slovakia (Slovak Republic)	3	no asbestos exposures reported in this study.	1
New York City	2	occupational exposures - likely higher than current exposures due to lack of engineering controls, high percent chrysotile in the bulk material, and use of compressed air cleaning in auto shops.	3
Author is from London	1	In-scope use	3
Ohio	1	anodes contaminated due to customer use of asbestos diaphragms in chloralkali industry	3
New York State	1	aftermarket automotive brakes for buses and vans	2
United States	2	Related to occupational exposure	1
Germany	1	Dow chloralkali plant	1
N/A	N/A	N/A	N/A
OECD (China)	2	Occupational exposure for out of scope use (textiles)	2

2016	3	No sample data provided in article	4
study published in 1977	2	sample number, means, and ranges reported	3
letter to editor that mentions 2 British studies from 1970.		Letter to editor referencing other articles; no data provided; not applicable	
1994	2	range is described for bulk sample results.	2
2008	2	all results were non-detect, limit of quantification reported at 1%.	2
2017	3	No sample data provided in article	4
2008-2013	1	geometric means and upper conf limits presented when possible (cannot calculate an upper conf limit if all sample results identical)	2
N/A	N/A	N/A	N/A
2010	3	No sample data provided in article	4

No sample data	3	Does not address variability/uncertainty	**4**
sample durations not stated	2	discusses findings in similar studies	**2.22**
Letter to editor referencing other articles; no data provided; not applicable		Letter to editor referencing other articles; no data provided; not applicable	**1.83**
exposure scenario well-described	3	variability of settled dust samples not discussed; limits of detection not specified.	**1.89**
exposure scenario well-described	3	Variability not discussed.	**1.67**
No sample data	3	Does not address variability/uncertainty	**4**
task duration provided, but not sample duration	2	low geometric standard deviation as evidence of low variability, but area samples do not always correlate well with personal samples.	**1.33**
N/A	N/A	N/A	
no actual monitoring data.	3	Does not address variability/uncertainty	**4**

2561011	Asbestos exposure from the overhaul of a Pratt & Whitney R2800 engine	Yes	Karen	Other
3970851	Asbestos (Chrysotile, Amosite, Crocidolite, Tremolite, Actinolite, and Anthophyllite)	No	Karen	Other
3974883	Criteria for a recommended standard: Occupational Exposure to Asbestos	No	Karen	N/A
2575987	Global Magnitude of Reported and Unreported Mesothelioma	No	Karen	Other
3078375	TheWorldwide Pandemic of Asbestos-Related Diseases	No	Karen	Other
3080670	The Carcinogenicity of Chrysotile Asbestos—A Review	No	Karen	Other
3080988	The Hazards of Chrysotile Asbestos: A Critical Review	No	Karen	Other
3088311	Size- and type-specific exposure assessment of an asbestos products factory in China	No	Karen	Other

Airplane overhaul - replacement of metal glad nonfriable gaskets, replacement of clutch linings.	Solid	Inhalation
N/A (Multiple: brake pad production, cement, gaskets, textiles, insulation)	Solid	Inhalation
N/A (Multiple)	Solid	Inhalation
General asbestos use	Solid	Inhalation
General asbestos use	Solid	Inhalation
Various (products, wallboards, friction products and textiles)	Solid	Inhalation
Various	Solid	Inhalation
Manufacture of woven and rubber products	Solid	Inhalation

During disassembly: 0.0013 - 0.1240 f/cc, average 0.0272 f/cc; During reassembly: 0.0055 - 0.0913 f/cc, average 0.0198 f/cc; Clutch rebuild: 0.0129 - 0.0179 f/cc; no visible dust observed. These levels are similar to rural ambient asbestos levels. 40% of bulk samples contained chrysotile, 20-70%. Only 1 personal sampled contained asbestos confirmed by TEM, only 5 of 79 area samples contained asbestos confirmed by TEM, and these were not close to the work area (there was asbestos in the building insulation).
fibers/cc
fibers/cc
Epid study - national cumulative asbestos use in metric tons
Discussion of national asbestos consumption and mesothelioma rates
Discusses global asbestos consumption and mesothelioma
Literature review of health effects related to asbestos exposure - No monitoring data
Study focused less on fiber counts and more on determining size / dimensions of fibers. A total of 14 510 fibres were individually sized to two decimal places and checked for chemical composition.

121 area samples (4 locations); 121 personal (workers wore 2 pumps and cassettes, bystanders (i.e., researchers) also sampled); 186 bulk samples (one of each type of gasket or other ACM.)	1
Not specified	41 occupational cohort studies shown in Table 2.2, includes standardized mortality ratios and/or risk ratios with confidence limits, at link: http://monographs.iarc.fr/ENG/Monographs/vol100C/100C-06-Table2.2.pdf
various. NIOSH sampling data 1969-71 pages 99 - 124.	Not specified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
52	6

task based (average 188 minutes for disassembly, 222 minutes for reassembly)
varies depending on the study
varies depending on the study
N/A
N/A
N/A
N/A
N/A

Week 1 disassembly, week 2 painting (no asbestos exposure), week 3 reassembly. Clutch rebuild, cylinder change, ignition system rebuild, [metal clad, nonfriable gaskets]. No power tools used (not an approved protocol), most gaskets came off by hand or with hand tool if needed. All bulk samples from clutch rebuild contained asbestos;	Not specified	bulk, area, personal
Cohort study design characteristics (12 pages landscape): http://monographs.iarc.fr/ENG/Monographs/vol100C/100C-06-Table2.3.pdf Link to table of case-control studies (12 pages long landscape orientation, includes relative risk and confidence limits): http://monographs.iarc.fr/ENG/Monographs/vol100C/100C-06-Table2.1.pdf	Not specified	varies depending on the study
various. Epi data tables pages 125 - 129.	Not specified	air
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
raw materials–opening, raw materials–bagging, carding, spinning, weaving, and rubber.	Unknwon	scanning electron microscopy (SEM) analysis (identifies fibers that would be missed by NIOSH 7400 b/c less than .25 um in width)

FAA certified Aircraft Repair Station (piston engine service facility).	average 3 hours per task;
Not specified	Not specified
Not specified	Not specified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
Workshop area	Samples no more than 2 hours long

2-3 vintage aircraft per month rebuilt or serviced at this facility
Not specified
Not specified
N/A
N/A
N/A
N/A
Not mentioned but assumed daily

Approximately 40% of the bulk samples collected during this test were found to contain chrysotile.
N/A
N/A
N/A
N/A
N/A
N/A
Not specified

natural ventilation (garage doors closed, roof vents closed). Most parts covered with oil during disassembly and reassembly, such that no visible dust observed.	Not specified.
Not specified	Not specified.
Not specified	Not specified.
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
Not specified	Not specified.

NIOSH 7400 (PCM), 7402 (TEM); for samples positive for asbestos in 7402, then analyzed in accordance with ISO 10312.	Monitoring Data	2	The authors do not describe the rationale for using the ISO 10312 TEM method to confirm fiber type, rather than using PLM. The authors do not present the TEM data in table form, and do not provide the limit of detection for the ISO TEM method.	1
Not specified.	Completed Exposure or Risk Assessments	1	IARC monograph	2
Not specified.	Completed Exposure or Risk Assessments	1	NIOSH Criteria document	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Institute of Industrial Ecological Sciences	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Annu. Rev. Public Health 2013	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Industrial Health	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Industrial Health	1
scanning electron microscopy (SEM), ISO method 14966	Monitoring Data	2	scanning electron microscopy. Describes fiber characteristics, not fiber counts	2

United States	2	gasket removal, clutch work, although all these gaskets were metal-clad, which was not the case for the diesel truck engine. Aircraft engines.	1
a mix of data from multiple countries.	2	a mix of occupational exposure scenarios	1
a mix of studies from multiple countries.	2	a mix of occupational exposure scenarios	3
OECD (Japan)	2	a mix of occupational exposure scenarios	1
United States	2	a mix of occupational exposure scenarios	1
United States	2	a mix of occupational exposure scenarios	2
Industrial Health	2	a mix of occupational exposure scenarios	3
OECD country (China)	3	Data given was occuapational exposure to asbestos that was not in scope and didn't provide data of fibers / mL	2

2012	1	excellent description of sample distribution	1
2012	2	Statistical distribution of results not described.	1
1972	3	findings of health effects in asbestos exposed workers are discussed in narrative form	3
2011	3	findings of health effects in asbestos exposed workers are discussed in narrative form	4
2013	3	findings of health effects in asbestos exposed workers are discussed in narrative form	4
2001	3	findings of health effects in asbestos exposed workers are discussed in narrative form	4
1999	3	findings of health effects in asbestos exposed workers are discussed in narrative form	4
2006 data	1	Sample size and distribution clearly characterized, along with statistics	3

excellent descriptions	2	This study was supported by Pratt & Whitney, which has participated in asbestos product litigation. The authors have also participated in asbestos product litigation.	**1.44**
Very thorough review of a ton of studies, include epidemiologic studies as recent as 2009.	1	Confidence limits shown in tables 2.1. and 2.2. Uncertainty discussed in regards to whether chrysotile is less carcinogenic than other forms, also whether cancer of the colorectum is associated with asbestos exposure.	**1.44**
findings of health effects in asbestos exposed workers are discussed in narrative form	2	tables on pages 128 - 129 indicate which epi findings are significant at p>0.05, but confidence limits not shown.	**2.33**
no actual monitoring data.	3	N/A - no data	**4**
no actual monitoring data	3	N/A - no data	**4**
no actual monitoring data	3	N/A - no data	**4**
no actual monitoring data	3	N/A - no data	**4**
fiber composition, not fiber counts	2	Variabilty between shops sampled and time of day that sampling occurred were briefly addressed	**2.22**

3098571	TOXICOLOGICAL PROFILE FOR ASBESTOS	No	Karen	Sheet gaskets
3102338	Asbestos Fibers and Other Elongate Mineral Particles: State of the Science and Roadmap for Research	No	Karen	Other
3352103	Impact of ship-Breaking activities on the coastal environment of Bangladesh and a management system for its sustainability	No	Karen	Other
3531608	The Trend in Airborne Asbestos Concentrations at Plants Manufacturing Asbestos-Containing Products in Japan	No	Karen	Other
3531609	Asbestos exposure among Seoul metropolitan subway workers during renovation of subway air-conditioning systems	No	Karen	Other
3978190	Final Rule for Occupational Exposure to Asberstos	No	Karen	Aftermarket auto parts
3978224	Correspondance between Thomas Galassi and Drew Garner Regarding Rule Interpretation. November 10, 2011	No	Karen	Other

Page 190 describes Fowler (2000) simulation of bandsawing sheet gaskets. Page 191: Strokova (1998) Bulgarian workers engaged in the production of asbestos gaskets and filter materials at two plants were exposed to 0.04–0.38 and 0.04–0.43 f/mL of asbestos.	Solid	Inhalation
Mentions 84% of asbestos used in roofing products as of 2008 (p10).	Solid	Inhalation
Shipbreaking - outside scope.	Solid	Inhalation
Manufacturing asbestos products	Solid	Inhalation
Renovation of ventilaltion system in subway	Solid	Inhalation
Gasket/packing manufacture, Automotive repair	Solid	Inhalation
gasket removal	Solid	Inhalation

2.2 - 4.9 f/ml by PCM for sawing neoprene sheet containing 80% chrysotile **in a simulation**. 0.04–0.38 and 0.04–0.43 f/mL in Bulgarian gasket production (1998).
Page 11 Figure 2: geometric mean exposures below 0.1 f/cc in OSHA and NIOSH samples of the construction, manufacturing, mining, and other industries since 1986 (data through 2003).
No monitoring data
control classification - 1 through 3; unsure what the translation is to f/cm3
range from LOD to 0.020 f/cc; 9 of 72 air samples above LOD (LOD 0.002 - 0.003 f/cc);
estimated exposures before and after compliance with 1994 PEL of 0.1 f/cc (based on representative data from 1985 rulemaking record): automotive repair: 0.017 f/c, 0.00294 f/cc; gasket manufacture: 0.043 down to 0.00718 (Table 5)
N/A - No monitoring data

Not specified	Not specified
N/A	N/A
N/A	N/A
Not specified	528
72 air samples	8
Not specified	Not specified
N/A	N/A

Not specified
Not specified
N/A
Not specified
TWA
Not specified
N/A

cutting gaskets, production of gaskets	Not specified	PCM, TEM, also Not specified
Not specified	Not specified	Not specified
N/A	N/A	N/A
Various	2798	Area
Removal of ceiling panels and ventillation ducts, installation of new ventillation system, and installation of subway station equipment	Not specified	bulk, breathing zone
Not specified	Not specified	Not specified
letter of intepretation.	N/A	N/A

Not specified	Not specified
Not specified	Not specified
N/A	N/A
Not specified	Not specified
subway system in Seoul, Korea	180–240 min for night shift and 300–360 min for day shift.
Not specified	Not specified
N/A	N/A

Not specified
Not specified
N/A
Not specified
Not specified
Not specified
N/A

Fowler discusses fiber sizes by TEM.
"thoracic-size Elongate mineral particles (EMPs) occurring either in an asbestiform habit (e.g., asbestos fibers) or in a nonasbestiform habit (e.g., as needle-like [acicular] or prismatic crystals), as well as EMPs that result from the crushing or fracturing of nonfibrous minerals (e.g., cleavage fragments)." NIOSH commented on MSHA 2005 asbestos rulemaking: "NIOSH remains concerned that the regulatory definition of asbestos should include asbestiform mineral fibers such as winchite and richterite, which were of major importance as contaminants in the Libby, MT, vermiculite"
N/A
counting rules - WHO fibers (over 5 µm in length, over 3:1 in aspect ratio and less than 3 µm in diameter)
Twelve of the eighteen bulk samples were found to contain asbestos (Table 1), although four samples were less than 0.1% that is usual detection limit for most labs. Ten samples contained chrysotile fibers and two samples contained tremolite fibers (Table 1). The original four gaskets used in the duct connections at the Euljiro, Yaksu, and Sindang stations were found to contain asbestos
Not specified
N/A

Not specified.	Not specified.
Not specified.	Not specified.
N/A	N/A
Not specified	Not specified.
Not specified	Not specified.
"National Automobile Dealers Association stated that both the enclosure/HEPA vacuum method and the low pressure/wet cleaning method are currently [as of 1994 rulemaking] in use throughout the automotive brake and clutch repair industry," which are feasible methods of achieving the PEL of 0.1 f/cc.	in 1986 rulemaking, OSHA concluded that asbestos cement pipe manufacture "dry mechanical process" could not achieve 0.2 f/cc without respiratory protection.
N/A	N/A

PCM in simulation, Not specified in Bulgarian plant	Published Models for Exposures or Releases	3	no detail on methodology	3
discusses short comings of PCM misses fibers too thin to see. Electron microscopy methods much more costly and less widely available.	Completed Exposure or Risk Assessments	1	NIOSH and OSHA sampling data	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Environmental Science & Policy	3
Not specified.	Monitoring Data	3	Unlcear methodology	2
NIOSH 7402	Monitoring Data	1	used NIOSH methods	2
describes the 0.1 f/cc PEL as the practical lower limit of feasibility	Completed Exposure or Risk Assessments	1	OSHA final rule; expected that underlying data are from literature search and OSHA compliance data	1
N/A	Reports for Data or Information Other than Exposure or Release Data	2	Correspondance between the president of a company that works with asbestos gaskets and the director of the Directorate of Enforcement Programs	1

non-OECD country (Bulgaria)	2	Fowler is a simulation rather than actual workplace data	2
United States	2	very little actual data. Discusses future research needs.	2
Non-OECD - Bangladesh	3	outside scope - shipbreaking	1
OECD - Japan	2	Study done on occupational exposure to asbestos	3
OECD - Korea	2	Out of scope occupational exposure data	2
US	1	automotive repair, also cement pipe manufacture	3
US	2	information regarding the removal of asbestos gaskets	1

2001 and 1998 data.	3	No statistical characterization provided	3
NIOSH/OSHA IMIS data through 2003	3	no information provided	3
2016	3	no information provided	4
2001 study, data from 1985-1998.	3	no information provided	4
2003 study; 2001 data	3	no information provided	3
1994 OSHA Final Rule	3	Where exposure data are presented, statistical characterization not provided.	3
2011	3	no information provided	4

limited metadata provided	2	variability discussed in general / qualitative terms	**2.44**
limited metadata.	3	not discussed	**2.11**
No monitoring data	3	N/A - no data	**4**
control classifications in this report cannot be linked to actual airborne concentrations.	3	N/A - no data	**4**
limited metadata.	2	limited discussion	**2.11**
Where exposure data are presented, few metadata are provided.	3	No discussion provided	**2.11**
no actual monitoring data.	3	N/A - no data	**4**

3978233	Work Practices and Engineering Controls for Class I Asbestos Operations NonMandatory	No	Karen	Other
3980937	SUMMARY OF COUNTERMEASURES AGAINST ASBESTOS IN JAPAN	No	Karen	Other
3981071	INDUSTRIAL POLLUTION PREVENTION AND ABATEMENT IN CHLOR-ALKALI INDUSTRY	No	Karen	Asbestos Diaphragms
3520603	An Australian stocks and flows model for asbestos	No	Karen	Other
3531033	Predicting the mortality from asbestos-related diseases based on the amount of asbestos used and the effects of slate buildings in Korea	No	Karen	Other
3541055	Current and future risks of asbestos exposure in the Australian community	No	Karen	Other
3581347	Self-Propagating Reactions for Environmental Protection: Treatment of Wastes Containing Asbestos	No	Karen	Other
3827270	MINERAL COMMODITY SUMMARIES 2017	Yes	Karen	Asbestos Diaphragms

Class I work = removal of thermal system insulation or surfacing material >1% asbestos (surfacing material means sprayed on, troweled on, or otherwise applied, such as acoustical plaster on ceilings or fireproofing on structural members).	Solid	Inhalation
waste disposal	Solid	Inhalation
3 different processes for chloralkali production (one uses mercury instead of asbestos)	Solid	Inhalation
estimates when asbestos containing materials will be disposed to landfill. 90% of asbestos consumed in Australia prior to 2003 ban went into cement products.	N/A	N/A
cement products	Solid	Inhalation
Asbestos removers and assessors	N/A	N/A
asbestos waste treatment/thermal conversion	N/A	N/A
Chlor-alkali Industry and others	N/A	N/A

N/A - No monitoring data
geometric mean concentrations of 0.47 - 0.05 f/Liter, with no particular trends. Shown in table 3-1 on page 21.
N/A - No monitoring data
Under the best estimate, asbestos stocks peaked in 1981 and waste quantities in 2014, and in 2016, 44% of consumed asbestos remains in use.
N/A - No monitoring data
no monitoring data - literature review and interviews
no monitoring data - information and experimentation with a process to treat asbestos waste
estimates that 100% of imported asbestos (340 metric tons, all chrysotile) was used in manufacture of asbestos diaphragms for the chloralkali industry - no monitoring data

N/A	N/A
Not specified	Not specified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

N/A
area samples, duration Not specified
N/A
N/A
N/A
N/A
N/A
N/A

1915.1001 Appendix F, nonmandatory, exposure controls for Class I asbestos work.	N/A	N/A
asbestos disposal facility	Not specified	area sampling at 10 L/min
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
thermal treatment of asbestos containing waste with ferric oxide, magnesium powder, and sepiolite (Mg4Si6)15(OH)26H2O. Self propagating reaction alters the chemical and micro- structure.	N/A	N/A
A non-specified quantity of asbestos was imported within manufactured products, possibly including brake linings and pads, building materials, gaskets, millboard, and yarn and thread, among others.	N/A	N/A

N/A	N/A
Not specified	Not specified
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

N/A
Not specified
N/A
N/A
N/A
N/A
N/A
N/A

N/A
not discussed
N/A
N/A
N/A
N/A
N/A
N/A

N/A	N/A
not discussed	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

N/A	Reports for Data or Information Other than Exposure or Release Data	1	OSHA	1
optical microscopy	Monitoring Data	1	sampling methods described in detail in appendix VIII of this report.	2
N/A	Reports for Data or Information Other than Exposure or Release Data	3	Document does not specify organization that authored report or what methods were used	1
N/A	Reports for Data or Information Other than Exposure or Release Data	2	Waste Management & Research	2
N/A	Reports for Data or Information Other than Exposure or Release Data	2	Science of the Total Environment	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	International Journal of Occupational and Environmental Health	2
N/A	Reports for Data or Information Other than Exposure or Release Data	2	Ind. Eng. Chem	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	US Geological Survey Report	1

US	2	Asbestos avoidance instructions for construction and shipyard workers	3
Japan	3	ambient monitoring data from unspecified number of waste disposal facilities. no information on whether the samples were in working areas or at the fenceline	2
US	1	In-scope use	2
Australia	4	does not relate directly to occupational exposure.	1
Korea	4	not occupational exposure	1
Australia	4	no monitoring data. No occupational exposures discussed.	1
Italy	4	This article does not describe occupational exposure or environmental release	2
US	1	Provides asbestos import and consumption volumes and estimate of market share by chloralkali industry.	1

1993	3	no information provided	4
2011 report, 1995-2009 data	3	only geometric means reported.	4
1999 report pulled in 2017.	3	no information provided	4
2016	3	no information provided	4
2016	3	no information provided	4
2016	3	no information provided	4
2005	3	no information provided	4
2016	3	Sample size representativeness captured in USGS estimates is unclear	3

no actual monitoring data, work activities outside scope.	3	N/A - no data	4
no information on whether the samples were in working areas or at the fenceline	3	not discussed	4
Document does not discuss its sources, methods, and assumptions; author and publishing organization is not specified. Document contains no metadata to evaluate quality of information presented.	3	No discussion provided	4
no actual monitoring data	3	N/A - no data	4
no actual monitoring data	3	N/A - no data	4
no actual monitoring data	3	N/A - no data	4
no actual monitoring data	3	N/A - no data	4
Data collection methods and assumptions not clearly provided. Appendix C defines data sources and terms used for classification of reserves.	3	Variability not discussed.	**1.67**

3840041	2015 Minerals Yearbook	No	Karen	Asbestos Diaphragms
3859385	Asbestos	No	Karen	Other
3860485	Chrysotile	No	Karen	Other
3860565	Safe Work Practices	No	Karen	Other
3970271	HSDB: Asbestos	No	Karen	Other
3970272	HSDB: Chrysotile asbestos	No	Karen	Other
3975020	Asbestos: Geology, Mineralogy, Mining, and Uses	No	Karen	Other
2576853	Heavy Equipment Maintenance Exposure Assessment: Using a Time-Activity Model to Estimate Surrogate Values for Replacement of Missing Data	Yes	Colin	Other

Chlor-alkali Industry and others	N/A	N/A
Asbestos industry	N/A	N/A
NLM data dump, outside scope	N/A	N/A
O&M guidance	N/A	N/A
Hazardous substances data bank - all old info	Solid	Inhalation
Hazardous substances data bank - all old info	Solid	Inhalation
Mining, processing, and use	Solid	Inhalation
gaskets within heavy equipment (Caterpillar construction equipment)	Solid	Inhalation

estimates that 95% of imported asbestos (343 metric tons, all chrysotile) was used in manufacture of asbestos diaphragms for the chloralkali industry.
worldwide production by country through 2000. No monitoring data - information on chemical structure of asbestos
No monitoring data - contains chemical information for asbestos
N/A - No monitoring data
N/A - No monitoring data
N/A - No monitoring data
N/A - No monitoring data
Sample data information including the surrogate values for the full-shift,TWA personal sample resultsranged from 0.002 to 0.064 asbestos f/cc. Personal, short-term, 30-min sample results, including the two surrogate values, ranged from 0.038 to 0.561 asbestos f/cc. Full-shift TWA area samples, including the 31 surrogate values, ranged from 0.005 to 0.039 asbestos f/cc. Area air sample results at the end of the project were similar to levels measured before the start of the project. No fiber concentration buildup within the work area was indicated over the 9-day study. All full-shift personal and area TWA sample results were below 0.1 f/cc, and shortterm 30-min personal samples were below 1.0 f/cc. Statistical results of the sample data with and without the surrogate values were consistent. Use of the time-activity model reduced the uncertainty associated with this data analysis and provided a consistent logical process for estimating surrogate values to replace missing data.

N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
A total of 444 samples were collected over 9 days. Despite execution of a carefully planned sampling strategy, approximately 10% (47) of the samples collected could not be analyzed due to overloading or filter damage. To include the overloaded samples in the data analysis, surrogate values were estimated following a time-activity model. Twelve long-term personal samples, 2 short-term, 30-min personal samples, and 31 long-term area samples were modeled. Personal and area time-weighted average(TWA) data were analyzed both with and without the estimated surrogate values and compared.	one site

N/A
N/A
p 22 describes lab analytical methods
N/A
N/A
N/A
N/A
TWA

asbestos consumption has declined annually for 30 years. Insufficient data to quantify asbestos use in other industries. The US imported $4.63 million of manufactured products containing asbestos (an18% descrease from 2014). The US exported and reexported $26 million of manufactured asbestos products, a 13% decrease from 2014. 32% of asbestos containing exports were friction products (brake and clutch linings, brake pads), 15% of exports were gaskets, packing and seals. These may have been reexports or misclassified items that did not contain asbestos, since there is little or no production of these materials in the US in recent years.	N/A	N/A
does not discuss occupational exposures	N/A	N/A
p 19 use and mfr info, all too old to use. P. 70: Mentions presence in local water in San Franciso and Seattle, plus areas with aggressive water and asbestos cement pipe.	N/A	N/A
no exposure data, just work practice guidance for O&M.	N/A	N/A
no exposure data, no relevant data on use.	N/A	N/A
no exposure data, no relevant data on use.	N/A	N/A
no exposure data, no relevant data on use.	N/A	N/A
This study on four pieces of heavy construction equipment was conducted to determine the concentration of airborne asbestos fibers during in-frame maintenance and repair activities, which included aggressive techniques that resulted in visible dust from work involving friction products and gaskets.	Four experienced heavy equipment mechanics removed and replaced friction products and gaskets.	Personal and area

N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
in a heavy equipment repair facility	Multiple, see samples info Full shift ranged from 6.5hr to 9.5hr, with over half of the samples in the 8-hr time period

N/A
N/A
N/A
N/A
N/A
N/A
N/A
Ten background air samples were collected for approximately 145 min at 2 L/min on the day prior to the start of repair activities. Five samples were collected inside the facility, and five were collected outside the facility to establish background fiber concentrations. Personal and area air samples were collected each day with sample pumps started prior to the initiation of work activities and were stopped at the end of the day after completion of work. Consecutive, long-term samples were collected on each mechanic and at each area sampling location. Samples were combined into TWAs over the whole sampling period to achieve full-shift TWA concentrations. The short-term, personal monitoring periods were for 30 min and were collected during activities when the mechanics were directly impacting the asbestos-containing gasket or friction material. These samples were collected to reflect peak exposure concentrations from activities conducted over a short period of time.

N/A
N/A
N/A
N/A
N/A
N/A
N/A
The removed and replaced brake materials from all four pieces of equipment contained from 15% to 95% chrysotile asbestos. Bulk sample analysis for asbestos in brake debris collected from all four machines yielded either nondetectable or less than 1% chrysotile asbestos. Removed and replaced gasket materials positive for asbestos ranged from 3% to 85% chrysotile.

N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
The repair facility was not equipped with a mechanical ventilation system. The study was conducted under routine conditions with doors being opened only for entry and exit of personnel. The overhead doors were opened only to move equipment and supplies in and out of the repair facility or for a few minutes following work activities, such as operating the diesel engines, welding, and grinding or other activities that generated dense smoke or fume. A pedestal-mounted fan was used by the mechanics at various times to provide airmovement inside the repair facility. Prior to and following work activities, the effective ventilation rate (reported as the number of air changes per hour) of the facility was determined by using carbon dioxide (CO_2) tracer gas.	no discussion / none?

N/A	Reports for Data or Information Other than Exposure or Release Data	1	USGS Minerals Yearbook	1
Page 18 a brief discussion of microscopy for fiber identification	Reports for Data or Information Other than Exposure or Release Data	1	Kirk-Othmer Encyclopedia of Chemical Technology	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	U.S. National Library of Medicine	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	US EPA	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	National Institute of Health, U.S. National Library of Medicine	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	National Institute of Health, U.S. National Library of Medicine	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	U.S. DEPARTMENT OF THE INTERIOR	1
Samples were analyzed using NIOSH Method 7400 Phase Contrast Microscopy followed by NIOSH Method 7402 Transmission Electron Microscopy.	Monitoring Data	1	Approved NIOSH methods	1

US	1	Provides asbestos import and consumption volumes and estimate of market share by chloralkali industry.	1
US	4	does not relate directly to occupational exposure.	2
US	2	no recent occupational exposure data.	1
US	2	Relates to occupational exposure to asbestos	1
US	2	Relates to occupational exposure to asbestos	1
US	2	Relates to occupational exposure to asbestos	1
US	2	Relates to occupational exposure to asbestos	2
United States	2	This study on four pieces of heavy construction equipment was conducted to determine the concentration of airborne asbestos fibers during in-frame maintenance and repair activities, which included aggressive techniques that resulted in visible dust from work involving friction products and gaskets. Friction products were not for automotive use	2

2015	3	Sample size representativeness captured in USGS estimates is unclear	3
2004	3	no data provided	4
Accessed 2017	3	no data provided	4
2017	3	no data provided	4
2017	3	no data provided	4
2017	3	no data provided	4
2002? report #02-xxx; newest entry in bibliography is from 2001.	3	no data provided	4
2007	1	Sample size and distribution clearly characterized, along with statistics	1

Data collection methods and assumptions not clearly provided.	3	Variability not discussed.	**1.67**
no actual monitoring data	3	N/A - no data	**4**
no actual monitoring data	3	N/A - no data	**4**
no actual monitoring data	3	N/A - no data	**4**
no recent / relevant exposure or use data	3	N/A - no data	**4**
no recent / relevant exposure or use data	3	N/A - no data	**4**
no recent / relevant exposure or use data	3	N/A - no data	**4**
well described within document	2	Discuss variability between different worker activities	**1.56**

3077980	Airborne asbestos exposures associated with gasket and packing replacement: A simulation study and meta-analysis	Yes	Colin	Other
3080855	Exposures to Asbestos Arising from Bandsawing Gasket Material	Yes	Colin	Sheet gaskets
3520465	Airborne Fiber Exposure Assessment of Dry Asbestos-Containing Gaskets and Packings Found in Intact Industrial and Maritime Fittings	Yes	Colin	Other
3531143	An Exposure Study of Bystanders and Workers During the Installation and Removal of Asbestos Gaskets and Packing	Yes	Colin	Other
3580451	Exposure to Asbestos Fibers During Gasket Removal	Yes	Colin	Other
176	Asbestos Exposure during Brake Lining Maintenance and Repair	Yes	Colin	Aftermarket auto parts
2554714	Assessing specific causation of mesothelioma following exposure to chrysotile asbestos-containing brake dust	No	Colin	Aftermarket auto parts

valve gaskets and packing	Solid	Inhalation
bandsawing gasket material	Solid	Inhalation
Asbestos-Containing Gaskets and Packings Found in Intact Industrial and Maritime Fittings	Solid	Inhalation
gaskets and packing, naval equipment	Solid	Inhalation
gaskets used in the chemical industry to prevent leakage between solid surfaces	Solid	Inhalation
automotive brakes	Solid	Inhalation
automotive brakes	Solid	Inhalation

Shortterm mechanic and assistant airborne asbestos concentrations during valve work averaged 0.013 f/cc and 0.008 f/cc (PCME), respectively. Area samples averaged 0.008 f/cc, 0.005 f/cc, and 0.003 f/cc (PCME) for center, bystander, and remote background, respectively. Assuming a tradesman conservatively performs 1–3 gasket and/or packing replacements daily, an average 8-h TWA was estimated to be 0.002– 0.010 f/cc (PCME).
The results are shown in Table I. The personal exposures to fibers longer than 5 micrometers (l m) during bandsawing were between 2.2 and 4.9 fibers per milliliter (f/mL) by PCM where the current OSHA eight-hour TWA standard is 0.1 f/mL, and the 30-minute excursion limit is 1.0 f/mL. The personal results by TEM were higher; 22.2–49.3 asbestos structures per milliliter...
Results for every area and personal sample showed the 8-hour TWAs were well below the current Occupational Safety and Health Administration permissible exposure limit of 0.1 f/cc.
8-hour TWA exposures of pipefitters and other tradesmen who perfermoed thes activities were below the current PEL and all previous PELs - highest average 8-hr TWA was 0.030 f/cc. 8-hour TWA breathing zone concentrations did not exceed 0.016 f/cc
The average exposure to fibres for group A, averaged over the work period, was 0.04-0.242 fibres/ml as determined by phase-contrast microscopy. Group B - ranged between below the detection limit and 0.02 fibres/ml
Data obtained on asbestos exposure of garage mechanics during brake lining maintenance and repair work show that fiber concentrations frequently in excess of regulated limits are common.
note - document has good information/background for brake linings industry see referenced studies for exposure details. Need to track down underlying studies for this document to be useful

A total of 228 airborne asbestos samples were collected over the course of the 3-day study, including 78 worker samples, 40 assistant samples, 57 area samples, 18 clearance samples, six background samples, nine ambient samples, and 20 field blanks. Of these samples, a total of 58 worker samples, 26 assistant samples, and 52 area samples were used in the analysis since they were collected during activities involving asbestos-containing components. In addition, a total of 59 bulk samples were collected on the associated packing and gasket material, as well as on miscellaneous dust created during valve work.	Complete valve overhauls were performed inside an enclosed room by two retired mechanics with 50 combined years of training and experience in the U.S. Navy, servicing and repairing equipment.
nine samples, see Table 1 for details	one site
80 total samples - see Table 1	The fittings used during this study were obtained intact from a decommissioned industrial power plant and U.S. Navy destroyers
multiple datasets for different worker activities - 100+ samples taken	one site, recreated Navy's work practices in a contaminant-free enviornment during an 8-hour workday
21 samples total - 11 for group A, 10 for Group B	one - ARCO Chemical in Netherlands
ten samples	multiple, exact number unclear
N/A	N/A

Short term and 8-hr TWA estimates obtained from short term samples
Short-term
8-hr TWA
4 and 8-hr TWA
Short term and 8-hr TWA
short-term, bulk
N/A

Exposures to airborne asbestos during the removal and installation of internal gaskets and packing associated with a valve overhaul were characterized and compared to published data according to different variables (e.g., product, equipment, task, tool, setting, duration).	two	Personal breathing zone and area samples were collected during twelve events simulating gasket and packing replacement, clean-up and clothing handling.
A simulation of bandsawing sheet asbestos gasket material was performed as part of a retrospective exposure evaluation undertaken to assist in determining causation of a case of mesothelioma. The work was performed by bandsawing a chrysotile asbestos (80%)/neoprene gasket sheet with a conventional 16-inch woodworking bandsaw inside a chamber.	one worker, simulation study	personal breathing and area
The activities tested included flat blade scraping, hand wire brushing, power wire brushing, making gaskets with a ball-peen hammer, and stem packing removal and replacement. All activities were performed dry.	Personal samples were collected from the breathing zones of the two individuals performing the work for the duration of the 8-hour test cycle.	personal sampling
replacing gaskets and packing materials - formation, removal, and storage of gaskets, as well as the scraping of flanges and the replacemetn of valve packing	simulation - not relevant	personal and area
Two groups were studied: group A, who only removed gaskets if they could be removed easily and without breaking; and group B, who removed gaskets which were left by the first group. For both groups, the gasket was first made wet before removal.	unspecified	personal
Data obtained on asbestos exposure of garage mechanics during brake lining maintenance and repair work	unspecified	personal air samples
N/A	N/A	N/A

maritime?	16-84 min
The work was done inside a specially constructed chamber - see report for details	6-30 min
An isolation test chamber shown in Figure 1 was constructed in which to conduct the study.	8-hour test cycle
enclosure (27 cubic meters)	8-hour test cycle
chemical site	69-432 min
franchised auto dealer garages, taxi fleet repair shops, and a municipal truck repair shop. all located in New York Cit	0-14 min
N/A	N/A

Airborne asbestos concentrations were measured during activities conducted during twelve sampling events. Ten of these events characterized exposures during valve overhaul work which included the removal and installation of asbestos-containing packing and/or gaskets contained within ten vintage valves (Event 1, 3–11), one characterized exposures associated with post-valve overhaul clean-up work (Event 2), and one characterized exposures during the handling of coveralls worn during the study (Event 12). See study for additional details
Three sets of samples were taken. During the saber saw cutting to reduce the sheet to manageable-size pieces for bandsawing, a single personal sample (A) was taken from the right side of the operator's breathing zone. The second set of samples was taken during the cutting of the two large pieces to smaller pieces (approximately 12 cm £ 15 cm). (samples B to E.) That cutting was interrupted by a power failure for a few minutes, as indicated on Table I. The third set of samples was taken during the cutting (for a few minutes) of the 12 cm £ 15 cm pieces into halves. (samples F to J, no G used.)
The study was conducted as 10 separate cycles in an isolation chamber to eliminate outside influences. Each cycle was conducted at the rate of one fitting per hour over an 8-hour period. The frequency of one fitting per hour was based on the activity rates observed by the authors, reported in previous published field gasket studies, and those in reerence estimating manuals.(18,19) or reference text books.
N/A - simulation
Not stated, implied removal of gaskets is not done often (once a year?)
N/A
N/A

The asbestos bulk content of the packing material removed from the valves was ND-<1% chrysotile (1 valve) and 40–70% chrysotile (3 valves); no asbestos was detected in the packing material removed from the remaining six valves. The bulk content of the packing material installed in the valves ranged from 25% to 70% chrysotile asbestos. The asbestos bulk content of the gasket material removed from the valves was ND-<1% chrysotile (4 valves), <1% chrysotile (1 valve), and 50–55% chrysotile (2 valves); no asbestos was detected in the gasket material removed from the remaining two valves. The bulk content of the gasket material installed in the valves ranged from 45% to 65% chrysotile asbestos. No amphibole fibers were detected in any of the gasket or packing materials removed or installed into the valves.
The material examined was a neoprene-impregnated sheet gasket, 0.3175 cm (1/8 inch) thick. The asbestos content of the gasket as stated by the manufacturer was 80 percent chrysotile.
The old packing material was all fibrous, and when it contained asbestos, it varied from 40 to 80% chrysotile. The ''new'' asbestos-containing packing material used for the event cycles was from unused new old stock (NOS). This material was Garlock style 733, which is a graphite impregnated 80% chrysotile square braided packing. The 16 valves were packed using new valve packing tools purchased from a catalog.
removed gaskets contained 60-80% chrysotile asbestos, and the installed gaskets contained 70-80% chrysotile asbestos.
Not specified
presence of chrysotile, ranging from 2 to 15%, in brake drum dusts, particle size distribution discussed in article
N/A

The air exchange in the room (passive ventilation) was found to be approximately 2–3 air changes per hour (ACH).	Clothes handling (i.e., shaking and folding of coveralls worn during valve overhaul work) was also studied. In total, six coveralls worn by the worker and the assistant (one pair each per day) were collected and sealed separately in plastic-lined bags. At the conclusion of the study, coveralls worn by the mechanic and assistant and collected each day of the testing (new coveralls were worn each day) were shaken, folded, and turned inside out for approximately 1–3 min by a volunteer, simulating the handling of these potentially contaminated work clothes (Event 12).
The entire chamber was ventilated during all sawing by drawing air into the entry of the clean room with a Nilfisk Model GS 80 HEPA-filtered vacuum cleaner placed at the end of the chamber farthest from the entry. The air flow rate was approximately 0.99–1.13 cubic meters per minute (35–40 cubic feet per minute), for an air exchange rate of 3.2–3.7 air changes per hour (ACH).	All sawing work was done by the author, wearing disposable garments over street clothes, and a properly fitted half-mask respirator with HEPA filter cartridges.
The chamber was designed and constructed to be a static environment. During the test there was no air movement into or out of the chamber.	simulation
n/a - simulation	simulation
Not mentioned	HEPA filter full-face mask respiratory, hooded coveralls, gloves, boots
States engineering controls were not used	States workers didn't use PPE
N/A	N/A

These samples were analyzed using PCM and TEM methods and PCM-equivalent (PCME) airborne asbestos concentrations were calculated. A meta-analysis was performed to compare these data with airborne asbestos concentrations measured in other studies involving gaskets and packing.	Monitoring Data	1	Approved NIOSH methods	1
with analysis of collected samples by transmission electronmicroscopy (TEM) and phase contrast microscopy (PCM). These were supplemented by qualitative scanning electron microscopy (SEM) examinations of some of the airborne particles collected on the filters	Monitoring Data	1	Approved NIOSH methods	1
Samples were collected and analyzed by PCM following OSHA ID-160, which is essentially the same as NIOSH method 7400, A Rule	Monitoring Data	1	OSHA ID-160, same as NIOSH 7400	1
phase contrast microscopy (PCM) analysis	Monitoring Data	1	Approved NIOSH methods	1
PCM and transmission electron microscopy	Monitoring Data	1	Approved NIOSH methods	2
The presence of chrysotile, ranging from 2 to 15%, in brake drum dusts, was demonstrated by X-ray diffraction, transmission electron microscopy. selected area electron diffraction, and electron microprobe analyses	Monitoring Data	1	Approved NIOSH methods	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	US University study, published in International Journal of Occup and Env Health	1

United States	2	Airborne asbestos exposures associated with gasket and packing replacement	1
United States	1	In-scope use	2
United States	2	gasket and packing activities in industrial and maritime environments	2
United States	2	gasket and packing activities	2
OECD, Netherlands	2	gasket removal in chemical industry	3
United States	1	in scope use	3
United States	1	In-scope use - automotive brakes	1

2014	1	Sample size and distribution clearly characterized, along with statistics	1
2000	1	Individual samples provided, so distribution can be fully characterized.	1
2002	1	Sample size and distribution clearly characterized, along with statistics	1
2006	1	Sample size and distribution clearly characterized, along with statistics	1
1996	1	Sample size and distribution clearly characterized, along with statistics	1
1976	2	Only mean and ranges provided for most of the data	1
2012		Not applicable; no data provided	

well described within document	1	well described within document	**1.22**
well described within document	2	includes discussion of variability, not uncertainty, which could be determined from underlying methods	**1.33**
well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.56**
well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.56**
well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.89**
well described within document	2	includes discussion of variability, not uncertainty, which could be determined from underlying methods	**1.67**
Not applicable; no data provided		Not applicable; no data provided	**1.00**

2594497	Airborne asbestos exposure during light aircraft brake replacement	Yes	Colin	Other
2599024	Evaluation of asbestos exposure within the automotive repair industry: A study involving removal of asbestos-containing body sealants and drive clutch replacement	Yes	Colin	Aftermarket auto parts
3080278	Environmental And Occupational Health Hazards Associated With The Presence Of Asbestos In Brake Linings and Pads (1900 To Present): A “Stateof-the-Art” Review	Yes	Colin	Aftermarket auto parts

aircraft brake pad replacement	Solid	Inhalation
removal of asbestos-containing body sealants and drive clutch replacement	Solid	Inhalation
asbestsos in brake linings and pads (1900 to present)	Solid	Inhalation

Personal air samples did not detect any measurable amount of asbestos fibers during the brake changing or subsequent cleanup procedures. Analysis of personal samples (n = 9) using phase contrast microscopy indicated airborne fiber concentrations at or below 0.003 f/ml as 8-h time weighted averages (TWAs) and less than 0.069 f/ml averaged over 28–30 min sampling periods. Airborne chrysotile fibers were detected by two area air samples with fiber concentrations remaining at or below 0.0013 f/ml over an 8-h TWA.
the average asbestos concentration for personal breathing zone (PBZ) samples during seam sealant removal was 0.006 f/cc (fibers/cubic centimeter of air). Many other air samples contained asbestos at or below the analytical limit of detection (LOD). The highest asbestos corrected airborne fiber concentration observed during clutch installation was 0.0028 f/ cc. This value is approximately 100 times lower than Occupational Safety and Health Administration's (OSHA) permissible exposure limit (PEL) of 0.1 f/cc.
Between 1960 and 1974, five epidemiology studies of friction product manufacturing workers were conducted. During this same time period, the initial studies of brake lining wear (dust or debris) emissions were conducted showing that automobile braking was not a substantial contributor of asbestos fibers greater than 5µm in length to ambient air. During the post-1974 time period, most of the information on exposure of brake mechanics to airborne asbestos during brake repair was gathered, primarily from a series of sampling surveys conducted by the National Institute of Occupational Safety and Health in the United States. These surveys indicated that the time-weighted average asbestos concentrations (about 1–6 h in duration) during brake servicing were between 0.004 and 0.28 fibers per cubic centimeter, and the mean time-weighted average concentration was about 0.05 fibers per cubic centimeter. The data also showed that brake mechanics were not exposed to time-weighted average concentrations above workplace exposure limits in effect at the time of the study. Finally, there were 20 studies published during this time period evaluating asbestos exposure or asbestos-related health effects in friction product manufacturing workers. These studies indicated that these workers were historically exposed to concentrations of chrysotile fibers perhaps 10 to 50 times greater than those of brake mechanics, but the risk of asbestosis, mesothelioma, and lung cancer, if any, was not apparent, except for those workers who had some degree of exposure to amphibole asbestos during their careers.

9 personal samples, 2 area	one site
84 area samples, 14 PBZ samples	one site
Between 1930 and 1959, eight studies were conducted for which friction product manufacturing workers were part of the population assessed. These studies provided evidence of asbestosis among highly exposed workers, but provided little information on the magnitude of exposure. The U.S. Public Health Service proposed the first occupational guideline for asbestos exposure in 1938.	Multiple - see details in literature review

28-30 min short term and 8-hr TWA estimated from 1-hr samples
Short-term and 8-hr TWA
Literature review - This article presents a “state-of-the-art” analysis of what was known over time about the potential environmental and occupational health hazards associated with the presence of chrysotile asbestos in brake linings and pads. As part of this analysis, the evolution of automobile brakes and brake friction materials, beginning with the early 1900s, is described.

an aircraft fitted with asbestos containing brake pads had brake changes performed	one worker, simulation study	personal and area
Two independent assessments were performed of airborne asbestos concentrations generated during automotive repair work on vintage vehicles . The first involved removal of asbestos-containing seam sealant, and the second involved servicing of a drive clutch.	one professional mechanic	PBZ, area
"This analysis is divided into three time periods: 1900 to 1959, 1960 to 1974, and 1975 to 2002. These were selected based on what were perceived to be seminal events." SEE CONTINUATION OF THIS PARAGRAPH IN STUDY brake linings and pad repair, friction product manufacturing	Multiple - see details in literature review	Multiple - see details in literature review

The brake changing process took place in a closed, unventilated aircraft hanger and all operations were performed according to the manufacturer's recommended procedure.	28 - 63 min samples
This study was conducted in an operational automotive repair facility located in Ypsilanti, Michigan. The specific workspace used for this testing was a three bay garage.	126 - 321 min
Multiple - see details in literature review	Multiple - see details in literature review

Two complete brake changes were performed during two air sampling sessions, one for each of the aircraft's main wheels.
In total, fourteen individual test sessions were conducted during removal of asbestos-containing seam sealant. In the first test cycle, the mechanic removed the mastic material with a hand scraper. Subsequently a pneumatic chisel was used in removing sealant from alternative sites of the same wheel well. Seam sealant was removed during 15 min test intervals. During the first day of testing, the mechanic performed eight, 15 min-duration removal exercises on the Mustang Coupe (two within each of four wheel wells), and one 15 min-duration removal exercise on the Mustang Fastback. On the following day, five additional 15 minduration removal exercises were performed on the Mustang Fastback. All outside doors to the service facility were closed during each test session. Following each 15 min sampling period, the bay and pedestrian doors were opened for approximately 30 min to facilitate "airing-out" of the automotive service facility. Additional activities were performed during the clean-up phase including removal of debris, wet-mopping of the floor and replacing/ repositioning of the air samplers.
Multiple - see details in literature review

Following removal of the test brake pads from the aircraft, 2 of the 4 pads were submitted for analysis of asbestos content. This analysis, performed using Polarized Light Microscopy (PLM) indicated the presence of 10% (by area) chrysotile asbestos in each pad.
Despite the relatively high concentrations (5.6–28%) of chrysotile fibers detected within bulk samples of seam sealant
N/A

n/a - simulation	not discussed
The automotive service facility had no ventilation system representing ‘‘the worst case” scenario for a mechanic engaged in the servicing of vehicles.	not discussed
Not mentioned	Not mentioned

PCM / TEM	Monitoring Data	1	Approved NIOSH methods	1
Samples were analyzed using phase contrast microscopy (PCM) and transmission electron microscopy (TEM)	Monitoring Data	1	Approved NIOSH methods	1
Multiple - see details in literature review	Reports for Data or Information Other than Exposure or Release Data	1	Published in peer reviewed scientific journal: Journal of Toxicology and Environmental Health	1

United States	2	not automotive	1
United States	1	in scope use	1
United States	1	in scope use	2

2009	2	Statistical distribution of results not described.	1
2008	1	Sample size and distribution clearly characterized, along with statistics	1
Spans multiple time periods, with the most recent data being from 1975 to 2002	3	Statistical distribution of results not described.	1

well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.44**
well described within document	1	well described within document	**1.00**
well described within document	2	includes discussion of variability, not uncertainty, which could be determined from underlying methods	**1.56**

3080975	An Australian Study to Evaluate Worker Exposure to Chrysotile in the Automotive Service Industry	No	Colin	Aftermarket auto parts
3093764	Asbestos Dust Exposure During Brake Repair	No	Colin	Aftermarket auto parts
3099099	EVALUATION OF BRAKE DRUM SERVICE CONTROLS AT U.S. Army Armor Center Fort Knox, Kentucky	No	Colin	Aftermarket auto parts
3099476	EVALUATION OF BRAKE DRUM SERVICE CONTROLS AT United States Postal Service Vehicle Maintenance Facility Nashville, Tennessee	Yes	Colin	Aftermarket auto parts

automotive / multiple	Solid	Inhalation
automotive brake repair	Solid	Inhalation
brake drums in automobiles, jeeps, trucks, trailers, and buses	Solid	Inhalation
brake drums for jeep delivery vehicles, thirteen seven ton internation trucks, three mack and two white tractors, seven trailers	Solid	Inhalation

Chrysotile exposure of car mechanics measured by PCM was typically below the reportable detection limit of 0.05 f /mL, irrespective of whether disc brake, drum brake,
or clutch was being serviced.

In the three brake shoe relining workshops, task specific exposure reached up to 0.16 f /mL in the processes of cutting and radius grinding.

TEM results were generally higher, due to its higher resolution power. The median diameter on samples taken from the servic e garages (passenger c ars), as determined by TEM, was 0.5± 1.0 micro-m; and was between 0.2± 0.5 micro-m for the brake bonding and gasket proc essing workshops, while that for the bus servic e depot was 0.1± 0.2 micro-m. Most of the respirable fibers (84%, mainly forsterite) from the bus servic e depot were below 0.2 micro-m in diameter whic h is the resolution limit of PCM. In the brake bonding and gasket c utting workshops, 34 perc ent and 44 perc ent of the chrysotile fibers were below 0.2 micro-m in diameter.

Short-term asbestos dust exposures were measured by light microscopy in 101 personal samples during blowing out of brakes, and grinding and turning of brake linings. During blowing out of car brakes, as well as during grinding of brake linings, the product of fiber concentration with length > 5 micro-m and sampling time amounted to about 4-5 fibers/ml-min corresponding to a concentration of 10^6 fibers/m3 over 4-5 min. For trucks and buses higher amounts of 5-10 * 10^6 fibers/m3 min were observed during these operations.

The author concludes that this facility did not appear to have asbestos controls that were sufficient to protect the workers from asbestos dust arising from service operations. The advisability of conducting an in depth evaluation of the controls at this facility will be made in the future, after all the preliminary surveys and finalization of the protocol for the project has been reached. - No monitoring data

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Personal and Area - see Tables 1 and 2

Nineteen of the 20 personal samples taken during 10 brake jobs were below the deteet10n llrn1t of 0 004 fibers/cc Beeause personal sample concentrat10ns represented exposures whlle serv1clng brakes, and thlS usually takes no more than 2 to 5 hours per sh1ft, the meehan1cs t1IDe-welghted averages exposure would be even lower than the measured levels. Only 1 of the 76 samples analyzed by PCH was above the detectable lim1t, thus, analyses eomparing brake mechanLcs, type of veh1cle, and d1fferences between brake inspectlon and brake replacements were not done

A total of 68 (11 personal and 57 area) air samples were collected	A study was conducted in Sydney, Australia, in 1996 to investigate the current exposure levels, control technologies, and work practices in five service garages (four car and one bus), three brake bonding workshops, and one gasket processing workshop.
Ninety dust measurements in 76 service stations were made by phase contrast microscopy and by scanning transmission electron microscopy. 101 personal samples	76 service stations
N/A	A visit was made to the U.S. Army Armor Center (SIC-9711), Fort Knox, Kentucky, as part of a study of asbestos (1332214) hazards encountered during the maintenance and repair of vehicular brakes.
60+ samples Real-tlme data collection was durlng actual brake maintenance operatlons, approximately an hour 1n duratlon, and was obtalned durln~ all 10 brake malntenance jobs Nlne different operators performed the brake maintenance jobs on these 10 vehicles	One site - postal site

Short-term: less than 2 hours
Short-term
N/A
Personal air samples for asbestos were collected in duplicate on 0 8-um pore slze, 25 mm-dlameter cellulose ester membrane filters at 3 0 lpm for the duration of a slngle brake job, or 2 hours, whlchever was longer The total volume collected (360 llterS) allowed a limit of detection of approXlmately o 004 flbers/cc by Phase Contrast Microscopy (PCM) analysls

Summarized in Table I	Summarized in Table I - depends on worker activity	personal and area
The number of working operations which were registered in 76 automobile garages during dust sampling can be seen in Table I.The use of exhaust ventilation is also indicated.	210 vehicle mechanics	Personal, area
Exposure to asbestos may occur during cleaning, maintenance, and repair of brakes. Vehicular brakes are serviced at this facility utilizing a H.B. Fuller Multi-Clean wet and dry power vacuum cleaner supplemented by wet bristle brushing. Once the wheel has been removed, the hub is vacuumed prior to any attempt to remove it. If force is needed, the back of the hub is vacuumed several times during the removal process. Once the hub is removed, it is placed gently on the floor and the hub and surrounding areas vacuumed. The brake shoe area is vacuumed in conjunction with wet bristle brushing and water rinsing. Once the brake area is free of all accumulated dust, the brakes are serviced.	Not specified	N/A
Wheels are elevated, removed, and the brakes inspected. Loose dust is cleaned from the drums and brake assemblies by vauuming, wet or dry wiping/brushing, using compressed air, or a combination of these methods. Parts are tehn replaced or repaired as needed and the brake system is reassembled and adjusted. This facility 1S currently replacing asbestos brake shoes with the nonasbestos type when vehicle brakes are repa1red OUr control evaluatlon at this fac~llty concent~ated on Jeep vehlcle ma1ntenance to determlne the variabllity of control effectlveness In the same model vehlcle dU~lng 10 separate vehlcle brake repa1r or inspecll0ns	The garage is staffed with nlne mechanics, one lead mechanlc, four garagemen, one body man and two superv1sors.	personal and area

Area samples were taken at fixed locations in the vicinity of the work tasks, and between one and two meters above floor level.	Single sample durations were selec ted not to exc eed two hours, such that only a maximum of 240 liters of air would be collec ted. This approach has resulted in a prac tic al detec tion limit of around 0.05 f/mL (or 10 ® bers/ 100 graticule areas) by phase contrast mic roscopy (PCM).
Automobile maintenance shops	In general, personal sampling was extended over the whole service operation which lasted 1 h or more, but in some cases personal sampling was limited to certain dust-generating work operations. Therefore, depending on the duration of the work operation, sampling time varied from less than 3 min to more than 1 h.
N/A	Not discussed
Vehicle maintenance garage	SlX mechanics work from 6'00 a m to 2'30 p m. and four mechanlcs work fram 9'30 a,m to 6'00 pm. wlth all 10 mechanics on duty from 9 30 a m to 2'30 p m

Summarized in Table I - depends on worker activity
From occupational histories of 210 vehicle mechanics, an average duration of employment of X f s = 21 f 10 years and a mean cumulative fiber dose of X f s = (0.54 1.1) - lo6 fibers/m3 - years were calculated.
Approximately 800 vehicles were maintained at this center each year with about 100 brake jobs being needed during that course of time.
Unsure, assumed daily

On bulk - see intro excerpt: "Chrysotile is still used in the manufac ture of motor vehic le brake and c lutch materials in Australia, although inc reasingly other materials (for example, metal oxides, synthetic mineral and organic ® bers) have been substituted for asbestos in the fabric ation of fric tion materials. Fric tion materials commonly found in brake and c lutch systems c ontain about 40-60 percent (drum brakes and c lutc hes) and 20 perc ent (disc brakes) chrysotile asbestos (together with phenolic -type resins as binder and various other additives to improve performanc e). Amosite, c roc idolite, or other amphibole asbestos varieties are not used bec ause they are too harsh and tend to sc ore the brake drums or disc s.(1) The actual size distributions of the fibers sampled from the four types of establishment, as determined by TEM, are presented in Figures 3±6.
By electron microscopy, extremely fine chrysotile fibers with lengths < 5 micro-m were identified in brake drum dust. Fibers with lengths >= 5 micro-m constituted less than 1 % of all chrysotile fibers counted in brake drum dust.
N/A
A bulk brake dust samples for each vehicle and a bulk rafter sample for the site were collected and analyzed for asbestos by TEM

Summarized in Table I - depends on worker activity	Summarized in Table I - depends on worker activity
Compressed air was used to blow out loose dust in 15 of 36 garages servicing cars and in 19 of 40 garages servicing trucks or buses. Special exhaust ventilation systems were used during blowing-out operations in 8 of the car garages and in 10 of the bus and truck garages. In addition to compressed air blowing, brushing and the use of solvents were observed. Only brake systems heavily contaminated with oil and dirt were cleaned with hot water.	Not discussed
Workers were encouraged to use good work practices including the complete water rinsing and wet bristle brushing of all exposed parts prior to handling, gently removing and handling all parts, consistently using all required personal protective equipment, and following instructions for use of asbestos control devices. This U.S. Army Armor Center uses a H.B. Fuller Multi-Clean wet and dry power vacuum cleaner supplemented by wet bristle brushing and water rinsing in an attempt to control asbestos fibers generated during the servicing of vehicular brakes. The vacuum cleaner is not equipped with a HEPA filter which is necessary to entrap the asbestos dust inside the collector and prevent re-entry into the working environment. The wet bristle brushing and water rinsing may control asbestos dust not already disseminated into the working environment by the vacuuming action.	NIOSH/MSHA-approved asbestos dust masks are provided and their use required during brake servicing (see Attachment A).
Ventllatlon of the garage is mlnxmal There is a serles of roof~mounted fans on each slde of the garage These are operated 10 summer to remove hot alr from under the roof area In the cooler months, these fans are not used and the ~nlet dampers are kept closed There 19 no provision for provldlng fresh, heated air from the outslde When the 14 bay doors can be left open during mild weather, they provlde a lot of useful ventllation DuCLOS colder weather, the garage alr temperature 19 kept at 60~65~F at the mechanlC9 working level	Not specified.

Fiber concentrations were determined by the traditional phase contrast microscopy (PCM) method and 16 selected samples were analyzed by the more powerful transmission electron microscopy (TEM)	Monitoring Data	1	PCM and TEM	2
Fiber concentrations were determined by light and electron microscopy. Fibers with lengths > 5 micro-m were counted with phase contrast light microscopy using the reference method of the AIA [Asbestos International Association, 1979]	Monitoring Data	2	PCM and TEM in accordance with the AIA	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	NIOSH	1
PCM / TEM	Monitoring Data	1	NIOSH	1

OECD, Australia	1	in scope use	3
OECD, Germany	1	in scope use	3
United States	1	in scope use - vehicular brakes	3
United States	1	in scope use	3

1996	1	Sample size and distribution clearly characterized, along with statistics	1
study ranges from 1975 to 1983	1	Sample size and distribution clearly characterized, along with statistics	1
survey is from 1985		Not applicable; no data provided	
1987	1	Sample size and distribution clearly characterized, along with statistics	1

well described within document	1	well described within document	**1.56**
well described within document	1	well described within document	**1.67**
Not applicable; no data provided		Not applicable; no data provided	**1.67**
well described within document	1	well described within document	**1.44**

3099480	EVALUATION OF BRAKE DRUM SERVICE CONTROLS AT Cincinatti Bell Maintenance Facility Fairfax, Ohio	Yes	Colin	Aftermarket auto parts
3100008	Exposure to Asbestos During Brake Maintenance of Automotive Vehicles by Different Methods	No	Colin	Aftermarket auto parts
3100991	Asbestos Exposure During Servicing of Motor Vehicle Brake and Clutch Assemblies	No	Colin	Aftermarket auto parts
3531297	An Evaluation of the Historical Exposures of Mechanics to Asbestos in Brake Dust	Yes	Colin	Aftermarket auto parts
3531407	Asbestos Exposure among Transmission Mechanics in Automotive Repair Shops	No	Colin	Aftermarket auto parts
3531556	Characterization of Vehicular Brake Service Personnel Exposure to Airborne Asbestos and Particulate	Yes	Colin	Aftermarket auto parts

brake repair for vans, automobiles, and a scooter - see Table 1	Solid	Inhalation
brake repair for automobiles - passenger cars, trucks and buses	Solid	Inhalation
brake servicing for automobiles	Solid	Inhalation
brake servicing for automobiles	Solid	Inhalation
automotive transmission repair	Solid	Inhalation
brake servicing for automobiles	Solid	Inhalation

Individual fllter sample results for alrborne asbestos fibers are presented in Table 1 of Appendix A and are summar1zed in Tables 2 and 3 The results for samples analyzed by Phase Contrast Mlcroscopy (PCM) are presented in Table 2 The use of the vacuum (wlth a HEPA fllter) for vehlcles such as vans and automobiles, resulted in very low exposures to flbers (PCM) and very low asbestos exposures (TEM) based on personal samples, lndlcatlng effective control of the asbestos dust. Personal exposures (PCM) were low compared to the OSHA standard of 0.2 fibers/cc, the NIOSH recommended standard of 0.1 fibers/cc.
The estimated average asbestos exposure during the workday (8-hr time-weighted average) was 0.1-0.2 fibers/ cm3 during brake repair of trucks or buses, and under 0.05 f/ cm3 during repair of passenger car brakes when the background concentration was not included in the calculations. The background concentration was estimated to be less than 0.1 f/ cm3 • During brake maintenance of buses and trucks, heavy exposure, 0.3-125 (mean 56) f/ cm3 , was observed during machine grinding of new brake linings if localexhaust was not in use. Other short-term operations during which the concentration exceeded 1 f/ cm3 were the cleaning of brakes with a brush, wet cloth or compressed air jet. During brake servicing of passenger cars, the concentration of asbestos exceeded 1 f/ cm3 only during compressed air blowing without local exhaust. The different methods of decreasing the exposure and the risk of asbestos-related diseases among car mechanics are discussed.
This is a NIOSH communication alert - no monitoring data included. Contains alerts on best practices for minimizing asbestos dust during servicing of motor vehicle brake and clutch assemblies - evaluate if needed, but likely irrelevant to report considering other sources
Estimated and measured 8-hour TWAs for mechanics servicing automobiles and light trucks ranged from<0.002 to 0.68 f/cc, with a mean of 0.04 f/cc. In contrast, the 8-hour TWAs for mechanics servicing heavy trucks and buses ranged from 0.002 to 1.75 f/cc, with a mean of 0.2 f/cc, suggesting that these mechanics experienced higher daily asbestos exposures than automobile and light truck mechanics. Brake job and 8-hourTWAs for brake mechanicsworldwide were found to be similar during the same time periods, and they were consistently belowcontemporaneous occupational health standards in the United States. The increased use of brake-dust control measures in some garages resulted in at least a 10-fold decrease in the TWA airborne concentrations of asbestos from the 1970s to the late 1980s.
On at least one of the days sampled, all riveters were exposed to asbestos concentrations that exceeded the US OSHA permissible exposure limit or the Colombian permissible limit value. Additionally, from the forty-seven 30-min short-term personal samples collected, two (4.3%) exceeded the US OSHA excursion limit of 1 f cm−3
Area and personal monitoring of fiber levels demonstrated counts (without compressed air) that ranged from 0.05 to 0.2 f/cc. Fiber counts when using compressed air averaged from 0.05 to 0.9 f/cc. "Brake service monitoring in these tests demonstrates that asbestos fiber concentrations, considered on a time weighted average basis, should not exceed currently acceptable workplace standards whether or not the worker uses compressed air, nor during the arc grinding process when arcing is conducted in accord with the design of the equipment."

60+ see table 2 and 3 for breakdown of # of samples per sampling type and per activity	Fairfax maintenance garage - one site
100+ - see Table I for number of samples per operation	24 Finnish workplaces - The authors carried out measurements in 7 out of 24 workplaces under study
N/A	N/A
Nearly 200 brake job and 8-hour TWA airborne asbestos samples were analyzed to assess how asbestos concentrations varied by type of vehicle serviced, country in which mechanics worked, time period, and brake-cleaning method. To facilitate comparisons, brake job TWAs were converted to estimated 8-hour TWAs using the durations and number of brake jobs performed per mechanic each day.	Unsure, study combines large number of other studies
150	2
Phase I - 36 samples Phase II - four runs, continuous sampling? Ask for second opinion	two - one for Phase I, one for Phase II

Short-term: 2-3 hour samples
Short-term and 8-hr TWA
N/A
This analysis focuses on 30 years of data collected during the brake repair event (e.g., a brake job) and 8-hour time-weighted average (TWA) personal samples. A brake job TWA represents the average concentration a mechanic experienced during brake servicing, rather than throughout theworkday, and an 8-hour TWA represents the average airborne concentration of asbestos for the entire workday (which would involve brake work and other activities).
8-hr TWA
area and personal monitoring of fiber levels

brake maintenance and repair - see breakdown of exposure results by activity	2 mechanics	personal, area, real time monitoring, bulk sampling
brake repair of trucks, buses, passenger cars	Not specified	personal and area
N/A	N/A	N/A
This article presents a historical analysis of published data regarding the exposure of brake mechanics to asbestos as a result of doing brake work.	Unsure, study combines large number of other studies - see study	Personal, area
Manipulating clutch facings (removing rivets and attaching facings to new clutch plate)	3 riveters and 1 supervisor	Personal, area
Evaluation of fibers and total particulate generated during the servicing of drum brakes on motor vehicles as well as during the resurfacing (arcing) of brake shoes was conducted. Conditions for the studies were based on review of contemporary (» 1950–1980) working practices in the industry. This work was conducted in two parts. Phase 1 estimated the release of asbestos fibers and total particulate during brake inspection and replacement of light-duty vehicle rear drum brakes at an auto/truck repair facility. Two distinctwork practices were evaluated: One rear wheel from each vehicle was serviced using compressed air to remove dust while the second rear wheel was serviced without compressed air. The Phase 2 series evaluated the release of fibers and other particulate from arc grinding. For operations conducted under conditions simulating a workplace, a mean of 0.19 f/cc +/- 0.16 was determined.	An experienced, factory-trained person operated the arcing machine for all tests in this series. This person had been the owner-operator of an after-market automotive parts supply facility located in a suburb of a major U.S. city during the interval when arc grinding was prevalent. His facility incorporated a full service drum turning/brake-shoe arcing shop on the premises	PBZ and area

Maintenance garage	2-3 hour samples
breathing zones, unclear where respirable dust measurements were made (stated measurements were taken "in working area")	Eight-hour time-weighted average (TW A) concentrations of asbestos were estimated for different work procedures.
N/A	N/A
Various, study combines large number of other studies - see study	Various, study combines large number of other studies - see study
Unsure where area samples were taken	263-553
Phase I - The site for this study was a public service organization auto/truck repair facility. Phase II - The first test sequence of Phase 2 (identified as Run 1) was conducted in a suburban garage setting	See study for exact length of each procedure For purposes of the experiments described in Phase 2, it was assumed that a worker would conduct twice as many brake jobs in a day as would occur in a typical shop. If a worker did nothing but turn drums and arc grind the brake shoes, he could complete work on 8 vehicles within an 8-hour workday.(15

This Falrfax sattelite garage has two mechanics on its staff and they are assigned to the second shift only. During the latter part of the 2nd shift, they were the only Bell employees actually present and workIng in the garage. The mechanics and other garage employees are members of the CommunIcation Workers of America
Mechanic will maintain the brakes of an average of 12 trucks or buses in a year
N/A
Unsure
Unsure
N/A - simulation study

Bulk samples were collected from the rear wheel drums of six of the seven vehicles tested. In addltlon, a rafter sample from the garage was collected and analyzed. Less than one percent of the mater1al in the brake drum bulk samples was asbestos, but from 24 to 100 percent of the f~bers in the brake drum bulk samples were chrysoti1e, and in fivve of the S1X samples at least 96 percent of the fibers were chrysot11e.
Not discussed
N/A
Various, study combines large number of other studies - see study
The asbestos content bulk analysis showed that the two brands reported by the workers as asbestos-containing products had a 20% content of chrysotile. There was no variation in asbestos content between the four clutch facings analyzed per brand. The four clutch facings of the brand reported by workers as asbestos free, had a 25% content of fibrous glass and asbestos were 'non-detected'.
For asbestos content verification, a bulk sample was collected from each of the 6 pairs of shoes used in this study. Samples were submitted to a certified independent laboratory.(20) The laboratory utilized a standard Polarized Light Microscopy (PLM) method for analysis of these samples,(21) indicating that chrysotile was the only asbestiform material present. Concentrations ranged from 50–65% chrysotile.

Several work practices employed by the brake rnechanlCs were (I) to always use the Nilfisk vacuum, (2) If dust is created, try to avoid breath1ng 1t by mov1ng away untll lt clears, and (3) clean up as soon as the job is complete Generally, the mechanics vacuumed each indiv1dual part removed from the b~ake assembly Kurz Model No 480 and TSI Model No 1630 air veloclty meters were used to measure air velocltles to determ1ne alr flow rates ln the garage	See "Company Asbestos Exposure Guidelines" paragraph on pg. 7
not discussed	Not discussed
N/A	N/A
Various, study combines large number of other studies - see study	Not mentioned
One shop had a self-made extractor hood located above the countersink and rivet machines, which was rarely operated. There are two skylights in the roof, one located above the manipulation area, which remained open during the sampling days. Two exit doors remained open during the entire work-shift. The other shop had no ventilation.	Both shops used inappropriate respiratory equipment
n/a - simulation	In addition to the four sequences of testing presented above, the operator's one-piece suit was carefully removed and then evaluated for the presence of fibers potentially generated during his arcing work.

PCM / TEM	Monitoring Data	1	NIOSH	1
Asbestos fibers (length over 5 um, diameter under 3 um and the aspect ratio over 3: I) were counted by a phase contrast-optical microscope according to the standardized method (Finnish Standard SFS 3868).	Monitoring Data	1	PCM according to standardized Finnish method	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	NIOSH	1
Various	Monitoring Data	1	Most studies used NIOSH methods	1
PCM and TEM	Monitoring Data	1	Approved NIOSH methods	3
See page 5 for more details, but generally PCM and TEM for fibers	Monitoring Data	1	NIOSH	1

United States	1	in scope use	3
OECD, Finland	1	in scope use	3
United States	1	in scope use - vehicular brakes	3
United States	1	In-scope use	3
Non-OECD (Colombia)	1	In-scope use	1
United States	1	In-scope use	2

1987	1	Sample size and distribution clearly characterized, along with statistics	1
1987	1	Sample size and distribution clearly characterized, along with statistics	1
1975		Not applicable; no data provided	
study published in 2003, but data collected is from 1970s to late 1980s	1	Sample size and distribution clearly characterized, along with statistics	1
2014	2	Only PCME results displayed, without showing the PCM and TEM results	1
2001	1	Sample size and distribution clearly characterized, along with statistics	1

well described within document	1	well described within document	**1.44**
well described within document	1	well described within document	**1.56**
Not applicable; no data provided		Not applicable; no data provided	**1.67**
well described within document	3	Variability and uncertainty not discussed.	**1.67**
well described within document	2	Discussion of variability, uncertainty not accounted for in presented results	**1.44**
well described within document	1	well described within document	**1.22**

3582125	Asbestos Brake Emissions	No	Colin	Aftermarket auto parts
3610801	EXPOSURE TO ASBESTOS DURING BRAKE MAINTENANCE	No	Colin	Aftermarket auto parts
3615974	Asbestos Fiber Release from the Brake Pads of Overhead Industrial Cranes	Yes	Colin	Other
3646036	Asbestos Exposure of Brake Repair Workers in the United States	No	Colin	Aftermarket auto parts

automobiles brakes	Solid	Inhalation
automobiles brakes	Solid	Inhalation
Asbestos Fiber Release from the Brake Pads of Overhead Industrial Cranes, during use in industrial setting	Solid	Inhalation
brake repair	Solid	Inhalation

not relevant - measures asbestos braking emissions, not exposure from worker activities
the personal exposure of the operators was below the limit corresponding to 50-year exposure (from 1970). TWA average of personal samples was 0.79 f/cm3.
Eight hour time-weighted average (TWA) asbestos fiber concentrations ranged from <0.005 to 0.011 f/cc (PCM), and <0.0026 to <0.0094 f/cc (TEM). There were no asbestos fibers detected by the TEM method from air samples collected during the operation of the cranes.
In addition, Boillat and Lob (8) reported values for various manipulations of the brake-lining material including punching holes for rivets, and grinding. Sampling interval is not given. Fiber counts ranged from 0.3 to 29.2 fibers/ml; four of the nine values were over 5 fibers/ml (5,000,000/m 3). PRESENT STUDY: Fiber concentrations for personal and background samples during blowing dust from drum brakes on automobiles are presented in Table II. The values show extensive variation, but the values at 3-5 feet are bY far the highest, with a mean of 15.9 fibers/ml. Fiber concentrations for personal and background samples during renewing used linings by grinding truck brakes are presented in Table III. The mean concentration for the personal sampler was 3.8 fibers/ml. Fiber concentrations for personal and background samples during beveling new linings for trucks are given in Table IV. The mean concentrations were 37 .5 fibers/ml.

17 for disc brakes and 12 for drum brakes	1
Unsure	1
Forty-four personal and area air samples were collected during the assessment	One site
20+ - see table II, III, IV, and V	In order to provide additional information on this subject, we have investigated asbestos exposure among brake repair maintenance workers in New York City and have initiated a clinical survey of workers employed in the workshops studied.

N/A
Short-term and TWA
TWA
Personal air samples were taken during brake-lining maintenance work both on automobiles and trucks. These were peak samples taken over 2-10 minutes during which the workers were performing certain tasks, such as blowing dust from drum brakes, renewing used linings by grinding, and beveling new linings. Background samples were also taken at varying distances and times

N/A - Not occupational exposure	N/A	N/A
Blowing out of brake dust	2 men studied for personal samples	personal, area
The purpose of this study was to determine the actual contribution of optically (phase contrast microscopy (PCM)) visible airborne asbestos ® bers to the work environment from the operation of overhead cranes and hoists which use asbestoscomposition brake pads.	N/A - simulation study	personal and area
"During brake-lining servicing the wheel is removed and all loose dust is removed from the drums and backplates. Compressed air jets are usually used (Fig. 1). In a two-city survey in the USA, Castleman et al (5) found that 175 out of 220 establishments used this procedure. Alternates include vacuuming and wet brushing. The brake lining itself may require grinding to remove irregularities or removal and replacement. The new lining may require considerable manipulation to fit the brake shoe-beveling edges and punching holes in the material, for example. As an alternative, the brake shoe and lining may be replaced as a unit. A number of studies have measured exposure in such work, and fiber counts reported are summarized in Table I.	"At least 900,000 people in the United States are employed as auto mechanics or garage workers"	Personal and background sampling of workers engaged in brake maintenance work

N/A	N/A
Area samples taken by side of car, in the dust cloud, the adjacent bay, 2 bays away, and the center of the garage	Two 45-min sampling periods for personal samples, static samples were approximately 3-hrs in duration
Crane working area and on crane	An overhead crane assembly comprised of a trolley and two hoists was employed for this study. The crane was operated for two consecutive eight-hour shifts representative of a heavy-duty cycle.
Various, multiple studies	60 - 450 minutes

N/A
Blowing out of brakes is not part of routine
N/A - simulation study
N/A

N/A
Not specified in study
Bulk samples of the brake pad material were obtained and analyzed prior to initiating the duty cycle evaluation. One bulk sample each was obtained from the bridge, trolley, and the main and auxiliary hoist brake pads Analysis was performed using Polarized Light Microscopy (PLM) with dispersion staining. The results of laboratory analysis indicated that each brake shoe material contained 12 percent chrysotile asbestos by weight.
Brake linings pose a potential hazard for asbestos exposure because they contain 33-73% asbestos. Environ release: "Jacko and Ducharme (2) have estimated that 70 million pounds of asbestos (32 million Kg) are worn away from brake linings each year in the United States. Much of the asbestos worn away (around 80%-90%) drops to the road or is emitted into the atmosphere." Several investigators (2-4). have analyzed bulk brake-drum dust for chrysotile and have found weight percentages of between 0.3% (2) to "at most 1 %" (3). Lynch (4) reported percentages of 10% and 15% free fiber in two of fifteen samples. Most of the rest were below 1 %." PRESENT STUDY: Bulk samples of brake-drum dust were collected and analyzed by electron microscopy. One hundred fibers were sized in each sample. Qualitative morphologic comparisons of the fibers with standard chrysotile morphology were made.

N/A - simulation	N/A - simulation
Not specified in study	Not specified in study
N/A - simulation study	N/A - simulation study
Not specified	Not specified

N/A	Reports for Data or Information Other than Exposure or Release Data	1	Optical microscopy using OSHA methods	1
Air sampling using membrane filters. Technique described in the Hygiene Standard for Chrysotile Asbestos Dust, published by the British Occupational Hygiene Society (1968).	Monitoring Data	2	Out of date sampling and assessment techniques: "the sampling and subsequent assessment being in accordance with the technique described in the Hygiene Standard for Chrysotile Asbestos Dust, published by the British Occupational Hygiene Society (1968)"	2
Asbestos fibers were analyzed for by phase contrast (NIOSH 7400) , and transmission electron (NIOSH 7402) microscopy methods.	Monitoring Data	1	Approved NIOSH methods	1
"The standard techniques for filter processing and fiber counting which have been adopted by the Occupational Safety and Health Administration of the US Department of Labor were used (13). Samples of dust collected in the standard manner were examined both by standard optical techniques (fibers/ ml > 5µ) and by electron microscopy to give µg/m3 of air, and the results compared."	Monitoring Data	2	Older methods used (OSHA)	1

United States	4	Emissions during braking - not an occupational scenario within scope	3
OECD - Great Britain	1	In-scope use	3
United States	2	Occupational exposure, not in-scope	3
United States	1	In-scope use	3

1981	1	Sample size and distribution clearly characterized, along with statistics	1
monitoring data is from 1970, out of date with respect to current products/practices	2	Only 6 personal samples during car brake service	2
1999	1	Sample size and distribution clearly characterized, along with statistics	1
exposure data from 1976	2	Statistical distribution of results not described.	1

well described within document	1	well described within document	**4**
Does not have specific durations by sample	3	not discussed	**2.11**
well described within document	1	well described within document	**1.67**
well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.78**

3648228	In-depth survey report: control technology for brake drum service operations at Ohio Department of Transportation Maintenance Facility Lebanon, OH	Yes	Colin	Aftermarket auto parts
3648316	Evaluation of Brake Drum Controls at Pennsylvania Bureau of Vehicle Management Vehicle Maintenance Division Harrisburg, Pennsylvania	No	Colin	Aftermarket auto parts
2581697	Evaluation of bystander exposures to asbestos in occupational settings: A review of the literature and application of a simple eddy diffusion model	Yes	Colin	Other
3081101	Study of asbestos exposure in some applications of asbestos materials in the chemical industry	Yes	Colin	Asbestos Diaphragms

Automobile brake servicing	Solid	Inhalation
brake drum service controls (automobiles)	Solid	Inhalation
brake repair and other categories	Solid	Inhalation
production of asbestos gaskets and filter materials for technological equipment in the chemical industry.	Solid	Inhalation

In this study, eight smaller vehicles and one large dump truck were evaluated. The smaller vehicles, all with rear drum brakes, included two automobiles, one passenger van, and five half-ton pickup trucks. The nine vehicles ranged in age from 1977 to 1985 with total vehicle mileage ranging from 16,000 to 106,000

personal samples - averaged less than 0.004 f/cc

source samples - averaged less than 0.002 f/cc

see more details in Results section on page 14

With readings taken every two seconds, the observed readings over the entire testing period of approximately 15 minutes lay in a 0.08-0.12 mg/m3 range. There were essentially no differences in the averaged readings over the different periods (1) before brake cleaning, (2) during brake cleaning, and (3) after conclusion of brake cleaning.

If only nuisance dust were present, these 0.08-0.12 mg/m3 values are way below the OSHA PEL (permissible exposure level) limit of 10 mg/m3 for 8-hour TWA (time-weighted average) airborne concentrations. However, there is an Not specified amount of asbestos present and the OSHA PEL limit for asbestos fibers, at the time of this survey, was 2 fibers per cubic centimeter (2 f/cc) of air. The present OSHA PEL limit is 0.2 f/cc of air. Results from prior NIOSH investigations demonstrate that the brake dust taken from Clayton bag and prefilter surfaces should contain a low proportion of asbestos fibers (possibly 5-10 percent).

Based on the available data and our modeling results, the authors propose the following approach as a rule of thumb: for persons 1–5 feet from the source, airborne asbestos concentrations can be roughly approximated at 50% of the source concentration; 35% at >5–10 feet, 10% for >10–30 feet, and less than 1% at distances greater than 30 feet. This approach should be helpful for bracketing the range of likely exposures to bystanders being evaluated in asbestos-related dose-reconstruction analyses.

The level of asbestos exposure registered was in the range 0,04 to 0,38 f/cm3 for the operators in the "Diaphragm electrolysis" shop and for the staff in the "Mechanical" shop of "Nephtochim" Co. - from 0.04 to 0.43 f/cm3.

18 personal samples, 9 fender source samples, 9 axle, 10 background, 12 ambient - see Table I and II for details	one site
real-time monitoring	One site - This garage facility occupies an entire floor of a very large two-story Pennsylvania state building located adjacent to the main business district of the state's capitol, Harrisburg
See Table 1, 2 and 3 - copy to sample tracking spreadsheet	See Table 1, 2 and 3 - copy to sample tracking spreadsheet
Not specified	two

personal and area samples; real-time air sampling every four seconds
Short-term
This article presents a review of the publicly available information as it relates to airborne asbestos concentrations at varying distances from a source in an occupational environment. Personal and area samples collected 5–75 feet from the primary worker from workplace surveys conducted in the 1970s and area samples collected 5–50 feet from the primary worker during more recent simulation studies were identified, compiled, and analyzed. As expected, airborne asbestos concentrations generally decreased with distance from the worker who performed a given task. Based on this review, however, the authors found that no systematic research to quantitatively relate fiber concentration with distance from the source (including consideration of fiber length, dilution ventilation, and initial momentum of the particle) has been conducted to date. A simple mathematical model was therefore used, and the results were considered, along with available published data comparing exposure data for both workers and persons/areas near workers. From this analysis, the authors offer guidance for estimating airborne asbestos concentrations at distance from a source.
The sampling was performed observing all requirements of BSS 2200-85 [2], BSS 16909-89 131, BSS 172402-78 [4 I and EN 689/ I 995 [5]. Personal and stationary dust sampling devices of "Higitcst" and "Guilian" types were used.

brake drum servicing for 180 large trucks, 250 pickup trucks, 90 passenger cars, 25 vans, 25 loaders, and a number of other specialized road maintenance units "most of the approximately 300 to 500 brake jobs performed yearly are handled by 5 to 6 mechanics"	11 veteran mechanics, 2 body men, and 3 welders	See page 12 for details
A crew of seven veteran mechanics are full time employees of the garage. Both overhead hoists and floor based hydraulic lifts are employed in a series of bays to raise the vehicles off the floor . The number of brake jobs varies considerably with time, but generally is in a range of 5 to 10 weekly . Housekeeping in the garage is good and there was no dust in the air on visual inspection.	seven	real time air monitoring
Multiple - see Table summaries	Multiple - see Table summaries	Multiple - see Table summaries
The workers from the "Cathode workshop", "Diaphragm electrolysis", "Polymers" Co., Devnja (12 operators) who operate the installation of asbestos diaphragms manufacture and installation of electrolysis cells, and the staff of the "Mechanical" shop of "Nephtochim" Co., Burgas, engaged in the cutting of gaskets made of pressed asbestos - polymer boards (6 workers), were studied.	18 workers total	personal breathing zone

See page 12 for details	personal - single brake job, or 2 hours, whichever was longer area - 8-hr period
adjacent to the Clayton unit	15 minute test cycle
Multiple - see Table summaries	Multiple - see Table summaries
two sites	Duration seems unclear from article - revisit

Not stated, assumed daily
N/A
Multiple - see Table summaries
1 to 2 working shifts, but working shift length not defined

bulk brake dust samples for each sample - collected and analyzed for asbestos by TEM
Not specified in study
Not specified in study
not discussed (sheet gasket cutting summarized in ATSDR tox profile, HERO ID 3098571)

general ventilation system - see page 6 also using a vacuum/enclosure unit to minimize exposure during brake servicing - see bottom of page 6	Not specified
This Pennsylvania state garage uses the BCE-IOOO Clayton unit, comprising a transparent enclosure hood and an HEPA vacuum filter dust collector, for servicing of all vehicular brakes during their cleaning, maintenance, repair, and particularly replacement.	briefly mentions PPE, but does not seem to include PPE used at facility
Not specified	Not specified
The statements made increase the necessity of dust control by technical preventive means and the medical control of the workers exposed to asbestos-related injuries.	The workers werc provided with suitable personal protection equipment for respiratory organs.

PCM/TEM	Monitoring Data	1	NIOSH	1
Real time air monitoring	Completed Exposure or Risk Assessments	1	NIOSH	1
Multiple - see Table summaries	Monitoring Data	1	PCM and TEM used for air samples	1
The hygienic normative standards and methodology for measuring and assessment of the asbestos exposure, used all over the world were applied: mean shift count concentration of respirable asbestos fibres; entire shift personal sampling (BSS 2200-85), PCOM light microscopy (BSS 16909-89).	Monitoring Data	2	BSS 2200-85 [2], BSS 16909-89 131, BSS 172402-78 [4 I and EN 689/ I 995	3

United States	1	in scope use	3
United States	1	in scope use	3
United States	1	In-scope use	2
Non-OECD - Bulgaria	1	in scope use	2

monitoring data is from 1987	1	Sample size and distribution clearly characterized, along with statistics	1
1987 study	3	Sample size and distribution not clearly characterized	3
multiple time periods, up to 2006	2	Statistical distribution of results not described.	1
1998	2	Statistical distribution of results not described.	2

well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.56**
Samples presented in mg/m3	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**2.00**
well described within document	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.44**
Limited discussion of metadata	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**1.89**

2565742	Assessment of potential asbestos exposures from jet engine overhaul work	Yes	Colin	Other
3079461	Trends in Occupational Asbestos Exposure and Asbestos Consumption over Recent Decades in Korea	No	Colin	Other
3079629	Exposure Data from Multi-Application, Multi-Industry Maintenance of Surfaces and Joints Sealed with Asbestos-Containing Gaskets and Packing	No	Colin	Aftermarket auto parts
3615595	ASBESTOS HAZARDS IN THE CITY OF ROME, ITALY	No	Colin	Aftermarket auto parts
3645784	NIOSH Industrial Hygiene Survey for Tuffy Service Center, Cincinnati, OH, May 22, 1978	No	Colin	Aftermarket auto parts
3645882	Preliminary Industrial Hygiene Survey: Auto Brake Clinic, Cincinnati, Ohio, August 8, 1976	No	Colin	Aftermarket auto parts
3651762	HAZARD EVALUATION AND TECHNICAL ASSISTANCE, REPORT NO. TA 79-2, DEPARTMENT OF TRANSPORTATION, VEHICLE INSPECTION STATIONS, WASHINGTON, D.C., APRIL 1979.	No	Colin	Aftermarket auto parts

Engine gaskets - jet engine overhaul	Solid	Inhalation
Multiple	Solid	Inhalation
gaskets and packing	Solid	Inhalation
automobile brakes	Solid	Inhalation
automobile brakes	Solid	Inhalation
automobile brakes	Solid	Inhalation
automobile brakes	Solid	Inhalation

This study has demonstrated that the disturbance of asbestos-containing gaskets, o-rings, and other types of asbestos-containing components, while performing overhaul work to a jet engine produces very few airborne fibers, and that virtually none of these aerosolized fibers is asbestos. The overhaul work was observed to be dirty and oily. The exposures to the mechanics and bystanders were several orders of magnitude below OSHA exposure regulations, both current and historic. The data presented underscore the lack of risk to the health of persons conducting this work and to other persons in proximity to it from airborne asbestos. See results section for details / summary
Data from Korean occupational health-related journals. Auto repair shop ranges: <0.02-8.0, 0.01-7.28 f/cc with mean of 0.27 f/cc, and 0.16-5.64 f/cc with geometric mean of 0.35 f/cc
All three sets of statistics suggest that the mean and median exposures were less than 25% of 0.1 f/cc 8-hr TWA sample or 1.0 f/cc 30-min samples, and that there is at least 95% confidence that the true 95th percentile exposures are less than 0.1 f/cc as an 8-hr TWA.
Most values found are below the limits suggested for chrysotile by the American Conference of Government Industrial Hygienists and by the EEC which is 1 ff/ml for 8 working hours. It needs emphasis that the highest values found refer to short-term operations and the weighted mean values over 8 working hours are below the limits. It follows that it is possible to lower the chrysotile concentrations in the work place air to insignificant levels, comparable to those of the exterior environment, if only the indoor conditions are suitable. It is essential that there is appropriate motivation at the work place and also that the work pieces are kept wet at the point of work. In this way concentrations of asbestos fibres in the air drop considerably, probably to insignificant levels. Figure 2 and Table 1 show the percentage frequency distribution of the chrysotile concentration values in ff/ml in various departments during operations in the depots.
No monitoring data provided in NIOSH survey
Personal breathing zone samples contained 0.16 to 1.82 fibers of asbestos greater than 5 microns per cubic centimeter (f/cc), and general area air samples· contained 0.008 to 0.169 f/cc.
No detectable levels of asbestos, hydrogen sulfide, or sulfur dioxide were found at either inspection station

A total of 425 bulk samples, 197 area air samples, 189 personal air samples, and 72 blank samples were collected. Personal air samples were collected in duplicate and 78 of these duplicate personal air samples collected were archived and not analyzed. All anticipated personal samples were collected from the mechanics performing the work and the bystander. Regarding phase contrast microscopy (PCM) and transmission electron microscopy (TEM) analyses, only 2 of the 458 (0.4%) personal and area air samples were not able to be analyzed, and both of these voided samples were area air samples. In both cases the filter was damaged and/or obstructed.	This study was conducted at JB Power LTD, an established jet engine service facility located in Miami, Florida.
204 samples of auto repair shops taken from 3 studies	10 auto repair shops
A total of 782 samples were analyzed by phase contrast microscopy, and 499 samples were analyzed by transmission electron microscopy.	Mutliple per industry - see details within study
unclear	14 workplaces throughout Rome
N/A	1
Seven general area, five personal air samples, and three bulk brake drum dust samples were obtained during the visit	1
6	1

Separate personal air samples were collected during the rebuild of the gear box and other components from the mechanics that performed the work. Area air samples were collected in proximity to this work in conjunction with the overhaul, as were samples from the two outdoor locations. Air sampling equipment adhered to the requirements of the National Institute of Occupational Safety and Health (NIOSH) Method 7400 (NIOSH, 1994a) and the Asbestos Hazard Emergency Response Act (AHERA) (USEPA, 1987).
Not specified
Full shift TWAs, personal 30-min exposures, and area full-shift TWA values
Samples were collected on 25 mm dia membrane filters at flow rate of 2 l/min or higher (AIA and NIOSH methods) [13, 141, depending on both the duration of the operations and the expected dust concentration.
N/A
8-hr TWA
8-hr TWA

Jet engines contained various components (gaskets, clamps, o-rings and insulation) that contained asbestos that potentially could release airborne fibers during routine maintenance or during an engine overhaul. To evaluate the potential exposures to aircraft mechanics, a Pratt & Whitney JT3D jet engine was obtained and overhauled by experienced mechanics using tools and work practices similar to those used since the time this engine was manufactured.	Exact number Not specified	bulk, area, personal air
Not specified	Not specified	Personal
Removal with flat blade scraper, cleaning of flange with die grinder fitted with abrasive pad, compressed air, and emery cloth	Not specified	Personal, area, bulk
The exposure to asbestos of workers of the ATAC company (the public concern of urban passenger transport of Rome) is examined. This is particularly dangerous for workers who repair equipment with asbestos components. such as brake linings.	Not specified	Chrysotile asbestos was found in the breathing zone (W) of workers and in fixed positions (AA) in the industrial areas and in fixed positions at a height of 1.5 m in urban areas of Rome.
N/A	N/A	N/A
During the survey the brakes on four vehicles were serviced	3	Personal, bulk, and area
Vehicle inspections	2 supervisors and 9 workers	Area

Air sampling was conducted to determine the airborne fiber concentrations in during the overhaul. Area sampling was conducted at four locations centered on the engine overhaul. The area samples were initiated at approximately the same time as work began, and were terminated at the end of the work day. Sampling was also conducted outside the buildings to allow comparison between outdoor and indoor fiber levels. Personal air sampling was conducted to provide information regarding the airborne asbestos fiber exposure of persons performing the engine overhaul or service work. The personal air samples used to assess potential asbestos fiber exposure were collected in duplicate, i.e., using side-by-side personal sampling pumps and collection media. One set of these personal samples was submitted for analyses, and the other set was archived.	Task-based sample times, see Table I
Not specified	Not specified
PBZ and areas around vehicle service shop	Half shift
fixed positions at a height of 1.5 m in urban areas of Rome.	Not specified
N/A	N/A
PBZ	Personal: 3-243 min Area: 61-282 min
Each work lane, about 4.5 ft above floor	Not specified

Not discussed
Not specified
Not specified
Not specified
N/A
Not specified
The number of vehicles inspected can vary from 200 to 1000 per day for each station

During the overhaul work, representative bulk samples of all types of parts removed and parts installed that could have contained asbestos were collected. A total of 425 bulk samples were collected, 420 were collected from the overhaul work and 5 from the facility or its contents. Of the 420 analyses of samples associated with the overhaul work, 403 of these were of Pratt & Whitney engine parts, and 17 of these were from parts designated as Quick Engine Change (QEC). These QEC parts are not Pratt & Whitney products. Of the Pratt & Whitney parts, 37 (9%) were positive for the presence of asbestos. In all cases the type of asbestos was chrysotile, and the percent asbestos present in these samples ranged from 30% to 90%. Of the QEC parts, 5 (33%) were positive for the presence of asbestos. In all cases the type of asbestos was chrysotile, and the percent asbestos present in these samples ranged from 40% to 90%. Of the 5 analyses of samples associated with the facility, none were positive for the presence of asbestos.
Not specified
Full shift TWAs, personal 30-min exposures, and area full-shift TWA values
Those employed in workshops servicing the urban passenger transportation company of Rome may be exposed to asbestos contained both in covering materials and in brake linings. The latter are fastened to the aluminium support with aluminium rivets. The asbestos content of such elements is about 28%, in various mixtures with other compounds. Asbestos used in brake linings is chrysotile, but over 99% of it is turned into forsterite, a dehydrated amorphous material, which is much less toxic and dangerous than asbestos.
N/A
Not specified
Not specified

All work performed for the disassembly and reassembly of the engine was done in an open area within this building. The only exception to this was the rebuilding of the gearbox. There is a special room within the building where this work was performed. This room adjoins the offices, and it is 140 long 100 wide 80 high. It, like the offices, is air conditioned. While the office space and gear box room were air conditioned, there was no mechanical ventilation system for the work area for either heating or cooling. The building relies solely on natural convection... Due to these operating conditions, no attempt was made to determine the air changes per hour (ACH) in the building. Local ventilation problems may exist in some areas, but there were no obstruction to airflow at the location of the work done during this study.	Not discussed
Not specified	Not specified
Not specified	Not specified
not discussed	not discussed
N/A	N/A
Not specified	Not specified
A project to upgrade the ventilation system in both inspection stations was completed- in the spring of 1977. The project included new, larger exhaust fans mounted on the roof, new ceiling duct work, and new ducts down the outside of the center pillars in the SW station.	Not specified

All bulk samples were analyzed in accordance with published protocols (Perkins and Harvey, 1993). Air samples were analyzed in accordance with NIOSH 7400 (NIOSH, 1994a) and NIOSH 7402 (NIOSH, 1994b). When asbestos was observed during the NIOSH 7402 analysis, that sample was also prepared and analyzed in accordance with ISO 10312 (ISO, 1995).	Monitoring Data	1	NIOSH methods	1
PCM	Monitoring Data	1	NIOSH 7400	2
PCM, PLM for bulk	Monitoring Data	1	Well-described methodology	1
Asbestos fibres were counted by PCOM (Phase Contrast Optical Microscopy) according to the AIA and NIOSH methods. The counting procedure generally used a Walton-Becket (WB) eyepiece graticule (100 field of 0.00785 mm') but, if necessary, the full viewing field was employed to ensure a minimum count of fibres. By the WB method fibre counts can be increased by a factor of 1.37 f 0.64, this effect being attributed to human error in full-field counting.	Monitoring Data	1	Well-described methodology	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	NIOSH	1
PCM, electron microscopy	Monitoring Data	1	Well-described methodology	1
PCM	Monitoring Data	1	Well-described methodology	1

United States	2	Occupational exposure - not in-scope	1
OECD, Korea	1	Data from auto repair shops	3
United States	1	in scope use	1
OECD, Italy	1	in scope use	3
United States	1	in scope use - vehicular brakes	3
United States	1	In-scope use	3
United States	1	In-scope use	3

2012	2	Samples presented as a range with statistics	1
1989-1991	3	Not specified sample distribution	3
2011	1	Sample size and distribution clearly characterized, along with statistics	1
1989	2	Statistical distribution of results not described.	3
NIOSH survey conducted in 1976		Not applicable; no data provided	
1976	1	Sample size and distribution clearly characterized, along with statistics	2
1979	1	Sample size and distribution clearly characterized, along with statistics	2

Metadata provided	2	Discuss variability between different worker activities	**1.44**
No description of metadata	3	Does not address variability/uncertainty	**2.22**
well described within document	2	Discusses variability between different worker activities and analytical methods	**1.11**
sample durations not stated	2	includes discussion of variability, not uncertainty which could be determined from underlying methods	**2.00**
Not applicable; no data provided		Not applicable; no data provided	**1.67**
Most critical data included, but missing details like exposure frequency	3	The monitoring study does not address variability or uncertainty.	**1.78**
Most critical data included, but missing details like exposure frequency	2	Includes discussion of variability but not uncertainty, which could be determined from underlying methods	**1.67**

3659890	Preliminary Survey Report: Evaluation of Brake Drum Service Controls at Ohio Department of Transportation Maintenance Facility, Lebanon, OH	No	Colin	Aftermarket auto parts
3077867	TOXICOLOGICAL PROFILE FOR ASBESTOS	No	Colin	N/A
3970487	NIOSH Health Hazard Evaluation Report for Union Tank Car Cleveland, Texas HETA 91-053-2320	Yes	Colin	Other
3970531	NIOSH Health Hazard Evaluation Report for the Department of Municipal Railway Woods Division San Francisco, California HHE 80-185-842	No	Andy	Other
3970699	Committee for Risk Assessment (RAC) Opinion on an Annex XV dossier proposing restrictions on Chrysotile	No	Andy	Other
3974967	Former Worker Medical Surveillance Program at Idaho National Engineering and Environmental Laboratory	No	Andy	Aftermarket auto parts
3974971	Y-12 and Oak Ridge National Laboratory Medical Surveillance Program	No	Andy	Other
3978124	NIOSH Recommendations for Limiting Potential Exposures of Workers to Asbestos Associated with Vermiculite from Libby, Montana	No	Andy	Other
3978184	Asbestos Standard For General Industry	No	Andy	Other

automobile brakes	Solid	Inhalation
Copy of HERO 3098571	N/A	N/A
Valve gaskets	Solid	Inhalation
railroad tank car repair	Solid	Inhalation
Multiple uses	N/A	N/A
brake work on buses and other site vehicles	Solid	Inhalation
building materials	Solid	Inhalation
Mining, processing, and use	Solid	Inhalation
OSHA standards for multiple uses	N/A	N/A

No monitoring data, just a description of the facility and the engineering controls that are employed
N/A
The gasket buffing process generated large amounts of dust, which necessitated short-term sampling for asbestos to reduce the overloading of filters with particulate matter. Three to eight samples of 8 to 98 minutes duration were collected for each worker sampled. A total of 32 air samples were submitted for asbestos analysis by PCM, and if appropriate TEM. None of the samples contained detectable levels of fibers (limit of detection 7 fibers/mm2). However, the sampling results were inconclusive (and may include "false negatives"); high total dust levels necessitated short-term sampling, and nine of the 32 samples were so heavily overloaded with particulate matter that fibers could not be counted.
No useful information in this study other than generic asbestos warnings
No monitoring data, document just states dangers associated with asbestos and reasons why its use should be restricted
"Asbestos insulation was used extensively in the 1950's when many facilities at the INEEL were initially constructed. Asbestos-containing materials are found in roofmg, pipe and vessel insulation, building insulation, gaskets, packing, siding and other building materials. Asbestos exposure may also have occurred in relation to work with asbestos blankets and asbestos gloves. In addition, mechanics working at the CFA Big Shop were exposed to asbestos during brake work on buses and other site vehicles." - No monitoring data, risk mapping assessment
"We report the results and analysis of a one year needs assessment study evaluating whether a medical monitoring and risk communication program is justified for former and current workers at the Y-12 and Oak Ridge National Laboratory (ORNL)" - No monitoring data, risk mapping assessment
No monitoring data - Source provides information on vermiculite asbestos and precautions to take to avoid inhalation
Asbestos standard for general industry. No relevant information for report

N/A	one
N/A	N/A
32 air samples	one site
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

N/A
N/A
Short-term samples taken
N/A
N/A
N/A
N/A
N/A
N/A

N/A	N/A	N/A
N/A	N/A	N/A
During the first site visit on February 20-21, 1991, personal breathing zone (PBZ) and area air samples were collected during the first shift, primarily during periods of highest work activity. During the sampling periods, work practices were observed. Processes sampled were (analytes in parentheses): valve gasket replacement and fiber insulation handling (asbestos, fibers) During the followup visit, on January 30, 1992, PBZ and area air samples were collected during the first and second shifts to measure full-shift and short-term (15-min) exposures to selected contaminants. (ASBESTOS NOT INCLUDED IN 2ND ROUND)	three	PBZ and area air samples
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

N/A	N/A
N/A	N/A
PBZ and area samples were collected with the specified sampling media connected via plastic tubing to portable battery-operated personal sampling pumps. The pumps were calibrated immediately before and after sampling with a mass flowmeter which had been calibrated with a primary standard (bubble flowmeter). The means of the measured pre- and post-sampling flow rates were used to calculate sample volumes. PBZ samples were collected in workers' breathing zones by attaching the media on the workers' shirt collars; except that for workers wearing welding facemasks the samples were collected in the facemasks. Area air samples for asbestos were collected with electric-powered high-flow pumps connected to a laboratory-calibrated critical orifices (flow rates of 8.25 and 8.9 liters per minute (L/min))	50 - 100 min
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

N/A
N/A
Not specified, assumed daily since facility will often deal with "large batches" of train cars at a time
N/A
N/A
N/A
N/A
N/A
N/A

N/A
N/A
Bulk materials were sampled to determine potential worker exposures to hazardous materials. Processes sampled were (analytes in parentheses): valve gaskets, fibrous glass (asbestos) Bulk samples were collected on the first site visit of valve gaskets and gasket dust in the buffing area; and of fiberglass insulation to determine potential sources of asbestos exposure. After ensuring homogeneity of the samples, representative portions of each sample were immersed in Cargille liquids and analyzed for percent asbestos by polarized light microscope (PLM) at a magnification of 100X. Five valve gasket bulk samples were collected from different sizes of gaskets and submitted for asbestos analysis by PLM. All were found to be 90% chrysotile asbestos, indicating a potential health hazard due to airborne asbestos exposure during gasket buffing and valve cleaning. Two samples of dust collected on the desk top in the buffing area were 1% chrysotile asbestos; the remainder of the samples was primarily rubber and metal fragments.
N/A
N/A
N/A
N/A
N/A
N/A

Clayton (CAI) brake cleaning unit, brake enclosure hood and HEPA-filtered dust collector	Protective masks
N/A	N/A
Not specified	On the day of the survey the valve repairman wore a supplied air respirator during the periods of gasket buffing.
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A

N/A	Reports for Data or Information Other than Exposure or Release Data	1	NIOSH	1
N/A	N/A	N/A	N/A	N/A
A total of 32 air samples were submitted for asbestos analysis by PCM, and if appropriate TEM.	Monitoring Data	1	NIOSH HHE	1
N/A	Monitoring Data	1	NIOSH HHE	1
N/A	Reports for Data or Information Other than Exposure or Release Data	2	European Chemicals Agency (ECHA)	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	Work performed under DOE contract expected to meet reliable methods	1
N/A	Reports for Data or Information Other than Exposure or Release Data	2	Queens College, City University of New York	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	NIOSH	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	OSHA	1

United States	1	in scope use - vehicular brakes	3
N/A	N/A	N/A	N/A
United States	2	Occupational exposure	3
United States	2	Occupational use - not in scope	3
OECD - Finland	2	Related to occupational exposure	1
United States	2	Uses include occupational uses, but not uses within scope	2
United States	2	Related to occupational exposure	2
United States	2	Related to occupational exposure	2
United States	2	Related to occupational exposure	3

1986		Not applicable; no data provided	
N/A	N/A	N/A	N/A
1991	2	Statistical distribution of results not described.	1
1980	3	No sample data provided in article	4
2014	3	no data provided	4
1998		Not applicable; no data provided	
2004	3	no data provided	4
2003	3	no data provided	4
1995	3	no data provided	4

Not applicable; no data provided		Not applicable; no data provided	**1.67**
N/A	N/A	N/A	
well described within document	3	Variability and uncertainty not discussed.	**2.00**
No monitoring data	3	The monitoring study does not address variability or uncertainty.	4
no recent / relevant exposure or use data	3	N/A - no data	4
Not applicable; no data provided		Not applicable; no data provided	**1.67**
no recent / relevant exposure or use data	3	N/A - no data	4
no recent / relevant exposure or use data	3	N/A - no data	4
no recent / relevant exposure or use data	3	N/A - no data	4

3978208	Shipbreaking - Module 6: Workplace & Chemical Hazards	No	Andy	Other
3978366	Substance profile: Asbestos	No	Andy	Other
3978369	Priority Occupational Carcinogens for Surveillance in Canada: Preliminary Priority List	No	Andy	Other
3982247	Asbestos for Industry	No	Andy	Other
3982341	A practical guide on best practice to prevent or minimise asbestos risks in work that involves (or may involve) asbestos: for the employer, the workers and the labour inspector.	No	Andy	Other
3978218	Control of Asbestos Exposure During Brake Drum Service	Yes	Cody	Aftermarket auto parts
3080338	Airborne asbestos concentration from brake changing does not exceed permissible exposure limit	Yes	Cody	Aftermarket auto parts
2548725	An evaluation of short-term exposures of brake mechanics to asbestos during automotive and truck brake cleaning and machining activities	Yes	Cody	Aftermarket auto parts
2602094	A study of airborne chrysotile concentrations associated with handling, unpacking, and repacking boxes of automobile clutch discs	Yes	Cody	Aftermarket auto parts
2603896	Asbestos Exposures of Mechanics Performing Clutch Service on Motor Vehicles	Yes	Cody	Aftermarket auto parts

Shipbreaking	N/A	N/A
Substance profile: Asbestos	N/A	N/A
General asbestos information	Solid	Inhalation
A guide to asbestos for industry	N/A	N/A
General information	N/A	N/A
Automotive brakes	Solid	Inhalation
Automotive brakes	Solid	Inhalation
Automotive brakes	Solid	Inhalation
Automotive clutches	Solid	Inhalation
Automotive clutches	Solid	Inhalation

No monitoring data - Source is a training powerpoint presentation that provides information on asbestos and precautions to take to avoid inhalation
Generic general info for asbestos - no monitoring data
Provides information on chemicals workers are exposed to in various occupations - no monitoring data
Guide to working safely around asbestos - no monitoring information
Guide to minimize asbestos exposure in industry - no monitoring data
Personal sample results for the brake mechanics show that concentrations using PCM analysis ranged from less than 0.004 to 0.016 f/cc. All exposures were below the NIOSH recommended exposure limit of 0.1 f/cc using PCM.
The results indicated a presence in the air of only chrysotile asbestos and an absence of other types of asbestos. Airborne chrysotile fiber exposures for each test remained below currentlyapplicable limit of 0.1 fiber/ml (eight-hour time-weighted average).
An average 8-h TWA of approximately 0.10 f/cc was estimated for auto brake mechanics that performed arc grinding of linings during automobile brake repair (in the1960s or earlier). In the 1970s and early 1980s, a decline in machining activities led to a decrease in the 8-h TWA to approximately 0.063 f/cc. Improved cleaning methods in the late 1980s further reduced the 8-h TWA for most brake mechanics to about 0.0021 f/cc
It was found that 30-min average airborne chrysotile concentrations (PCM adjusted) were 0.026 ± 0.004 f/cc or 0.100 ± 0.017 f/cc for a worker unpacking and repacking 1 or 2 boxes of clutches, respectively. The 30-min PCM adjusted average airborne asbestos concentrations at bystander locations ranged from 0.002 ± 0.001 f/cc and 0.004 ± 0.002 f/cc when 1 or 2 boxes of clutches were handled, respectively. Estimated 8-h TWA asbestos exposures for a worker handling 1 or 2 boxes of clutches over a workday ranged from 0.002 to 0.006 f/cc. The 30-min PCM adjusted average airborne asbestos concentration for a worker continuously stacking unopened boxes of clutches was 0.212 ± 0.014 f/cc; the 8-h TWA was 0.013 f/cc. Additionally, 30-min PCM adjusted average airborne asbestos concentrations following cleanup and clothing handling were 0.002 ± 0.001 f/cc and 0.002 ± 0.002 f/cc, respectively, both resulting in estimated 8-h TWA asbestos exposures of 0.0001 f/cc.
Asbestos air sampling data collected averaged 0.047 f/cc. Using the range of data inputs that were obtained, the authors calculated a range of TWA exposures of $3.75 \times 10{-}5$ f/cc to 0.03 f/cc. The mean value of 0.0016 f/cc is below background levels of asbestos that have been reported in garages during this time and below the current OSHA PEL of 0.1 f/cc.

N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
83 personal samples, 68 area samples	12
4	1
300+	Various (data sourced from multiple studies)
Breathing zone samples on the lapel of a volunteer worker (n = 100) and area samples at bystander (n = 50), remote area (n = 25), and ambient (n = 9) locations	1
104	1

N/A
N/A
N/A
N/A
N/A
Brake job TWA
Full shift TWA
Full shift TWA and short term
Full shift TWA and short term
Full shift

N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
Brake repair	Unknown	Personal, area, bulk
Brake replacement incluing filing, sanding, and arc grinding of brakes	1	Personal, area
Brake cleaning and machining activities	Unknown	Personal, area
Unpacking, repacking, and handling boxes of clutch disks	1	Personal, area, bulk
Clutch assembly removal	1	Personal, area, bulk

N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
Personal samples collected in worker PBZ, area samples collected at car's fender, axle, 10+ feet away from vehicle (background), and outdoors (ambient)	2 hours or brake job length, whichever is longer
PBZ, vehicle service area	30-103 minutes for personal samples 262-425 min for outdoor samples
Personal samples taken in worker PBZ	2-60 min
PBZ, bystander (5 ft from worker) and remote (50 ft from worker)	15 min - 4 hr. Full shift TWA's based off 1-hr samples
PBZ, area samples taken 5-10 feet from mechanic	26-161 min

N/A
N/A
N/A
N/A
N/A
Workers typically only perform one brake job a day
Unknown
Unknown
Unknown
Unknown

N/A
N/A
N/A
N/A
N/A
Fibers in the wheel drum bulk samples represented less than 1 percent of the brake dust, but were generally 60 to 100 percent chrysotile
Unknown
Unknown
The clutches contained asbestos and the mean chrysotile asbestos content was 33.7% ± 2.0, with a range of 20–52%. PLM analysis (LOD 1%) did not indicate the presence of amphibole asbestos fibers in any of the clutches. Bulk sample analysis (XRD) of dust which had accumulated on the countertop during the unpacking and repacking of boxes of clutches indicated an average chrysotile asbestos concentration of 6.8% ± 2.2, and a range of 1–14%
Wear debris in the bell housing surrounding clutches had an average of 0.1% chrysotile asbestos by weight, a value consistent with similar reports of brake debris

N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
N/A	N/A
HEPA filter-equipped enclosure device, HEPA vacuum, wet brush/recycle system, aerosol spray	Unknown
All tests were performed with all seven building outside overhead doors closed	Unknown
Unknown	Unknown
Unknown	Unknown
Control techniques varied and included using water to clean brakes, dry wiping, and compressed air	Unknown

N/A	Reports for Data or Information Other than Exposure or Release Data	1	OSHA	1
N/A	Reports for Data or Information Other than Exposure or Release Data	2	CAREX Canada	2
N/A	Reports for Data or Information Other than Exposure or Release Data	2	CAREX Canada	2
N/A	Reports for Data or Information Other than Exposure or Release Data	1	N.C. Department of Labor	1
N/A	Reports for Data or Information Other than Exposure or Release Data	1	European Commission	2
PCM, TEM	Monitoring Data	1	Well-described methodology	1
PCM and TEM	Monitoring Data	1	Well-described methodology	1
PCM	Monitoring Data	3	Cites other sources for exposure data and methodology	1
PCM and TEM	Monitoring Data	1	Well-described methodology	1
PCM and TEM	Monitoring Data	1	Well-described methodology	1

United States	2	Related to occupational exposure	2
OECD - Canada	3	Not related to occupational exposure	1
OECD - Canada	2	Related to occupational exposure	2
United States	2	Related to occupational exposure	1
OECD - Belgium	2	Related to occupational exposure	2
United States	1	In-scope use	3
United States	1	In-scope use	2
United States	1	In-scope use	1
United States	1	In-scope use	1
United States	1	In-scope use	1

2008	3	no data provided	4
2016	3	no data provided	4
2008	3	no data provided	4
2013	3	no data provided	4
2006	3	no data provided	4
1989	2	Sample size and distribution clearly characterized, along with statistics but samples presented mostly in ranges with means and standard deviation	1
2003	1	Sample size and distribution clearly characterized, along with statistics	1
2009	1	Sample size and distribution clearly characterized, along with statistics	2
2008	1	Sample size and distribution clearly characterized, along with statistics	1
2008	2	Distribution of samples is characterized by a range with uncertain statistics	2

no recent / relevant exposure or use data	3	N/A - no data	4
no recent / relevant exposure or use data	3	N/A - no data	4
no recent / relevant exposure or use data	3	N/A - no data	4
no recent / relevant exposure or use data	3	N/A - no data	4
no recent / relevant exposure or use data	3	N/A - no data	4
Metadata provided	2	Discusses variability between different worker activities and use of engineering controls	1.67
Metadata provided	2	Discusses variability between different worker activities	1.33
Most critical metadata included	2	Discuss variability between different worker activities	1.44
Metadata provided	1	well described within document	1.00
Monitoring data include most critical metadata, but lacks some details	3	Does not address variability/uncertainty	1.44

3520562	Analysis of workplace compliance measurements of asbestos by the U.S. Occupational Safety and Health Administration (1984–2011)	Yes	Cody	Aftermarket auto parts
3099353	In-depth survey report: Evaluation of brake drum service controls at United States Postal Service Vehicle Maintenance Facility, Louisville, Kentucky	Yes	Cody	Aftermarket auto parts
3099264	In-depth survey report: Evaluation of brake drum service controls at Cincinnati Gas and Electric Garages, Cincinnati, Evanston, and Monroe, Ohio and Covington, Kentucky	Yes	Cody	Aftermarket auto parts
TBD	Monitoring Data Provided by ACC, Axiall-Westlake, and Occidental	Yes	Anthony	Asbestos Diaphragms
TBD	Report for OSHA Compliance Monitoring at Branham Corporation; Environmental Health Management; January 4, 2013	Yes	Anthony	Sheet gaskets
TBD	Use of Non-Friable Asbestos Containing Gaskets in Titanium Dioxide Manufacturing; American Chemistry Council; October 30, 2017	Yes	Anthony	Sheet gaskets

Automotive brakes	Solid	Inhalation
Automotive brakes	Solid	Inhalation
Automotive brakes	Solid	Inhalation
Chlor-alkali industry	Solid	Inhalation
Cutting of sheet gaskets	Solid	Inhalation
Use of sheet gaskets in titanium dioxide manufacturing	Solid	Inhalation

From 1984 to 2011, personal air samples ranged from 0.001 to 175 f/cc across a variety of industries where asbestos is used (e.g., construction, manufacturing, mining, automotive repair)		
Min <0.004 PCM fibers/cc	Max: 0.006 PCM fibers/cc	Arithmetic Mean: <0.004 PCM fibers/cc
Min <0.004 PCM fibers/cc	Max: 0.016 PCM fibers/cc	Arithmetic Mean: 0.006 PCM fibers/cc
Personal monitoring data provided by ACC (unknown number of sites), Axiall-Westlake (1 site), and Occidental (6 sites).		
Personal monitoring data provided for a single Branham Corporation facility.		
Personal monitoring data provided for a single Chemours Titanium Technologies facility.		

394 personal, 55 area, and 258 bulk samples for automotive repair, services, and parking	Unknown
22 personal, 34 area	1
10	4 garages at 1 site

8-hr TWA
Brake job TWA (2-3 hours)
Brake job TWA (2-3 hours)

Unspecified	Unknown	Personal, area, bulk
Servicing drum brakes on 11 vehicles	11	Personal, area, bulk
Servicing drum brakes on 6 vehicles: a sedan, two vans, two pickup trucks, and a larger truck (model years not specified)	8	Personal, area, bulk

PBZ of workers for personal samples	Unknown
PBZ, garage area	Personal: Duration of brake job or 2 hours, whichever is longer. Area: 4-6 hours
PBZ, garage area	Unknown

Unknown
When performing brake maintenance work (no more than 2-3 hr/day)
When performing brake maintenance work (no more than 2-3 hr/day)

Bulk sampling analysis in this industry yielded asbestos concentrations ranging from 0% to 100%; however, information related to the specific product type that was analyzed for asbestos content was rarely provided in the database (i.e., 7 samples included information on product type).
Less than 1 percent of the material in the brake drum bulk samples was asbestos, but from 62 to 100 percent of the fibers in 9 of 11 of the brake drum bulk samples were chrysotile with one of the brake drum samples containing 100% chrysotile asbestos fibers. One of the samples contained amphibole fibers. From 0 to 25 percent of asbestos fibers and bundles were longer than 5 microns.
Less than 1 percent of the material in the brake drum bulk samples was asbestos, but from 74 to 100 percent of the fibers in the brake drum bulk samples were chrysotile. None of the brake drum bulk samples contained amphibole fibers. From 1 to 15 percent of asbestos fibers and bundles were longer than 5 microns.

Unknown	Unknown
Vacuum enclosure system used during brake work	Work clothing and respirators
Mechanics use solvent to minimize dust release, either through spraying solvent or using a parts brush with solvent	Unknown

PCM	Monitoring Data	1	OSHA inspection data	1
PCM and TEM	Monitoring Data	1	Well-described methodology	1
PCM	Monitoring Data	1	Well-described methodology	1
	Monitoring Data	3	Sampling and analytical methods not provided	1
	Monitoring Data	1	NIOSH 582 equivalency certificate provided	1
	Monitoring Data	3	Sampling and analytical methods not provided	1

United States	1	In-scope use	2
United States	1	In-scope use	3
United States	1	In-scope use	3
United States	1	Data are for the chlor-alkali industry, where asbestos is used in diaphragms. In-scope use.	1
United States	1	Cutting of sheet gaskets; in-scope use.	1
United States	1	Removal of asbestos sheet gaskets; in-scope use.	1

Data ranges between 1984-2011	3	Samples presented as a range, with no statistics	3
1987	1	Sample size and distribution clearly characterized, along with statistics - raw data in appendix	1
1988	1	Sample size and distribution clearly characterized, along with statistics - raw data in appendix	1
Sample dates range from 1996 to 2016	1	Individual samples provided, so distributions can be fully characterized.	2
Samples taken in 2012	1	Individual samples provided, so distribution can be fully characterized.	1
Samples taken since 2009	2	Only number of samples, mean, min, and max provided.	3

Monitoring data include sample type but no other metadata.	2	Discussion of variability and uncertainty included, but minimal for the automotive repair industry specifically	**1.78**
Metadata provided	1	well described within document	**1.44**
Metadata provided	2	Discuss variability between different worker activities and sampling locations	**1.56**
Most sample results include sample duration, worker activity description, sample date, and some data include task frequency, but some data do not include sample duration.	3	No discussion provided on if variability in operations is captured in sampled data; uncertainty in measurements not discussed.	**1.56**
Personal samples; air sample data sheet provided with sample times; activity time log provided with worker activities; narrative describes site operations.	2	Study does not address if variability in operations is captured in sampled data; uncertainty in measurements could be determined from NIOSH 582.	**1.11**
Sample durations and exposure frequency not provided.	3	No discussion provided on if variability in operations is captured in sampled data; uncertainty in measurements not discussed.	**1.78**

Type of Occupational Exposure and Environmental Release Data Sources
Monitoring Data
Environmental Release Data

Published Models for Exposures or Releases
Completed Exposure or Risk Assessments
Reports for Data or Information Other than
Exposure or Release Data

Table X-4. Weighting Approach for Scoring the Quality of Environmental Release and Occupational Da

Domain	Metric	Weighting Factor
Reliability	Methodology	1
Representativeness	Geographic Scope	1
	Applicability	2
	Temporal representativeness	2
	Sample Size	1
Accessibility / Clarity	Metadata Completeness	1
Variability and Uncertainty	Metadata Completeness	1
Sum (if all metrics scored)		**9**
Calculated Weighted Overall Score		

Table X-5. Example of Adjusted Weighting Factors for Published Models where Sample Size is Not App

Domain	Metric	Adjusted Weighting Factor
Reliability	Methodology	1
Representativeness	Geographic Scope	1
	Applicability	2
	Temporal representativeness	2
	Sample Size	N/A
Accessibility / Clarity	Metadata Completeness	1
Variability and Uncertainty	Metadata Completeness	1
Sum (if all metrics scored)		8
Calculated Weighted Overall Confidence Score		

Possible Values
1
2
3
4

ıta

Score (range of possible values)	Calculated Weighted Score (range of possible values)
1 to 3	0.1 to 0.3
1 to 3	0.1 to 0.3
1 to 3	0.2 to 0.7
1 to 3	0.2 to 0.7
1 to 3	0.1 to 0.3
1 to 3	0.1 to 0.3
1 to 3	0.1 to 0.3
	1 to 3

ılicable

Score (range of possible values)	Calculated Weighted Score (range of possible values)
1 to 3	0.1 to 0.4
1 to 3	0.1 to 0.4
1 to 3	0.2 to 0.7
1 to 3	0.2 to 0.7
NR	N/A
1 to 3	0.1 to 0.4
1 to 3	0.1 to 0.4
	1 to 3

Data Type Table	HERO ID/Reference	Checked Each Metric?	Rationale/Metadata Adequately Documented?	Identify Metrics with Issues
None: General Comments	N/A	N/A	N/A	N/A
Exposure Data	1788554	Yes	No	Metadata Completeness. Incorrectly assesses metadata completeness based on the study not including monitoring data.
Exposure Data	3970520	Yes	Yes	None
Exposure Data	3970695	Yes	Yes	None
Exposure Data	3981071	Yes	No	Methodology. Made slight clarification to rationale. Metadata Completeness. Incorrectly assesses metadata completeness based on the study not including monitoring data. Revised rationale.
Exposure Data	3827270	Yes	No	Applicability. Rationale is not clear. Edited the rationale to be more clear. Temporal Representativeness. Latest data are for 2016, not 2017. Sample Size. Rationale not clear. Clarified rationale. Metadata Completeness. Rationale not clear. Clarified rationale.
Exposure Data	3840041	Yes	No	Applicability. Rationale is not clear. Edited the rationale to be more clear. Sample Size. Rationale not clear. Clarified rationale. Metadata Completeness. Rationale not clear. Clarified rationale.
Exposure Data	3081101	Yes	Yes	None

Scores Correctly Assigned?	Identify Metrics with Issues	Other Comments
N/A	N/A	Error in overall score formula. Formula does not account for a N/A for any score other than sample size for published models. There are legitimate cases where N/A may be used in other cases. Formula needs to be revised to account for this. Results in small difference in overall score. Not impacted by any scores of 4. Formula has been fixed in all 3 tables.
No	Metadata Completeness. Changed score from 4 to 1 as study discusses its sources, methods, and assumptions.	This is an epidemiological study that does not meet any data needs. Probably should have been excluded during full-text screening, but does not meet unacceptable criteria.
Yes	None	
Yes	None	
No	Temporal Representativeness. Corrected score from 3 to 2.	Metadata completeness rationale corrected. Score of 4 is still appropriate for this document, but for different reasons than initially stated. All corrections have been made.
No	Applicability. Updated score from 2 to 1.	
No	Metadata Completeness. Changed score from 4 to 3.	
No	Temporal Representativeness. Corrected score from 3 to 2.	

Resolved?	Resolution Notes
Yes	
Yes	
Yes	
Yes	
Yes	
Yes	
Yes	
Yes	

Exposure Data	3615816	Yes	No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable.
Exposure Data	3978190	Yes	No	Methodology. Clarified rationale. Sample Size. Clarified rationale. Metadata Completeness. Rationale not clear. Variability and Uncertainty. Elaborated on rationale.
Exposure Data	2554714	Yes	No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable.
Exposure Data	3099099	Yes	No	Data Source Type. Incorrectly marked as Completed Exposure or Risk Assessment. Corrected to Reports for Data or Information other than Exposure or Release Data Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Applicability. Incorrectly factored lack of exposure data into setting score.
Exposure Data	3100991	Yes	No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable.
Exposure Data	3582125	Yes	No	Applicability. Elaborated on rationale. Temporal Representativeness. Corrected year of NIOSH survey in rationale.
Exposure Data	3645784	Yes	No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable.
Exposure Data	3659890	Yes	No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable.

No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable.	Removed scores for the three not-applicable metrics. This is a letter to the editor that mentions previous articles, but does not itself provide any original information or data.
No	Methodology. OSHA rule preamble: should be a score of 1. Metadata Completeness. Changed score from 4 to 3.	
No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Removed these scores.	
No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Removed these scores.	
No	Applicability. Updated score from 3 to 1. Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Removed these scores.	
Yes		
No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Removed these scores.	
No	Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Removed these scores.	

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Exposure Data	3974967	Yes	No	Methodology. Rationale was not clear. Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Sample Size. Elaborated on rationale.
Exposure Data	524541	Yes	No	Metadata Completeness. Elaborated on rationale.
Exposure Data	3098571	Yes	No	Sample Size. Elaborated on rationale.
Exposure Data	3080855	Yes	No	Sample Size. Rationale was incorrect. Corrected rationale.
Exposure Data	2601402	Yes	Yes	None
Exposure Data	176	Yes	Yes	None
Exposure Data	2599024	Yes	Yes	None
Exposure Data	3080278	Yes	Yes	None
Exposure Data	3099476	Yes	No	Data Source Type. Corrected to Monitoring Data (report is a NIOSH HHE).
Exposure Data	3099480	Yes	No	Data Source Type. Corrected to Monitoring Data (report is a NIOSH HHE).
Exposure Data	3531297	Yes	No	Variability and Uncertainty. Clarified rationale.
Exposure Data	3531556	Yes	Yes	None
Exposure Data	3648228	Yes	Yes	None
Exposure Data	3978218	Yes	No	Sample Size. Elaborated on rationale
Exposure Data	2548725	Yes	Yes	None

No	Methdology. Updated score from 2 to 1. Temporal Representativeness. Study not more than 20 years old; updated score from 3 to 2. Sample Size, Metadata Completeness, and Variability/Uncertainty. These metrics are not applicable. Removed these scores.
Yes	None
Yes	None
No	Sample Size. Corrected score from 2 to 1.
Yes	None
Yes	None
No	Temporal Representativeness. Not more than 10 years old; updated score from 2 to 1.
No	Methodology. Published in peer reviewed scientific journal: updated score from 2 to 1. Sample Size. Statistical characterizations not provided; updated score from 2 to 3.
Yes	None
Yes	None
No	Methodology. Since most studies used NIOSH methods, corrected score from 2 to 1. Variability and Uncertainty. Since not discussed in article, corrected score from 2 to 3.
Yes	None
Yes	None
Yes	None
No	Temporal Representativeness. Corrected score from 3 to 1.

Yes

Yes

Yes

Yes
Yes
Yes

Yes

Yes

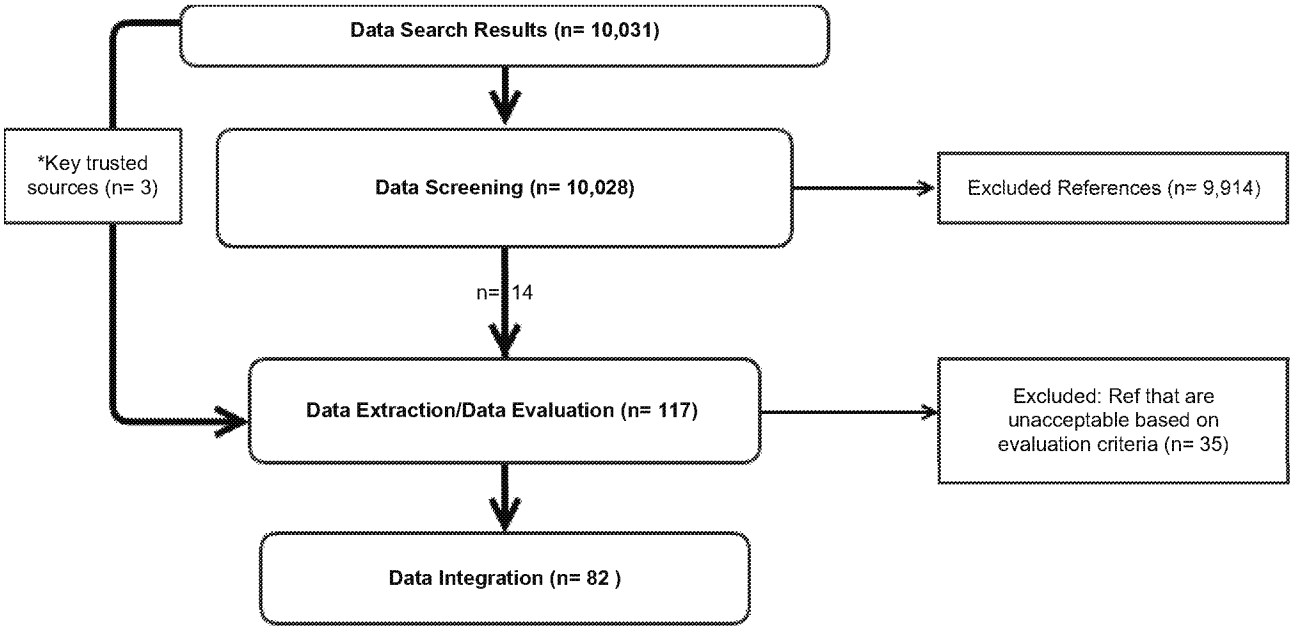
Yes

Yes

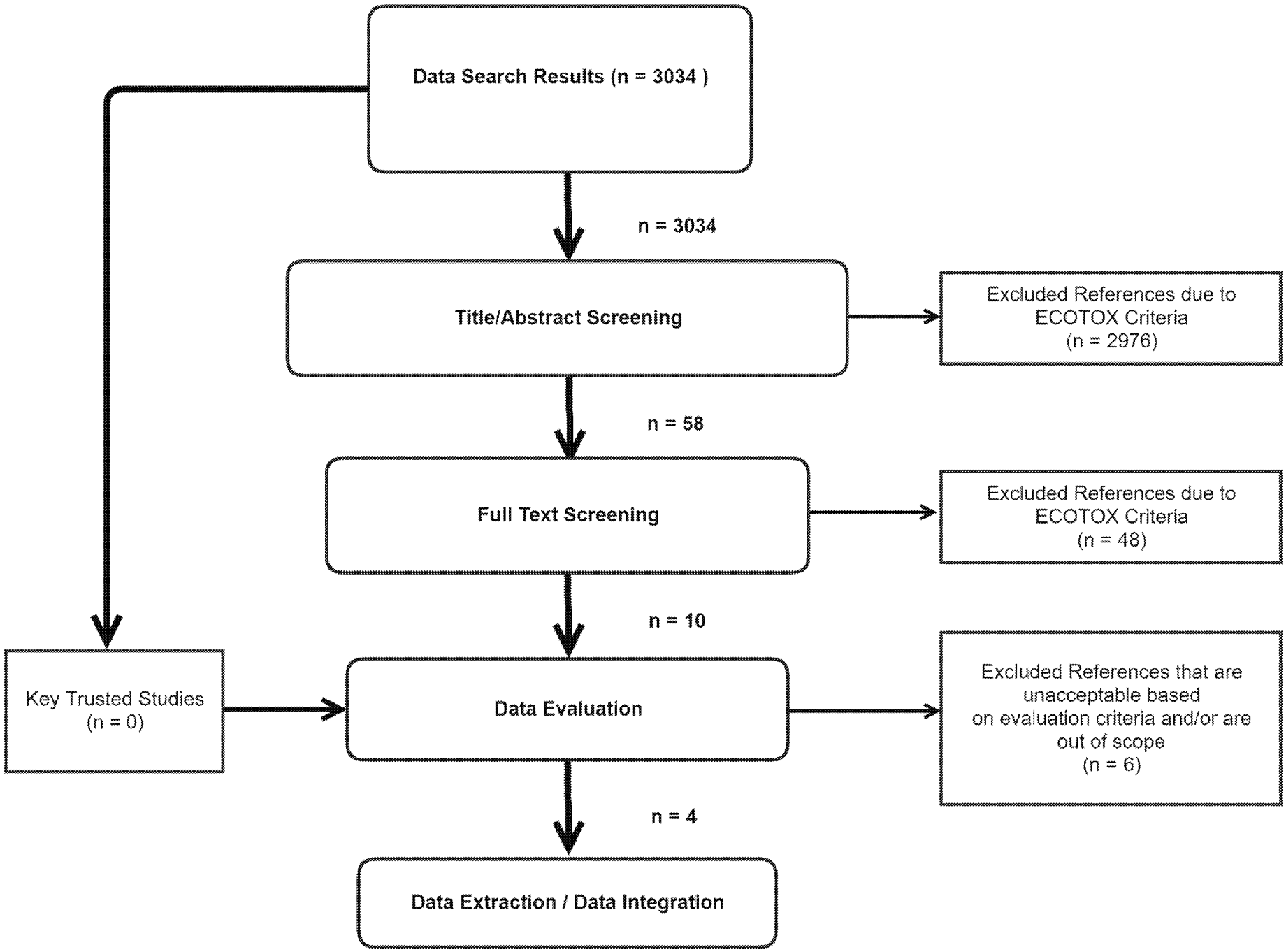
Yes
Yes
Yes

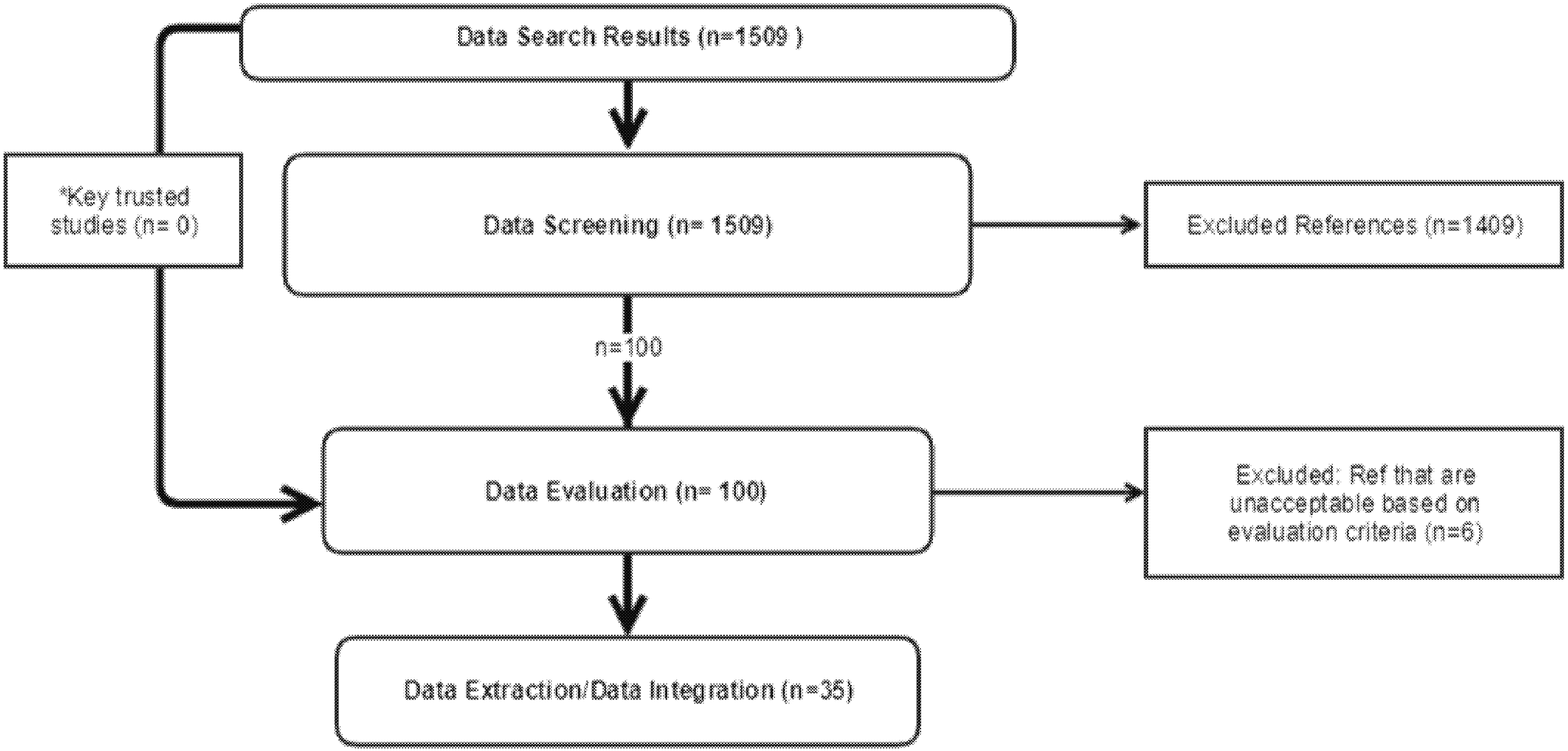
Yes

Yes



*Any relevant sources from prior assessments that were identified as potentially relevant for TSCA assessment needs bypassed the data screening step and moved directly to the data evaluation step (e.g. key/supporting studies from IRIS assessments, ATSDR assessments, ECHA dossiers, etc.).


Data Search Results (n = 3034)
n = 3034
Title/Abstract Screening
Excluded References due to ECOTOX Criteria (n = 2976)
n = 58
Full Text Screening
Excluded References due to ECOTOX Criteria (n = 48)
n = 10
Key Trusted Studies (n = 0)
Data Evaluation
Excluded References that are unacceptable based on evaluation criteria and/or are out of scope (n = 6)
n = 4
Data Extraction / Data Integration



*Any relevant studies from prior assessments that were identified as potentially relevant for TSCA assessment needs bypassed the data screening step and moved directly to the data evaluation step (e.g. key/supporting studies from IRIS assessments, ATSDR assessments, ECHA dossiers, etc.).

EPA SCIENTIFIC ADVISORY COMMITTEE ON CHEMICALS
CHARGE TO THE PANEL – ASBESTOS

As amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act on June 22, 2016, the Toxic Substances Control Act (TSCA), requires the U.S. Environmental Protection Agency (EPA) to conduct risk evaluations on existing chemicals. In December of 2016, EPA published a list of the initial ten chemical substances that are the subject of the Agency's chemical risk evaluation process ([HYPERLINK "https://www.federalregister.gov/documents/2016/12/19/2016-30468/designation-of-ten-chemical-substances-for-initial-risk-evaluations-under-the-toxic-substances" \h]), as required by TSCA. Asbestos is one of the first ten chemical substances and the fourth? of the ten to undergo a peer review by the Science Advisory Committee on Chemicals (SACC). In response to this requirement, EPA has prepared and published a draft risk evaluation for asbestos which solicited comments from the public and incorporated them as appropriate in the documents considered in this review. Asbestos is a carcinogen that is used in particular areas of the chemical, oil, and automotive industries and in articles.

The draft risk evaluation contains the following components:

- Discussion of chemistry and physical-chemical properties.
- Characterization of uses/sources.
- Environmental release assessment
- Occupational exposure assessment
- Environmental, and consumer exposure assessment
- Environmental hazard assessment
- Human health hazard assessment
- Risk characterization. TBD
- Risk determination. TBD
- A detailed description of the systematic review process developed by the Office of Pollution Prevention and Toxics to search, screen, and evaluate scientific literature for use in the risk evaluation process.

The focus of this meeting is to conduct the peer review of the Agency's draft risk evaluation of asbestos. At the end of the peer review process, EPA will use the reviewers' comments/recommendations, as well as public comment, to finalize the risk evaluation.

CHARGE QUESTIONS:

1. Content and Organization:

EPA's Final Rule, [HYPERLINK "https://www.gpo.gov/fdsys/pkg/FR-2017-07-20/pdf/2017-14337.pdf" \h] [HYPERLINK "https://www.gpo.gov/fdsys/pkg/FR-2017-07-20/pdf/2017-14337.pdf" \h]([HYPERLINK "https://www.federalregister.gov/documents/2017/07/20/2017-14337/procedures-for-chemical-risk-evaluation-under-the-amended-toxic-substances-control-act" \h]) stipulates the process by which EPA is to complete risk evaluations under the Frank R. Lautenberg Chemical Safety for the 21st Century Act, To that end, EPA has completed a draft risk evaluation for asbestos.

As part of this risk evaluation for asbestos, EPA evaluated potential environmental, occupational, and consumer exposures. The evaluation considered reasonably available information, including manufacture, use, and release information, and physical-chemical characteristics. It is important that the information presented in the risk evaluation and accompanying documents are clear and concise and describe the process in a scientifically credible manner.

Please comment on the overall content, organization, and presentation of the draft risk evaluation of asbestos. Please provide suggestions for improving the clarity of the information presented in the documents.

[NOTE: Links to literature flow diagrams, appendices and supplemental files will be provided when they become available]

2. Systematic Review:

The Toxic Substances Control Act (TSCA) requires that EPA use data and/or information in a manner consistent with the "best available science" and that EPA base decisions on the "weight of the scientific evidence". The EPA's Final Rule, [HYPERLINK "https://www.gpo.gov/fdsys/pkg/FR-2017-07-20/pdf/2017-14337.pdf" \h] [HYPERLINK "https://www.gpo.gov/fdsys/pkg/FR-2017-07-20/pdf/2017-14337.pdf" \h]([HYPERLINK "https://www.federalregister.gov/documents/2017/07/20/2017-14337/procedures-for-chemical-risk-evaluation-under-the-amended-toxic-substances-control-act" \h]), defines ''best available science'' as science that is reliable and unbiased. This involves the use of supporting studies conducted in accordance with sound and objective science practices, including, when available, peer reviewed science and supporting studies and data collected by accepted methods or best available methods (if the reliability of the method and the nature of the decision justifies use of the data). The Final Rule also defines the "weight of the scientific evidence" as a systematic review method, applied in a manner suited to the nature of the evidence or decision, that uses a pre-established protocol to comprehensively, objectively, transparently, and consistently identify and evaluate each stream of evidence, including strengths, limitations, and relevance of each study and to integrate evidence as necessary and appropriate based upon strengths, limitations, and relevance.

To meet these scientific standards, EPA applied systematic review approaches and methods to support the draft risk evaluation of asbestos. Information on the approaches and/or methods is described in the draft risk evaluation as well as the following documents:

- [HYPERLINK "https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/application-systematic-review-tsca-risk-evaluations"]
- [HYPERLINK "https://www.epa.gov/sites/production/files/2017-06/documents/14-dioxane_lit_search_strategy_053017.pdf"]
- Asbestos (CASRN 1332-21-4) Bibliography: Supplemental File for the TSCA Scope Document, [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2016-0736"])
- Asbestos [HYPERLINK "https://www.epa.gov/sites/production/files/2018-06/documents/14-dioxane_problem_formulation_5-31-18.pdf"]

Please comment on the approaches and/or methods used to support and inform the gathering, screening, evaluation, and integration of information used in the draft risk evaluation of asbestos. Please also comment on the clarity of the information as presented related to systematic review and suggest improvements as warranted.

3. Occupational Exposure:

Workers and occupational non-users may be exposed to chrysotile asbestos when workers perform activities associated with several conditions of use. These conditions of use pertain to:

- Asbestos diaphragms used in the chlor-alkali industry
- Asbestos-containing sheet gaskets
- Oil field brake blocks
- Aftermarket automotive brakes and linings
- Friction products for other vehicles and equipment

The principle approach EPA used to estimate occupational exposures was reviewing and interpreting monitoring data, whether documented in the peer-reviewed literature or provided by industry.

Please comment on the reasonableness of (1) the estimation methods and approaches used for occupational exposure assessment and (2) the estimated worker exposure concentrations used in the risk evaluation. Provide specific suggestions or recommendations for alternative approaches, estimation methods, or information sources that EPA should consider for improving the occupational exposure assessment.

4. Consumer Exposure

Please comment on the reasonableness of the estimation methods and approaches used for consumer exposure assessment and provide any specific suggestions or recommendations for alternative approaches, estimation methods or information that should be considered by the Agency for improving the consumer exposure assessment.

a. Please comment on EPA's approach to use a tiered method for identify brake exposure studies that have a higher and/lower potential for risk.

b. Please comment on EPA's approach to use activity patterns to estimate doses.

c. Please comment on EPA's approach to characterize variability and uncertainty for exposure estimates.

5. ***Environmental Exposure:***

a. Information identified by the EPA to characterize environmental hazards posed by chrysotile asbestos only quantified the effects of chronic exposure. Although there is limited data available to characterize effects caused by acute exposures, based on the physical-chemical properties of asbestos (i.e., insoluble fiber), ecotoxicity effects from acute exposures of chrysotile asbestos are not expected. Please comment on EPA's use of physical chemical properties to determine the ecotoxicity hazards from acute exposures.

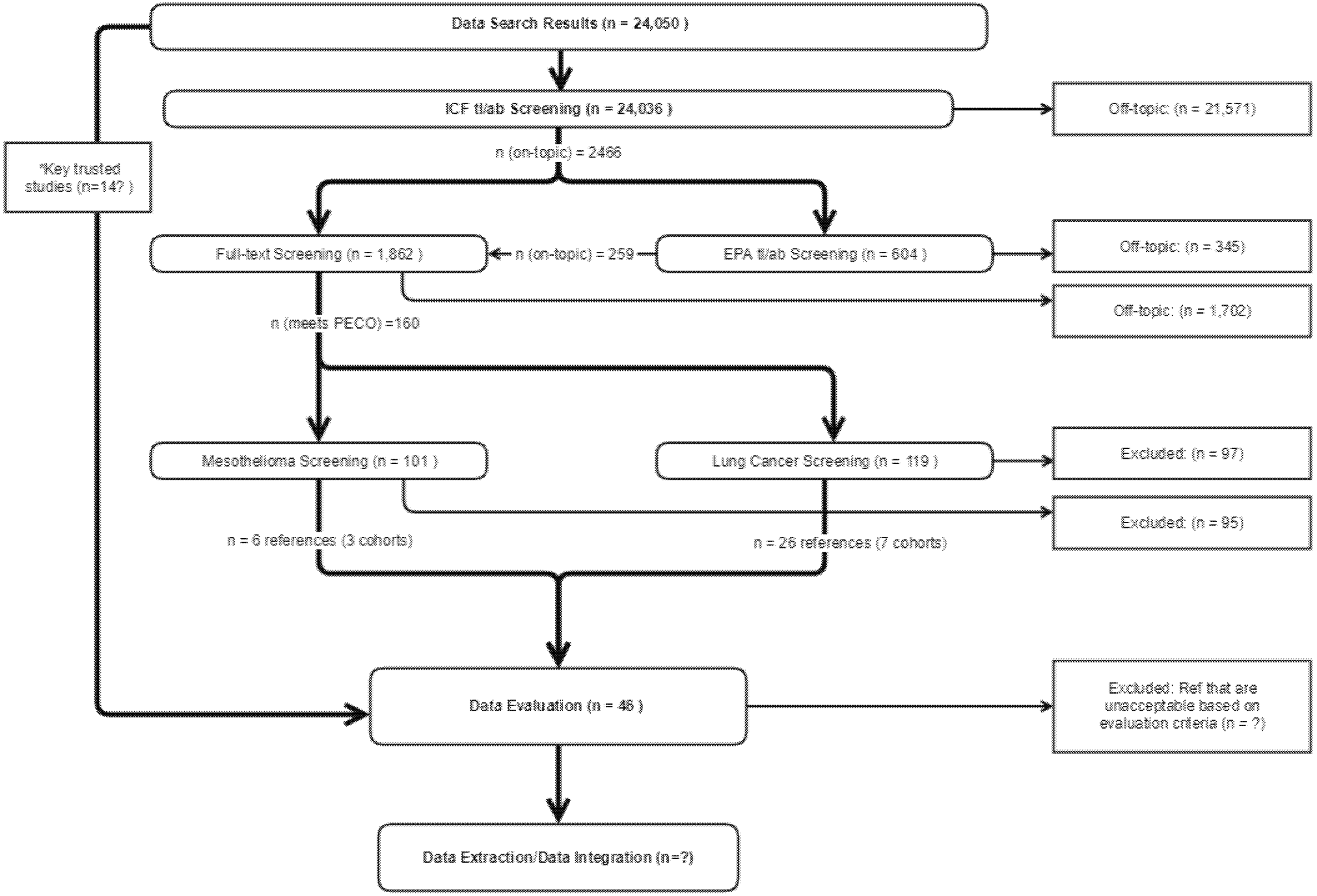
b. The range of aquatic ecotoxicity concern posed by chrysotile asbestos from chronic exposures were based on only 4 acceptable studies from the same author. Please comment on EPA's approach of determining a range of concern due to the limited available ecotoxicity hazard data.

c. EPA was unable to calculate a risk quotient for ecotoxicity due to limited environmental releases data for asbestos. Please comment on EPA's determination that there is no unreasonable risks to ecological receptors from acute and chronic exposures of chrysotile asbestos in the relevant conditions of use.

6. ***Human Health Hazard*** ***To be added***

7. ***Risk Characterization / Risk Determination:*** ***To be added***

ED_005636_00006115-00004



*Any relevant studies from prior assessments that were identified as potentially relevant for TSCA assessment needs bypassed the data screening step and moved directly to the data evaluation step (e.g. key/supporting studies from IRIS assessments, ATSDR assessments, ECHA dossiers, etc.).

Monitoring

ED_005636_00006117-00001

Study Citation:	Rohl, A. N.,Langer, A. M.,Wolff, M. S.,Weisman, I.. 1976. Asbestos exposure during brake lining maintenance and repair. Environmental Research.
Data Type	Monitoring
Hero ID	176

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Not many details provided, but used an OSHA method to collect inhalation samples.
	Metric 2:	Analytical Methodology	Acceptable	2	Method cited, but not osha or astm. No LOQ.
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	nan
	Metric 5:	Currency	Acceptable	3	nan
	Metric 6:	Spatial and Temporal Variability	Acceptable	3	¡5 per scenario
	Metric 7:	Exposure Scenario	Acceptable	2	nan
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	nan
	Metric 9:	Quality Assurance	Acceptable	3	nan
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	1	nan
Overall Quality Determination*			Medium	2.0	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

ED_005636_00006117-00002

Study Citation:	Kakooei, H.,Hormozy, M.,Marioryad, H.. 2011. Evaluation of asbestos exposure during brake repair and replacement. Industrial Health.
Data Type	Monitoring
Hero ID	1082293

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Collection of all airborne asbestos samples consistent with NIOSH method 7400. Not calibrated
	Metric 2:	Analytical Methodology	Acceptable	2	Collection of all airborne asbestos samples consistent with NIOSH method 7400 (PCM). Method sensitivity reported.
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Study conducted in 30 brake & replacement auto shops (cars & trucks) in Iran
	Metric 5:	Currency	Acceptable	2	¿5-15 yrs old; samples collected between July 2008 & December 2008
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	large sample size (60 personal air samples collected in the auto shops from 32 cars and 28 trucks)
	Metric 7:	Exposure Scenario	Acceptable	3	Minimal description of the process carried out during brake repair in the auto shops.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Geometric means and ranges of airborne asbestos fiber concentrations provided in Table 1 and concentrations by season (Summer and Autumn) listed in Table 2. No supplemental or raw data are available.
	Metric 9:	Quality Assurance	Acceptable	3	Controls, recoveries not reported
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	nan
Overall Quality Determination*			Medium	2.0	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Cely-García, M. F.,Sánchez, M.,Breysse, P. N.,Ramos-Bonilla, J. P.. 2012. Personal exposures to asbestos fibers during brake maintenance of passenger vehicles. Annals of Occupational Hygiene.				
Data Type	Monitoring				
Hero ID	2560364				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	nan
	Metric 2:	Analytical Methodology	Acceptable	1	nan
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	nan
	Metric 5:	Currency	Acceptable	2	¿5-15 years old
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	nan
	Metric 7:	Exposure Scenario	Acceptable	1	nan
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	nan
	Metric 9:	Quality Assurance	Acceptable	2	nan
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	1	nan
Overall Quality Determination*			High	1.2	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

ED_005636_00006117-00004

Study Citation:	Madl, A. K.,Gaffney, S. H.,Balzer, J. L.,Paustenbach, D. J.. 2009. Airborne asbestos concentrations associated with heavy equipment brake removal. Annals of Occupational Hygiene.
Data Type	Monitoring
Hero ID	2591959

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	nan
	Metric 2:	Analytical Methodology	Acceptable	1	nan
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	nan
	Metric 5:	Currency	Acceptable	2	¿5 - 15 years ago
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	nan
	Metric 7:	Exposure Scenario	Acceptable	2	somewhat relevant exposure scenario for construction equipment
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	nan
	Metric 9:	Quality Assurance	Acceptable	2	Limited previous studies on construction equipment for comparison
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	some discussion based on limited previous studies
Overall Quality Determination*			High	1.4	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Blake, C. L.,Dotson, G. S.,Harbison, R. D.. 2008. Evaluation of asbestos exposure within the automotive repair industry: a study involving removal of asbestos-containing body sealants and drive clutch replacement. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	2599024

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	good sample size and well described scenarios
	Metric 2:	Analytical Methodology	Acceptable	1	PCM and TEM; NIOSH methods
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Michigan
	Metric 5:	Currency	Acceptable	2	5-15 years old
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	personal samples and static samples ; detailed description
	Metric 7:	Exposure Scenario	Acceptable	2	vehicle repair. The study discussed clutches and specifically the seam sealant exposure concentration it may need to be grouped separately, but will be useful to understand the exposures of asbestos. Note seam sealant exposures may not be good surrogate for consumer exposures and will not be useful for brakes.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	Thorough discussion
	Metric 9:	Quality Assurance	Acceptable	1	checked equipment with calibration equipment
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	Some discussion comparison to previous literature
Overall Quality Determination*			High	1.3	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Madl, A. K.,Scott, L. L.,Murbach, D. M.,Fehling, K. A.,Finley, B. L.,Paustenbach, D. J.. 2008. Exposure to chrysotile asbestos associated with unpacking and repacking boxes of automobile brake pads and shoes. Annals of Occupational Hygiene.
Data Type	Monitoring
Hero ID	2601402

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Standard methods were used; thorough description
	Metric 2:	Analytical Methodology	Acceptable	1	Standard methods were used; thorough description; PCM, TEM
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	nan
	Metric 5:	Currency	Acceptable	1	timing, locations of samples given; thorough description
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	good sample size per described scenario and distance: personal/bystander/remote/ambient
	Metric 7:	Exposure Scenario	Acceptable	2	Not consumer but informative comparator scenario
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	nan
	Metric 9:	Quality Assurance	Acceptable	1	nan
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	1	nan
Overall Quality Determination*			High	1.1	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

ED_005636_00006117-00007

Study Citation:	G. C. Jiang, A. K. Madl, K. J. Ingmundson, D. M. Murbach, K. A. Fehling, D. J. Paustenbach, B. L. Finley. 2008. A study of airborne chrysotile concentrations associated with handling, unpacking, and repacking boxes of automobile clutch discs. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	2602094

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling methodology discussed. Airborne asbestos samples were collected in a manner consistent as previously described (Paustenbach et al., 2006). Briefly, samples were collected using mixed cellulose ester (MCE) filter membranes (25 mm, 0.45 um pore size, Zefon International, St. Petersburg, FL, USA) using either portable SKC Universal PCXR (SKC-West, Inc., Fullerton, CA, USA) or Gilian Gilair pumps (Sensidyne Inc., Clearwater, FL, USA) or Dawson 1300 high-volume sampling pumps (Ashtead Technology Rentals, Hayward, CA, USA). The sampling pumps were noted with a Bios DryCal DCLite primary flow calibrator (Bios International Corporation, Butler, NJ, USA) before and after sample collection. Portable SKC or Gilair pumps were used to collect asbestos samples at 2 l per minute (LPM), whereas high-volume pumps were used to collect samples at air flow rates between 3 and 10 LPM. Collection of all airborne asbestos samples was consistent with NIOSH Methods 7400 and 7402. During each individual event, personal air samples were collected on the left and right lapels of the worker. Specifically, worker lapel samples were collected in both 15-min (n = 4, two consecutive samples on both the right and left lapel, 8"10 LPM, respectively) and 60-min (n = 2, one sample on both the left and right lapel, 3"6 LPM, respectively) time segments.

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Study Citation:	G. C. Jiang, A. K. Madl, K. J. Ingmundson, D. M. Murbach, K. A. Fehling, D. J. Paustenbach, B. L. Finley. 2008. A study of airborne chrysotile concentrations associated with handling, unpacking, and repacking boxes of automobile clutch discs. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	2602094

Domain		Metric	Rating	Score	Comments
	Metric 2:	Analytical Methodology	Acceptable	2	Fibers were counted according to the NIOSH Methods 7400 and 7402, which define fibers as being greater than 5 um in length and 0.25 um in diameter and having at least a 3:1 aspect ratio (NIOSH, 1994a,c). All airborne asbestos samples were sent to an American Industrial Hygiene Association accredited laboratory (EMS Laboratories, Pasadena, CA) for analysis of asbestos by Phase Contrast Microscopy (PCM, NIOSH Method 7400) and Transmission Electron Microscopy (TEM, NIOSH Method 7402) (NIOSH, 1994a,c). Air samples were also analyzed according to the International Organization for Standardization (ISO) method for characterization of type, size, and morphology of fibers greater than 5 um in length and 0.25 um in diameter (ISO, 1995).
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used.
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	United States, Santa Rosa, CA
	Metric 5:	Currency	Acceptable	2	¡5 to 15 years (January 2007)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	Large sample size: 100 breathing zone samples on the lapel of a volunteer collected during the stacking, unpacking, and repacking of boxes of asbestos-containing clutches, and the subsequent cleanup and clothes handling. Replicate samples.

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Study Citation:	G. C. Jiang, A. K. Madl, K. J. Ingmundson, D. M. Murbach, K. A. Fehling, D. J. Paustenbach, B. L. Finley. 2008. A study of airborne chrysotile concentrations associated with handling, unpacking, and repacking boxes of automobile clutch discs. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	2602094

Domain		Metric	Rating	Score	Comments
	Metric 7:	Exposure Scenario	Acceptable	3	The different tasks (stacking, unpacking, and repacking of boxes of asbestos-containing clutches) were evaluated over the 3 days of study. On January 20, 2007, discrete airborne asbestos measurements were obtained during the following tasks: (1) continuous repetitive stacking and handling 27 unopened boxes of clutches (1 event); (2) unpacking and repacking one box (4 events); (3) unpacking and repacking one box with overhead disc manipulation and dry cloth wipe (2 events) or spray clean wipe (2 events); (4) counter cleanup (1 event). On January 21, 2007, the tasks were (1) unpacking and repacking one box (4 events), (2) unpacking and repacking two boxes with overhead manipulation (2 events), and (3) counter cleanup (1 event). On January 27, 2007, the tasks were (1) unpacking and repacking one box (4 events), (2) unpacking and repacking two boxes with overhead manipulation (2 events), (3) counter cleanup (1 event), and (4) clothes handling (1 event).
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No supplemental or raw data provided. Table 4 reports summary of airborne asbestos concentrations (f/cc) during different handling scenarios using PCM, TEM, and PCM adjusted (applying the ratio of asbestos fibers : total fibers (including non-asbestos fibers) as determined by TEM to the PCM results.
	Metric 9:	Quality Assurance	Acceptable	3	QA/QC control techniques were not directly discussed, but can be implied through the study's use of standard protocols. The protocol for the study was approved by an accredited Institutional Review Board (IRB).

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Study Citation:	G. C. Jiang, A. K. Madl, K. J. Ingmundson, D. M. Murbach, K. A. Fehling, D. J. Paustenbach, B. L. Finley. 2008. A study of airborne chrysotile concentrations associated with handling, unpacking, and repacking boxes of automobile clutch discs. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	2602094

Domain	Metric	Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 10: Variability and Uncertainty	Acceptable	2	The airborne asbestos concentrations measured in this study are likely biased high for most settings. First, the data were collected under conditions of very little ventilation. Second, the boxes and the clutches used in this study were at least 30 years old and therefore the data are probably conservative for potential exposures that occurred when relatively new clutch boxes were handled or opened. Third, while it is reasonable to expect that a mechanic or parts picker would open (and possibly repack) clutch boxes on a fairly consistent basis, it is unlikely that an auto parts counterman would actually, repetitively, shuffle and stack 27 clutch boxes on a counter in a 30-min period. The same individual conducted all of the tasks in this analysis and therefore the influence of worker-to-worker variability is unknown. Given the fairly simplistic nature of the tasks conducted in this study (e.g., opening/repacking or shuffling clutch boxes), the influence of worker-to-worker variability should be minimal. Future studies evaluating more complex tasks (e.g., performing a complete clutch change) should address this potential variability factor.
Overall Quality Determination*		Medium	2.0	
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	H. J. Cohen, D. R. Van Orden. 2008. Asbestos exposures of mechanics performing clutch service on motor vehicles. Journal of Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	2603896

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Inspection and removal of transmissions and clutches from manual transmission vehicles. 15 vehicles (7 passenger cars, 4 light duty trucks, 2 passenger vans, 1 school bus, and 1 dump truck) were manufactured from 1948-1975. Personal air samples were obtained from 11 vehicles (no personal air sampling was performed on 4 vehicles, including one that had no asbestos in the clutch plate). Air sample collection began with the start of the bell housing removal and was terminated after the clutch plate and samples of the clutch debris were collected. Personal air samples collected on mixed cellulose ester (MCE) filters at a flow rate of 2-3 L/min using a personal sampling pump for a duration of the activity (26-161 minutes).
	Metric 2:	Analytical Methodology	Acceptable	2	Air samples were analyzed according to NIOSH PCM method 7400 and TEM method 7402. It is not specified in Table I if range of results were determined by PCM or TEM. Analyses were performed by a laboratory accredited by the American Industrial Hygiene Association and the National Voluntary Accreditation Program for asbestos analysis. The limit of detection ranged from 0.009"0.079 with a mean value of 0.029 f/cc.
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used.
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	United States, Pittsburgh, PA suburbs
	Metric 5:	Currency	Acceptable	2	¿5 to 15 years (2008 publication date)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Large sample size (46 personal air samples obtained using MCE filters) No replicates.

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Study Citation:	H. J. Cohen, D. R. Van Orden. 2008. Asbestos exposures of mechanics performing clutch service on motor vehicles. Journal of Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	2603896

Domain	Metric		Rating	Score	Comments
	Metric 7:	Exposure Scenario	Acceptable	2	The study authors undertook a study to estimate asbestos exposure of mechanics performing clutch service in automobiles during the 1950s"1990s to compare this estimate with previously published data of asbestos exposures of mechanics performing brake service, and to estimate the incremental exposure of mechanics servicing clutches to their overall 8-hr time-weighted average (TWA) asbestos exposure. This study examined only the removal of clutches from vehicles and not the installation of new clutch assemblies. Samples of clutch wear debris from the bell housing were obtained along with samples from the clutch plates. There was no effort to clean the bell housing surrounding the clutches.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No supplementary or raw data are reported. Table 1 reports the range and mean results. It is not specified in Table I if range of results were determined by PCM or TEM. Air samples for asbestos obtained from the mechanic during the inspection and removal of transmissions and clutches from vehicles ranged from 0.015"0.13 f/cc with a mean value of 0.047 f/cc (the limit of detection ranged from 0.009"0.079 with a mean value of 0.029 f/cc). The current study found that airborne asbestos concentrations during clutch removal averaged below 0.05 f/cc. While the current study did not examine the airborne concentrations during clutch installation, this portion of the exposure for the clutch mechanic should be less than the removal exposure because there should be no manipulation of the friction material on the clutch.

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Study Citation:	H. J. Cohen, D. R. Van Orden. 2008. Asbestos exposures of mechanics performing clutch service on motor vehicles. Journal of Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	2603896

Domain	Metric		Rating	Score	Comments
	Metric 9:	Quality Assurance	Acceptable	3	QA/QC control procedures were not directly discussed., but can be implied b/c study used standard methods and protocols.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	The asbestos concentrations measured in this study came from disassembling vehicles that were found at salvage yards with clutch housings that were more difficult to disassemble than most vehicles mechanics would encounter. This sometimes required more aggressive handling techniques that might have generated higher levels of asbestos than routine clutch servicing. This could explain why the authors" mean asbestos exposure value was nearly the same as that reported in the literature for brake servicing, even though intuitively one would expect higher concentrations from mechanics performing brake service. The authors have no reliable data from the literature to compare with the frequency that clutch service was performed as reported by mechanics in this study.

Overall Quality Determination*	Medium	2.0
Extracted	Yes	

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Cely-García, M. F.,Torres-Duque, C. A.,Durán, M.,Parada, P.,Sarmiento, O. L.,Breysse, P. N.,Ramos-Bonilla, J. P.. 2015. Personal exposure to asbestos and respiratory health of heavy vehicle brake mechanics. Journal of Exposure Science and Environmental Epidemiology.				
Data Type	Monitoring				
Hero ID	3078032				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Good description of methods, equipment used, etc
	Metric 2:	Analytical Methodology	Acceptable	1	Listed well known methods
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Colombia
	Metric 5:	Currency	Acceptable	1	Data collection in early 2012
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	More than 10 workers total for personal monitoring would be better
	Metric 7:	Exposure Scenario	Acceptable	1	Very relevant exposure scenario
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	Extensive discussion
	Metric 9:	Quality Assurance	Acceptable	2	QC and background for personal samples were taken, but no control group for voluntary respiratory health study
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	1	Extensive discussion
Overall Quality Determination*			High	1.2	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Blake, C. L.,Van Orden, D. R.,Banasik, M.,Harbison, R. D.. 2003. Airborne asbestos concentration from brake changing does not exceed permissible exposure limit. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3080338

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Protocol defined sampling methods to be used in tests.
	Metric 2:	Analytical Methodology	Acceptable	1	Air samples analyzed by two methods NIOSH Methods 7400 (PCM) and 7402 (TEM). Reporting detection limits for airborne dust
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Former auto repair facility in New Kensington, PA
	Metric 5:	Currency	Acceptable	2	¿5-15 yrs old; pub date 2003
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Indoor air samples collected at seven locations within building as well as personal air samples collected within the mechanic's breathing zone
	Metric 7:	Exposure Scenario	Acceptable	3	Table 2 outlines procedures and microenvironment (date, temperature, humidity)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Personal air fiber test data provided in Table 4. Results are reported as average airbone fiber concentration during the duration of each test and as an 8-h TWA.
	Metric 9:	Quality Assurance	Acceptable	2	Test 1 was a baseline test involving removal and replacement of brake shoes with no additional manipulation of the brake shoes.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	No standard deviations reported some manipulations of brake repair not captured. Supplemental data not available.
Overall Quality Determination*			Medium	1.8	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Yeung, P.,Patience, K.,Apthorpe, L.,Willcocks, D.. 1999. An Australian study to evaluate worker exposure to chrysotile in the automotive service industry. Applied Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3080975

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling methodology discussed briefly. Nine typical establishments in the Sydney metropolitan area, including five service garages (four for passenger and light commercial vehicles, one for buses and coaches), three brake bonding workshops, and one gasket processing workshop participated in this study. The three brake bonding workshops and one gasket processing workshop were the only workshops in the industry that still processed asbestos-containing products and were located in the Sydney metropolitan area. The study methodology involved air monitoring to estimate exposure to chrysotile at work when chrysotile-containing friction materials were worked on, in relation to the type of control measures used, and sizing of airborne fibers by transmission electron microscopy (TEM). Task-specific personal and area air samples were collected at a flowrate of 2 liters per minute on 25-mm-diameter 0.8 um pore size Millipore mixed cellulose ester membrane filters housed in anti-static cowls, in accordance with the Australian standard membrane filter method. Area samples were taken at fixed locations in the vicinity of the work tasks, and between one and two meters above floor level. Single sample durations were selected not to exceed two hours, such that only a maximum of 240 liters of air would be collected.

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Study Citation:	Yeung, P.,Patience, K.,Apthorpe, L.,Willcocks, D.. 1999. An Australian study to evaluate worker exposure to chrysotile in the automotive service industry. Applied Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3080975

Domain		Metric	Rating	Score	Comments
	Metric 2:	Analytical Methodology	Acceptable	2	Analytical methodology discussed. This approach has resulted in a practical detection limit of around 0.05 f/mL (or 10 fibers/100 graticule areas) by Phase Contrast Microscopy (PCM). In addition to PCM analysis, 16 samples in half filters were selected for TEM analysis on a Phillips CM12 at 8800 X magnification. These 16 samples included all personal samples and some area samples with relatively high PCM fiber readings. TEM analysis was performed to identify asbestos fibers too small to be detected by PCM. Fibrous minerals were identified by selected area electron diffraction (SAED) and energy-dispersive X-ray analysis (EDAX), and sized by length and diameter. The grid openings used in TEM were sized by optical microscopy so that the TEM results could be reported in fibers per equivalent Walton Beckett graticule area and directly compared to the PCM results. Due to the higher resolution power of TEM, respirable fibers of all dimensions were recorded (resolution limit was about 0.02 l m in diameter).
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used.
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Australia, Sydney
	Metric 5:	Currency	Acceptable	3	¿15 years (1996)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Small to moderate sample size (1-6) No replicates.
	Metric 7:	Exposure Scenario	Acceptable	2	Brake and clutch service operations, brake bonding operations, and gasket processing discussed.

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Study Citation:	Yeung, P.,Patience, K.,Apthorpe, L.,Willcocks, D.. 1999. An Australian study to evaluate worker exposure to chrysotile in the automotive service industry. Applied Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3080975

Domain		Metric	Rating	Score	Comments
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No supplemental or raw data. Table II reports fiber concentrations (f/mL) GM and range for PCM for personal air samples for each establishment. Table III reports GM-fiber concentrations (f/mL) for PCM and TEM (chrysotile).
	Metric 9:	Quality Assurance	Acceptable	2	nan
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	PCM is the international regulatory method for the determination of airborne asbestos fiber concentrations. However, as shown in this study, PCM is not able to detect the very many small fibers (¡ 0.2 l m in diameter) generated by high energy shearing processes (e.g., cutting, grinding, and sanding) of asbestos-containing materials. For this type of processes, PCM may underestimate exposure and thus the health risk; and TEM should be used as an adjunct to PCM in any regular air monitoring program.

Overall Quality Determination*	Medium	2.0
Extracted	Yes	

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Cheng, V. K.,O'Kelly, F. J.. 1986. Asbestos exposure in the motor vehicle repair and servicing industry in Hong Kong. Journal of the Society of Occupational Medicine.				
Data Type	Monitoring				
Hero ID	3083368				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	12 garages chosen at random from Factory Inspectorate; description includes placement of individual and task. Occupational used as surrogate for Consumer.
	Metric 2:	Analytical Methodology	Acceptable	2	PCM as recommended by Asbestos Research Council. NIOSH is the standard now. PCM is a NIOSH test, so analytical methodology is appropriate.
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Hong Kong
	Metric 5:	Currency	Acceptable	3	¿15 years old
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	personal samples and static samples within 5 m of activity; good sample size per approach
	Metric 7:	Exposure Scenario	Acceptable	1	very relevant: vehicle repair
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	No raw data but has range and mean : High; absence raw data is not a concern.
	Metric 9:	Quality Assurance	Acceptable	2	Minimal discussion :: No discussion of controls, e.g., flow rate calibration
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	good comparison to other study outcomes :: min/max/mean provided. SD/ quantiles not provided
Overall Quality Determination*			High	1.5	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Langer, A. M.,Maggiore, C. M.,Nicholson, W. J.,Rohl, A. N.,Rubin, I. B.,Selikoff, I. J.. 1979. The contamination of Lake Superior with amphibole gangue minerals. Annals of the New York Academy of Sciences.
Data Type	Monitoring
Hero ID	3084342

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	3	Sampling methodology published elsewhere
	Metric 2:	Analytical Methodology	Acceptable	2	Described but older method
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Lake Superior
	Metric 5:	Currency	Acceptable	3	¿15 yrs old
	Metric 6:	Spatial and Temporal Variability	Acceptable	3	Small sample size for samples drawn from Lake Superior
	Metric 7:	Exposure Scenario	Acceptable	2	Somewhat relevant: drinking water drawn from contaminated surface water. It was unclear as this was an asbestiform particle containing grunerite. This was identified in DMR data however.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Lack of statistical analysis
	Metric 9:	Quality Assurance	Acceptable	2	Minimal discussion
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	Minimal discussion
Overall Quality Determination*			Medium	2.2	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Cooper, T. C.,Sheehy, J. W.,O'Brien, D. M.,McGlothlin, J. D.,Todd, W. F.. 1987. In-Depth Survey Report: Evaluation of Brake Drum Service Controls at United States Postal Service Vehicle Maintenance Facility, Louisville, Kentucky, Report No. CT-152-11B.
Data Type	Monitoring
Hero ID	3099353

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	personal & area air samples collected; Hand-Held Aerosol Monitor (HAM) used to measure & record dust levels
	Metric 2:	Analytical Methodology	Acceptable	1	PCM (NIOSH Method 7400) & TEM LODs reported for PCM
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Louisville, KY
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1987)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	large sample size (12-22 personal, 7-11 fender, 8-11 axle, 5 each background, 4-8 ambient) Duplicate samples collected
	Metric 7:	Exposure Scenario	Acceptable	1	microenvironment (ventilation, temperature, humidity, and wind conditions)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	Raw data included in Appendix A, Table A-1 Summaries provided in Tables 1 and 2 for PCM and TEM, resp.
	Metric 9:	Quality Assurance	Acceptable	1	Field blanks were prepared for each sampling date and submitted for PCM & TEM analysis
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	nan
Overall Quality Determination*			High	1.3	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Godbey, F. W.,Cooper, T. C.,Sheehy, J. W.,O'Brien, D. M.,Van Wagenen, H. D.,McGlothlin, J. D.,Todd, W. F.. 1987. In-Depth Survey Report: Evaluation of Brake Drum Service Controls at United States Postal Service, Vehicle Maintenance Facility, Nashville, Tennessee, Report No. CT-152-20B.
Data Type	Monitoring
Hero ID	3099476

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	personal & area air samples collected; Hand-Held Aerosol Monitor (HAM) used to measure & record dust levels
	Metric 2:	Analytical Methodology	Acceptable	1	PCM (NIOSH Method 7400) & TEM LODs reported for PCM
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Nashville, TN
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1986)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	large sample size (10-20 personal, 10 each fender and axle, 8-16 background, 4-8 ambient) Duplicate samples collected
	Metric 7:	Exposure Scenario	Acceptable	1	microenvironment (ventilation, temperature, humidity, and wind conditions)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	Raw data included in Appendix A, Table A-1 Summaries provided in Tables 1 and 2 for PCM and TEM, resp.
	Metric 9:	Quality Assurance	Acceptable	3	Field blanks were prepared for each sampling date and submitted for PCM & TEM analysis
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	nan
Overall Quality Determination*			High	1.6	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Sheehy, J. W.,Todd, W. F.,Cooper, T. C.,Van Wagenen, H. D.. 1987. In-Depth Survey Report: Evaluation of Brake Drum Service Controls at Cincinnati Bell Maintenance Facility, Fairfax, Ohio, Report No. CT-152-21B.
Data Type	Monitoring
Hero ID	3099480

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	personal & area air samples collected; Hand-Held Aerosol Monitor (HAM) used to measure & record dust levels; calibrated
	Metric 2:	Analytical Methodology	Acceptable	1	PCM & TEM LODs reported for TEM
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Fairfax, OH
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1986-1987)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	large sample size (13 each personal, 5 each fender and axle, 7-12 background, 7-12 ambient) Duplicate samples collected
	Metric 7:	Exposure Scenario	Acceptable	1	microenvironment (ventilation, temperature, humidity)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	Raw data included in Appendix A, Table 1 Summaries provided in Tables 2 & 3 for PCM and TEM, resp.
	Metric 9:	Quality Assurance	Acceptable	2	Field blanks were prepared for each sampling date and submitted for PCM & TEM analysis.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	nan
Overall Quality Determination*			High	1.4	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Kauppinen, T.,Korhonen, K.. 1987. Exposure to Asbestos During Brake Maintenance of Automotive Vehicles by Different Methods. American Industrial Hygiene Association Journal.
Data Type	Monitoring
Hero ID	3100008

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling method discussed briefly. Measurements carried out by authors in 7 out of the 24 work-places. Other results collected from the measurement reports that include a description of sampling and anaytical methods used, data on sampling sites and time, and results with pertinent comments.
	Metric 2:	Analytical Methodology	Acceptable	3	Phase-contrast-optical microscope standardized Method (Finnish Standard SFS 3868). Method has been tested in international quality control analyses.
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	24 work places in Finland
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1977-1983)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Number of samples varies from 1-30 based on operation in brake maintenance of trucks & buses or passenger cars. No replicates. Various number of work-places (1-13) and range of sampling time.
	Metric 7:	Exposure Scenario	Acceptable	2	Source of exposure presented by operation and type of vehicle.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Supplemental or raw data are not reported. Concentrations by operation in brake maintenance (range, median, mean, number of samples, range of sampling time) reported in Table 1 trucks & buses and Table 2 for passenger cars.
	Metric 9:	Quality Assurance	Acceptable	2	The method has been tested in international quality control analyses. The calculated concentrations do not include the background concentration of asbestos, b/c only very few data were available.

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Study Citation:	Kauppinen, T.,Korhonen, K.. 1987. Exposure to Asbestos During Brake Maintenance of Automotive Vehicles by Different Methods. American Industrial Hygiene Association Journal.
Data Type	Monitoring
Hero ID	3100008

Domain	Metric	Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 10: Variability and Uncertainty	Acceptable	2	Variations in respirable dust concentrations measured by Leitz tyndallometer during different cleaning procedures are shown in Figure 2. The unestimated background concentration of asbestos in the brake maintenance work places, however, gives rise to the possibility of underestimation of the TWA concentrations.
Overall Quality Determination*		Medium	2.1	
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling methodology was discussed. Personal air samples were collected to estimate airborne fiber exposure levels that mechanic and hypothetical bystanders would encounter during the servicing and handling of asbestos-containing gaskets. The equipment utilized for collecting personal samples consisted of battery powered portable air pumps, Ametek Model alpha 1, that drew air at metered flowrates, nominally 2.0"2.4 liters per minute (lpm), through 25-mm diameter cassettes mounted mixed cellulose ester (MCE) membrane filters. The cassettes were placed within the mechanic"s breathing zone. The membrane filters placed atop the mechanics right shoulder were of 0.8 micron (um) pore size, while those placed atop his left shoulder were of 0.45 um pore size.

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Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain	Metric		Rating	Score	Comments
	Metric 2:	Analytical Methodology	Acceptable	2	Samples were analyzed using phase contrast microscopy (PCM) and transmission electron microscopy (TEM). PCM analysis followed the National Institute of Occupational Safety and Health (NIOSH) Method 7400. This analytical method is unable to distinguish between fibers of asbestos and non-asbestos origins, and provides an index of airborne fibers commonly used to estimate asbestos concentrations (NIOSH, 1994a). The optical limitations of the phase contract microscope restrict its resolution capabilities to fibers wider than 0.25 micrometer (m) and longer than 5m in length. Additionally, fibers not exhibiting a three to one length to width ratio are excluded from the counting process. Use of this method satisfies requirements of the OSHA standards for asbestos specific air sampling. PCM analysis of air samples counts all resolvable fibrous structures including non-asbestos fibers that meet the dimensional criteria. There exists the potential for such analysis to yield airborne fiber concentration data which exceed the actual airborne asbestos concentrations. In settings such as automobile repair shops, cellulose fibers, long thin metal fragments from power brushing activities and synthetic, and other fibers often appear in air samples taken during work of the type subject of this research. For this reason, additional analysis of air samples was done using TEM, following NIOSH Method 7402. This analytical method measures fibers longer than 5 um and wider than 0.25 um, and allows development of an asbestos-to-total fiber ratio. This ratio is then multiplied by the airborne fiber concentration generated using the PCM analysis, yielding an asbestos fiber count known as phase contrast microscopy equivalent (PCME). This asbestos fiber count may be used for comparison against occupational exposure limits (OEL) such as the OSHA PEL or NIOSH recommended exposure limits (REL). Detection limits are not reported.

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Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain		Metric	Rating	Score	Comments
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used.
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	United States, Detroit, MI
	Metric 5:	Currency	Acceptable	2	¿ 5 to 15 years (2006 publication date)
	Metric 6:	Spatial and Temporal Variability	Acceptable	3	Small sample size (3 personal air samples), no replicates

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Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain		Metric	Rating	Score	Comments
	Metric 7:	Exposure Scenario	Acceptable	2	Asbestos exposure during the removal of asbestos-containing gaskets on vehicles. Engine disassembly; gaskets removed - 1974 Chevrolet Malibu and Ford cubic inch V-8 390 Engine. During the gasket removal test sessions, the mechanic first removed engine heads and manifolds components that covered or otherwise held the target gaskets. Many of these gaskets came off intact leaving gasket residue on the metal mating surface. Bulk samples of the removed gaskets were obtained for subsequent analysis. The mechanic next scraped away gasket residue using a wide blade putty knife, sometimes assisted with a rubber hammer. Loose parts, such as engine heads and manifolds, were next immersed into a water bath cleaner, a product of Safety Kleen, and washed using an Arm and Hammer brand Aqua Works Cold Cleaning Solution, before being burnished using a rotary 1-in. knot type wire end brush, NAPA service tools Part Number (P/N) 2312. The end brush was powered by a hand held drill motor, Ingersoll Rand model 7803R, operated from 90 PSI line pressure. To aid in the gasket and other residue removal process, the mechanic sprayed the parts with a non-chlorine containing solvent dispersed from an aerosol spray can, Aerosol Systems, Inc., P/N TM 3506. This solvent contained; xylenes, aliphatic petroleum distillates, and acetone, with a compressed carbon dioxide propellant. When cleaning the surfaces of fixed, non-transportable parts such as engine blocks, the mechanic utilized scraping, powered wire brushing, and solvent spray, however no aqueous wash occurred with the fixed parts. This process continued until all gasket remnants were removed from the loose parts and engine blocks, and subject parts were sufficiently clean to allow reassembly.

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Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain	Metric		Rating	Score	Comments
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Personal air samples results containing asbestos fibers were reported in Table 7 as PCM 8-HR TWA (f/cc) and PCME 8-HR TWA (f/cc) . No supplemental or raw data were provided. Note: The minimum PCME 8-hr TWA value (0.0018 f/cc) reported in Table 6 does not match the minimum personal PCME 8-hr TWA value (0.0008 f/cc) reported in Table 7.
	Metric 9:	Quality Assurance	Acceptable	3	QA/QC procedures not directly discussed, but can be implied

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Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain	Metric	Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 10: Variability and Uncertainty	Acceptable	2	Limitations associated with NIOSH Methods 7400 and 7402 are discussed. Criticism of the use of phase contrast microscopy and transmission electron microscopy focuses on the exclusion of short (¡5 um long) and long, but thin (¡0.25 um wide) asbestos fibers (Atkinson et al., 2004; Lemen, 2004). Those who oppose the use of NIOSH Methods 7400 and 7402 state that the elimination of short and thin structures from the data set underestimates the risk that exposed workers encounter. Recent committee findings released by the Agency for Toxic Substances and Disease Registry (ATSDR) report limited or no human cancer risk from fibers fitting the previous descriptions (ATSDR, 2003). Research has demonstrated that the pathogenesis of asbestos-related diseases is directly influenced by the physical dimensions of asbestos fibers (Stanton et al., 1981). The length and width of fibers determine their ability to be deposited within the lungs, and subsequently affect the onset of malignant and non-malignant diseases (Lippmann, 1990; ATSDR, 2003). Fibers longer than 10 um are not easily phagocytized, and tend to remain in the lower respiratory tract or penetrate the pleural membrane (Hume and Rimstidt, 1992). Shorter fibers, including the fiber populations (¡5 um in length and ¡0.25 um in width) excluded from consideration by NIOSH Methods 7400 and 7402, are arguably of less significance in terms of the development of asbestos-related cancers. In addition, the debate regarding dimension based fiber exclusion distracts attention from the real benefit these methods offer. NIOSH Methods 7400/7402 data can be directly compared against established health risk databases. No such databases exist for the asbestos structure data for short (¡5 um long) and long but thin (¡0.25 um wide) asbestos fibers. Despite the limitations associated with these NIOSH Methods 7400 and 7402, the advantages of their use exceed their disadvantages.

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Study Citation:	C. L. Blake, G. S. Dotson, R. D. Harbison. 2006. Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3520458

Domain	Metric	Rating	Score	Comments
Overall Quality Determination*		Medium	2.1	
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Kakooei, H.,Sameti, M.,Kakooei, A. A.. 2007. Asbestos exposure during routine brake lining manufacture. Industrial Health.				
Data Type	Monitoring				
Hero ID	3531014				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling during different activities in two areas of a friction material manufacturing plant; OSHA method ID 160/cod
	Metric 2:	Analytical Methodology	Acceptable	1	PCM and TEM
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Iran. Not a USA sample
	Metric 5:	Currency	Acceptable	3	¿15 yrs (2002)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	well-described scenarios; 30-60 min personal air sampling; 60-120 min for area sampling
	Metric 7:	Exposure Scenario	Acceptable	3	brake lining manufacture not brake repair; may provide supplemental information
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	thorough
	Metric 9:	Quality Assurance	Acceptable	2	discussed: PCM only
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	discussed: not random selection; summer
Overall Quality Determination*			Medium	1.7	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	L. R. Liukonen, F. W. Weir. 2005. Asbestos exposure from gaskets during disassembly of a medium duty diesel engine. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3531131

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling methodology discussed. All samples were collected using SKC PCXR3 or PCXR7 sampling pumps and open-faced 25mm mixed cellulose ester filters. The pumps were calibrated to a nominal 2L/min (lpm) before and after each day of testing with a primary standard (Mini-Buck). Sampling procedures were in accordance with National Institute of Occupational Safety and Health (NIOSH) Sampling and Analytical Method 7400, Asbestos and Other Fibers by PCM (NIOSH, 1994). Throughout the disassembly process, portions of all engine gaskets were placed in sealed polyethylene sample bags, labeled, and stored for subsequent analysis. Personal and area air samples were collected to evaluate the quantity of asbestos fibers in the breathing zone of the mechanic as well as the area near the disassembly procedure. The personal sampler was located on the lapel of the mechanic"s shirt. For several of the gasket-surface cleaning tasks, a third sample was collected where one of the observers wore a second monitor and stood as near as was practical to the mechanic throughout the task"approximately 2"5 ft. To the extent possible, the observer with the monitor stood facing the mechanic and directly across from the work being performed to sample the air for any materials generated by the process.

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Study Citation:	L. R. Liukonen, F. W. Weir. 2005. Asbestos exposure from gaskets during disassembly of a medium duty diesel engine. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3531131

Domain		Metric	Rating	Score	Comments
	Metric 2:	Analytical Methodology	Acceptable	2	Analyses were conducted using PCM as required by NIOSH 7400 and the Occupational Safety and Health Administration (OSHA) Reference Method. Analysis was by RJ Lee Group, a laboratory accredited by the American Industrial Hygiene Association (AIHA) and National Voluntary Laboratory Accreditation program (NVLAP). As PCM does not distinguish between asbestos and non-asbestos fibers, samples that recorded detectable concentrations of airborne fibers were further analyzed by TEM using NIOSH 7402, Asbestos by TEM (NIOSH, 1994) to determine a ratio of asbestos to nonasbestos fibers. This ratio was then used to reduce, if appropriate, the fiber count.
	Metric 3:	Biomarker Selection	N/A	N/A	No biomarker used.
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	United States; authors from TX. The engine rebuilding was conducted at a privately operated, independent repair facility.
	Metric 5:	Currency	Acceptable	2	¿5 to 15 years (2005 publication date). Early part of August.
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Large sample size (14 personal air samples collected over 3 days during 10 engine disassembly task). No replicates.

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Study Citation:	L. R. Liukonen, F. W. Weir. 2005. Asbestos exposure from gaskets during disassembly of a medium duty diesel engine. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3531131

Domain		Metric	Rating	Score	Comments
	Metric 7:	Exposure Scenario	Acceptable	2	Disassembly of the engine was divided into tasks. The mechanic was instructed to proceed as he would for any similar procedure, but to identify and describe each task as he initiated work. No attempt was made by any party to suggest procedures or to otherwise influence the customary processes of the mechanic. The mechanic removed the gaskets with a scraper. Any remaining residue was cleaned from the surface using either a rotary wire brush or a 3M brand Scotch Brite pad on a hand held air-operated grinder. Gasket scraps were allowed to fall to the floor until normal work area cleanup was done by the mechanic, usually at the end of each work interval, such as at the end of the day. Each task was timed. Table 1 presents information relating to the disassembly tasks. For the most part, personal samples were changed at the beginning of each task, except as noted.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No supplementary or raw data provided. PCM personal air sample results reported in Table 3 for 10 disassembly tasks. These results are presented as fibers greater than 5 um in length per cubic centimeter of air (f/cm3) as determined by phase contrast microscopy.
	Metric 9:	Quality Assurance	Acceptable	2	QA/QC techniques and results not directly discussed but can be implied through the study's use of standard field and laboratory protocols.

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Study Citation:	L. R. Liukonen, F. W. Weir. 2005. Asbestos exposure from gaskets during disassembly of a medium duty diesel engine. Regulatory Toxicology and Pharmacology.
Data Type	Monitoring
Hero ID	3531131

Domain	Metric		Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	3	A limiting factor in determining exposure to asbestos fibers during investigations such as the diesel engine overhaul is the accumulation of particulate on the filters. This limitation becomes more pronounced as sample times and volumes increase. The industrial hygienist must balance the need to collect sufficient volume of the workplace air to permit sufficient sensitivity but not so much as to overload the filter so that the fibers cannot be reliably counted. Thus, because of the presence of other, [non-fibrous], particulate in the atmosphere of the workshop, the detection limits in such a study are somewhat less than optimal. less than optimal.
Overall Quality Determination*			Medium	2.0	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Mangold, C.,Clark, K.,Madl, A.,Paustenbach, D.. 2006. An exposure study of bystanders and workers during the installation and removal of asbestos gaskets and packing. Journal of Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3531143

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling methods discussed for each test. No calibration.
	Metric 2:	Analytical Methodology	Acceptable	1	Series of five studies. Methods were discussed separately for each study. Tests II, II, II: PCM using P&CAM 239 Method, precursor of NIOSH Method 7400, Tests IV & V: Personal samples analyzed by NIOSH Method 7400 (PCM) and area samples analyzed by NIOSH Methods 7400 (PCM) & 7402 (TEM). Bulk sample analysis was not performed and rationale provided.
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	First author worked at Puget Sound Naval Shipyard, Washington
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1982-1991)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Mostly a small to moderate sample size (n= 2-8) for each test, no replicates.
	Metric 7:	Exposure Scenario	Acceptable	2	Series of 5 simulation studies, personal and area airborne asbestos exposures were characterized over the course of an 8 hour workday as workers performed gasket and packing work. Various activities were studied that are applicable to the scope.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Supplemental or raw data are not reported. Airborne concentrations of asbestos for workers and/or bystanders (breathing zone and area) were reported in Tables I, II, III, IV, and V for each activity.
	Metric 9:	Quality Assurance	Acceptable	2	For Test III, duplicate environmental air samples collected prior to testing to confirm absence of ambient asbestos contamination.

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Study Citation:	Mangold, C.,Clark, K.,Madl, A.,Paustenbach, D.. 2006. An exposure study of bystanders and workers during the installation and removal of asbestos gaskets and packing. Journal of Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3531143

Domain	Metric	Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 10: Variability and Uncertainty	Acceptable	2	Discussion section: Author states one shortcoming in the studies is the lack of bulk sampling data for many of the gaskets and packing that were removed and installed. However, the first author was confident that the materials contained asbestos because 1) former shipyard employment gave him considerable knowledge about the prevalence of asbestos in the gaskets and packing used on naval ships; 2) his background in characterizing shipyard sources of asbestos exposure gave him ability to visibly distinguish ACM, and through his interactions with various industries he was aware of which industries historically used asbestos packing and gaskets.
Overall Quality Determination*		Medium	1.8	
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Paustenbach, D. J.,Madl, A. K.,Donovan, E.,Clark, K.,Fehling, K.,Lee, T. C.. 2006. Chrysotile asbestos exposure associated with removal of automobile exhaust systems (ca. 1945-1975) by mechanics: results of a simulation study. Journal of Exposure Science and Environmental Epidemiology.
Data Type	Monitoring
Hero ID	3531296

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Limitation of only 2 mechanics being sampled
	Metric 2:	Analytical Methodology	Acceptable	1	nan
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Study was conducted inn Santa Rosa, CA.
	Metric 5:	Currency	Acceptable	2	¿5 - 15 years old
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	nan
	Metric 7:	Exposure Scenario	Acceptable	1	nan
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No raw data
	Metric 9:	Quality Assurance	Acceptable	3	very little discussion of QA/QC measures
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	needs better discussion of uncertainty
Overall Quality Determination*			High	1.6	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Salazar, N.,Cely-García, M. F.,Breysse, P. N.,Ramos-Bonilla, J. P.. 2015. Asbestos exposure among transmission mechanics in automotive repair shops. Annals of Occupational Hygiene.				
Data Type	Monitoring				
Hero ID	3531407				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Samples collected using NIOSH Methods 7400 and 7402
	Metric 2:	Analytical Methodology	Acceptable	1	Samples analyzed using NIOSH Methods 7400 (PCM) and 7402 (TEM) in an accredited laboratory
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Bogota, Columbia
	Metric 5:	Currency	Acceptable	1	Within 5 years (2012 and 2013)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	large sample size (150 samples total: 39 personal samples of different duration, 49 short-term personal samples, 52 area samples, 8 blanks, and 2 background samples)
	Metric 7:	Exposure Scenario	Acceptable	1	personal asbestos exposure of transmission mechanics that manipulate clutch facings; microenvironment (ventilation, temperature, and relative humidity)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Article refers to Supplementary Tables available at Annals of Occupational Hygiene online Summary statistics provided in Table 4 for personal asbestos concentrations found in the transmission repair shop
	Metric 9:	Quality Assurance	Acceptable	1	Blank samples were collected for each sampling day.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	To capture potential variability of asbestos content, four clutch facings per brand were analyzed.
Overall Quality Determination*			High	1.2	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Weir, F. W.,Tolar, G.,Meraz, L. B.. 2001. Characterization of vehicular brake service personnel exposure to airborne asbestos and particulate. Applied Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3531556

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Phase 1 monitoring protocol for a "closed" drum brake system. Instrument calibrated
	Metric 2:	Analytical Methodology	Acceptable	1	Phase 1 air samples analyzed using PCM (NIOSH Method 239).
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Public service organization auto/truck repair facility (Texas? All three authors from Texas)
	Metric 5:	Currency	Acceptable	3	¿15 yrs (2001 pub date)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Phase 1: Three vehicles monitored. A total of 36 samples collected during this series; five stationary samples and one personal sample collected for each rear wheel of every vehicle.
	Metric 7:	Exposure Scenario	Acceptable	2	Description of facility, gas heaters in operation so limited air circulation in work area
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	3	Phase 1 results reported as average ranges. No supplemental or raw data provided.
	Metric 9:	Quality Assurance	Acceptable	3	No controls, baseline, recoveries reported
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	3	Average concentrations reported. No maximum values so variability is unknown.
Overall Quality Determination*			Medium	2.1	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Pitt, R.. 1988. ASBESTOS AS AN URBAN AREA POLLUTANT. Journal of Water Pollution Control Federation.
Data Type	Monitoring
Hero ID	3580912

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Sampling procedures & equipment described, calibration not mentioned.
	Metric 2:	Analytical Methodology	Acceptable	1	Two phased approach: screening qualitative procedure and quantitative transmission electron microscopic and selected-area electron diffraction (TEM/SAED). Procedures based on published EPA methodology.
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Castro Valley, CA
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1979 and 1980)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Moderate sample size, 22 samples collected showed quantitative results for asbestos, 5 of which were creek water samples
	Metric 7:	Exposure Scenario	Acceptable	2	Some asbestos pipe may be involved, the primary source of asbestos in San Francisco drinking water is the erosion of serpentine rock formations.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Supplemental or raw data are not reported. Table 1 reports results of TEM/SAED quantitative asbestos analyses on Creek water samples
	Metric 9:	Quality Assurance	Acceptable	2	Two phase approach to analysis, optical qualitative screening and quantitative TEM/SAED. No recoveries or controls
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	Individual creek asbestos concentrations (Table 5) vary widely. Only a few medium sized runoff events contributed most of the asbestos. These concentration estimates can therefore be expected to vary appreciably for other periods and locations of monitoring.
Overall Quality Determination*			Medium	1.8	

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Study Citation:	Pitt, R.. 1988. ASBESTOS AS AN URBAN AREA POLLUTANT. Journal of Water Pollution Control Federation.
Data Type	Monitoring
Hero ID	3580912

Domain	Metric	Rating	Score	Comments
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3.

Study Citation:	Hickish, D. E.,Knight, K. L.. 1970. Exposure to asbestos during brake maintenance. Annals of Occupational Hygiene.
Data Type	Monitoring
Hero ID	3610801

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Limit information on sampling methodology discussed; however, article stated air sampling was carried out using membrane filters and sampling and subsequent assessment was in accordance with the technique described in the "Hygiene Standard for Chrysotile Asbestos Dust" (1968); not calibrated
	Metric 2:	Analytical Methodology	Acceptable	2	Limit information on analytical methodology discussed; however, article stated air sampling and subsequent assessment was in accordance with the technique described in the "Hygiene Standard for Chrysotile Asbestos Dust" (1968)
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Study conducted at Service Bay of a Ford Main Dealer in Greater London area in England
	Metric 5:	Currency	Acceptable	3	¿15 yrs old; 1970 pub date
	Metric 6:	Spatial and Temporal Variability	Acceptable	3	small sample size (6 personal during car brake service, 4 personal druing truck brake service, and 3 general area air samples collected during truck brake service in morning and afternoon)
	Metric 7:	Exposure Scenario	Acceptable	3	Minimal description of the process carried out during brake servicing on cars and trucks in the auto shop. Brake servicing carried out on 11 vehicles.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	3	Concentration (fibers/cm3) results were presented in Tables 2 (6 personal air samples during car brake service), 3 (general atmosphere samples during truck brake service in morning and afternoon, 4 (personal air samples during truck brake & clutch service during various operations; No supplemental or raw data are available.
	Metric 9:	Quality Assurance	Acceptable	3	Controls, recoveries not reported

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Study Citation:	Hickish, D. E.,Knight, K. L.. 1970. Exposure to asbestos during brake maintenance. Annals of Occupational Hygiene.
Data Type	Monitoring
Hero ID	3610801

Domain	Metric	Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 10: Variability and Uncertainty	Acceptable	3	Does not compare to other studies. No standard deviation or ranges reported.
Overall Quality Determination*		Low	2.5	
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Rohl, A. N.,Langer, A. M.,Klimentidis, R.,Wolff, M. S.,Seilikoff, I. J.. 1977. Asbestos content of dust encountered in brake maintenance and repair. Proceedings of the Royal Society of Medicine.
Data Type	Monitoring
Hero ID	3615571

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	Air sampling for the determination of fiber concentrations in accordance with OSHA techniques
	Metric 2:	Analytical Methodology	Acceptable	2	Analytical methods for the determination of fiber concentrations in accordance with OSHA techniques Reporting limits, detection limits (LOQ/LOD) not reported
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	NYC
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1977 study pub date)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	large sample size (13 for automotive brake repair & 23 for truck brake repair) no replicates?
	Metric 7:	Exposure Scenario	Acceptable	1	Source of exposure: blowing dust from brake drums; renewing used linings by grinding Various distances from source
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No supplemental or raw data
	Metric 9:	Quality Assurance	Acceptable	2	Samples of brake dust first examined by optical microscopy, X-ray diffraction, transmission electron microscopy and energy dispersive X-ray spectroscopy to determine presence of chrysotile.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	For dust samples, article indicates that samples were obtained from areas representing variable circumstances (e.g., driving conditions, friction material composition, type of automobile and climate For personal air samples, samples collected from various distances from source.
Overall Quality Determination*			Medium	1.7	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3.

Study Citation:	Spencer, J. W.,Plisko, M. J.,Balzer, J. L.. 1999. Asbestos fiber release from the brake pads of overhead industrial cranes. Applied Occupational and Environmental Hygiene.
Data Type	Monitoring
Hero ID	3615974

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	SOP developed which included atmospheric screening test, baseline sample collection & sampling protocol. Calibration not reported
	Metric 2:	Analytical Methodology	Acceptable	1	NIOSH Method 7400 -Issue 2 (PCM); NIOSH Method 7402 (TEM); LOQ reported
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Evaluation performed in a building utilized for product subassembly and light welding at a mining equipment manufacturing plant. The specific location city was not provided.
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1999 pub date)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	large sample size (32 air samples collected during the process evaluation)
	Metric 7:	Exposure Scenario	Acceptable	2	exposure control: all heating and ventilation with in the building was deactivated. Temperatures reported.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	nan
	Metric 9:	Quality Assurance	Acceptable	2	No recoveries or controls provided.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	No range of value reported.
Overall Quality Determination*			Medium	1.7	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Niosh,. 1976. Preliminary industrial hygiene survey at Auto Brake Clinic, Cincinnati, Ohio.				
Data Type	Monitoring				
Hero ID	3645882				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	3	Limit information on sampling methodology. Seven general area and five personal air samples collected on millipore filters. Three bulk brake drum dust samples collected; sampling methodology not specified. Not calibrated
	Metric 2:	Analytical Methodology	Acceptable	3	Limited analytical methodology information provided. Both general area and personal samples analyzed by phase contrast counting methods. Bulk brake drum dust were presently being analyzed by electron microscopy.
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Study conducted at Auto Brake Clinic in Cincinnati, OH
	Metric 5:	Currency	Acceptable	3	¿15 yrs old; samples collected August 1976
	Metric 6:	Spatial and Temporal Variability	Acceptable	3	small sample size (4 personal and 7 general area air samples collected; during the survey the brakes of four vehicles were serviced)
	Metric 7:	Exposure Scenario	Acceptable	3	Minimal description of the process carried out during brake servicing in the auto shop.
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Fiber concentration (fibers ¿5 "m/cc of air) results were presented in Table I for four personal and 7 general area. No supplemental or raw data are available.
	Metric 9:	Quality Assurance	Acceptable	3	Controls, recoveries not reported
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	3	Range of sample concentrations not reported.
Overall Quality Determination*			Low	2.6	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3.

Study Citation:	Lorimer, W. V.,Rohl, A. N.,Miller, A.,Nicholson, W. J.,Selikoff, I. J.. 1976. Asbestos exposure of brake repair workers in United States. Mount Sinai Journal of Medicine.
Data Type	Monitoring
Hero ID	3646036

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	3	"Standard OSHA" but no description of type of personal air monitor used
	Metric 2:	Analytical Methodology	Acceptable	2	"standard optical technique" and OSHA standard for fiber counting but sounds outdated
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	nan
	Metric 5:	Currency	Acceptable	3	personal air monitoring for 2-10 min; actual dates of sampling not discussed; 1976 print date
	Metric 6:	Spatial and Temporal Variability	Acceptable	3	Only one shop tested in NYC; background samples taken at various distances and times but not specified; moderate sample size per exposure scenario
	Metric 7:	Exposure Scenario	Acceptable	1	Very relevant exposure scenario
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	3	duration of sampling for personal samples not reported individually, only background has specific duration of sampling;
	Metric 9:	Quality Assurance	Acceptable	3	Little discussion of QA/QC; dust samples were examined by two techniques for comparison
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	3	little discussion; conclusions indicate that results can't be generalized to all brake workers; states both TWA and peak levels showed significant asbestos exposure but TWA was not calculated for this study
Overall Quality Determination*			Low	2.4	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Sheehy, J. W.,Godbey, F. W.,Cooper, T. C.,Lenihan, K. L.,Van Wagenen, H. D.,McGlothlin, J. D.. 1987. In-Depth Survey Report: Control Technology for Brake Drum Service Operations at Ohio Department of Transportation, Maintenance Facility, Lebanon, Ohio, CT-152-18b.
Data Type	Monitoring
Hero ID	3648228

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	personal & area air samples collected; Hand-Held Aerosol Monitor (HAM) used to measure & record dust levels; calibrated
	Metric 2:	Analytical Methodology	Acceptable	1	PCM (NIOSH Method 7400) & TEM LODs reported for PCM
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Lebanon, OH
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1986)
	Metric 6:	Spatial and Temporal Variability	Acceptable	1	large sample size (18 each personal, 9 each fender and axle, 10-11 background, 10-12 ambient) Duplicate samples collected
	Metric 7:	Exposure Scenario	Acceptable	1	microenvironment (ventilation, temperature, humidity, and wind conditions)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	1	Raw data included in Appendix A, Table 1 Summaries provided in Tables 1 and 2a for PCM and TEM, resp. Table 2b TEM concentrations excluding one large salt truck
	Metric 9:	Quality Assurance	Acceptable	2	Field blanks were prepared for each sampling date and submitted for PCM & TEM analysis.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	Detection was only slightly above background. No statistical difference between ambient and background conc.
Overall Quality Determination*			High	1.4	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Sheehy, J. W.,Cooper, T. C.,O'Brien, D. M.,McGlothlin, J. D.,Froehlich, P. A.. 1989. Control of asbestos exposure during brake drum service.				
Data Type	Monitoring				
Hero ID	3655537				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	1	personal & area air samples collected; Hand-Held Aerosol Monitor (HAM) used to measure & record dust levels; calibrated
	Metric 2:	Analytical Methodology	Acceptable	1	PCM & TEM LODs reported for PCM
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	U.S., sites not specified, taken from in-depth surveys
	Metric 5:	Currency	Acceptable	3	¿15 yrs (1989 study pub date)
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	small to large sample size, based on Control Method Note: Water hose and solvent control method is considered a "do-it-yourself" mechanic (2 samples each for PCM and TEM)
	Metric 7:	Exposure Scenario	Acceptable	1	microenvironment (ventilation, temperature, humidity)
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	No raw/supplemental data Summaries provided in Tables 5-1 and 5-2 for PCM and Tables 5-3 and 5-4 for TEM
	Metric 9:	Quality Assurance	Acceptable	2	Samples analyzed by PCM & TCM. "Uncontrolled" samples (i.e., no dust controls were used; brake drums were banged on the floor to remove dust) were also analyzed.
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	nan
Overall Quality Determination*			High	1.6	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3.

Study Citation:	Roberts, D. R.. 1980. Industrial hygiene report: Asbestos at Allied Brake Shop, Cincinnati, OH.				
Data Type	Monitoring				
Hero ID	4152150				
Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Brake shop exposure: personal exposures for two mechanics; general area samples; 15 minute samples
	Metric 2:	Analytical Methodology	Acceptable	2	transmission electron microscope (TEM) utilizing selected area electron diffraction (SAED) and an energy dispersive X-ray analyzer;
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Cincinnati Ohio
	Metric 5:	Currency	Acceptable	3	1979; ¿ 15 yrs old
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	personal as well as area samples taken for spatial variability; lacks temporal based only on one day's sampling.
	Metric 7:	Exposure Scenario	Acceptable	1	very relevant exposure during brake repair
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Minimal discussion
	Metric 9:	Quality Assurance	Acceptable	3	minimal discussion
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	2	Minimal discussion
Overall Quality Determination*			Medium	2.0	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	Roberts, D. R.. 1980. Industrial hygiene survey report of the New York City sanitation, traffic, and police brake servicing facilities, Queens, New York.
Data Type	Monitoring
Hero ID	4152152

Domain		Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	3	Personal breathing zone, general area, high-volume general area, and bulk brake dust samples were collected. Minimal description of sampling methodology.
	Metric 2:	Analytical Methodology	Acceptable	2	Occupational Safety and Health Administration and the NIOSH P&CAM #239. PCM and TEM
	Metric 3:	Biomarker Selection	N/A	N/A	nan
Domain 2: Representativeness	Metric 4:	Geogrpahic Area	Acceptable	1	Queens, NY
	Metric 5:	Currency	Acceptable	3	¿ 15 yrs old
	Metric 6:	Spatial and Temporal Variability	Acceptable	2	Sampling across three different repair stations: sanitation, traffic, and police vehicle repair stations; small sample sizes per scenario
	Metric 7:	Exposure Scenario	Acceptable	1	very relevant brake maintenance exposure
Domain 3: Accessibility/Clarity	Metric 8:	Reporting of Results	Acceptable	2	Acceptable discussion of results; lacking calculations to compare across different time/volume sampling
	Metric 9:	Quality Assurance	Acceptable	2	The filters were changed periodically during the work shift to prevent overloading of the sampling media; varying total times for sampling
Domain 4: Variability and Uncertainty	Metric 10:	Variability and Uncertainty	Acceptable	3	Peak .samples were collected using identical media and flow rate as when workers were cleaning dust from brake assemblies; small sample sizes for each scenario; discusses actual activities during sampling
Overall Quality Determination*			Medium	2.1	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Experimental

ED_005636_00006117-00056

Study Citation:	Weir, F. W.,Tolar, G.,Meraz, L. B.. 2001. Characterization of vehicular brake service personnel exposure to airborne asbestos and particulate. Applied Occupational and Environmental Hygiene.
Data Type	Experimental
Hero ID	3531556

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology and Conditions	Acceptable	1	Phase 2, during Run 1 utilize sampling pumps to estimate airborne concentrations in the breathing zone at various positions, Runs 2, 3, & 4 conducted within an exposure chamber with sampling pumps. All sampling pumps were calibrated.
	Metric 2:	Analytical Methodology	Acceptable	1	Phase 2 samples submitted to accredited lab for analysis. NIOSH Method #7400 (PCM) to evaluate all area and personal total and respirable airborne fiber samples. Bulk samples from the brake pad analyzed by Polarized Light Microscopy (PCM).
	Metric 3:	Biomarker Selection	N/A	N/A	Biomarker is not used
Domain 2: Representative	Metric 4:	Testing Scenario	Acceptable	2	Four sequences of tests run. Run 1 conducted outside of chamber; Runs 2, 3, and 4 conducted in a dynamic flow exposure chamber; environmental conditions include no detectable net air flow. Chamber temperature maintained at 26C during study.
	Metric 5:	Sample Size and Variability	Acceptable	3	Sample size not really reported, but I don't want to make it unacceptable. Air samples both personal and area} were collected. Discussion on placement and position of sampling pumps. For asbestos content verification, a bulk sample was collected from each of the 6 pairs of shoes used in this study.
	Metric 6:	Temporality	Acceptable	3	¿15 yrs (2001 pub date)
Domain 3: Accessibility/Clarity	Metric 7:	Reporting of Results	Acceptable	3	Phase 2 results reported in the text only, no tables. No supplemental or raw data provided.
	Metric 8:	Quality Assurance	N/A	N/A	For asbestos content verification, a bulk sample was collected from each of the 6 pairs of shoes used in this study.

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Study Citation:	Weir, F. W.,Tolar, G.,Meraz, L. B.. 2001. Characterization of vehicular brake service personnel exposure to airborne asbestos and particulate. Applied Occupational and Environmental Hygiene.
Data Type	Experimental
Hero ID	3531556

Domain	Metric	Rating	Score	Comments
Domain 4: Variability and Uncertainty	Metric 9: Variability and Uncertainty	Acceptable	3	The sample data was not summarized in a table to provided statistics on variance. Since it was an emission study it was not clear why more studies were not collected.
Overall Quality Determination*		Medium	2.2	
Extracted		Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Databases Not Unique to a Chemical

ED_005636_00006117-00059

Study Citation:	U.S, E. P. A.. 2017. Chemical and product categories: Amosite.
Data Type	Databases Not Unique to a Chemical
Hero ID	3970094

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Sampling Methodology	Acceptable	2	Could not find documentation of how MSDS were selected. for inclusion
	Metric 2:	Analytical Methodology	N/A	N/A	no analytical method for msds.
Domain 2: Representative	Metric 3:	Geographic Area	Acceptable	1	nan
	Metric 4:	Temporal	Acceptable	1	nan
	Metric 5:	Exposure Scenario	Acceptable	1	nan
Domain 3: Accessibility/Clarity	Metric 6:	Availability of DB and Supporting Documents	Acceptable	2	Documentation available, but limited.
	Metric 7:	Reporting Results	Acceptable	1	nan
Domain 4: Variability and Uncertainty	Metric 8:	Variability and Uncertainty	N/A	N/A	nan
Overall Quality Determination*			High	1.3	
Extracted			No		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Completed Exposure Assessments

ED_005636_00006117-00061

Study Citation:	Richter, R. O.,Finley, B. L.,Paustenbach, D. J.,Williams, P. R. D.,Sheehan, P. J.. 2009. An evaluation of short-term exposures of brake mechanics to asbestos during automotive and truck brake cleaning and machining activities. Journal of Exposure Science and Environmental Epidemiology.
Data Type	Completed Exposure Assessment
Hero ID	2548725

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Methodology	Acceptable	2	Studies accepted from a large date range; good description of acceptance criteria
Domain 2: Representative	Metric 2:	Exposure Scenario	Acceptable	1	Very relevant exposure scenario: mechanic's exposure; gives numerous raw data values and SD/range information
Domain 3: Accessibility/Clarity	Metric 3:	Documentation of References	Acceptable	2	Gives a complete list of the included studies and the large database used to search for them; could use more discussion of search terms
Domain 4: Variability and Uncertainty	Metric 4:	Variability and Uncertainty	Acceptable	2	Discussion of variability among mechanical procedures for creating dust and discussed uncertainty regarding simulating pre-1970 conditions
Overall Quality Determination*			Medium	1.8	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Study Citation:	P. E. I. Associates. 1985. Asbestos dust control in brake maintenance. Draft.
Data Type	Completed Exposure Assessment
Hero ID	4151966

Domain	Metric		Rating	Score	Comments
Domain 1: Reliability	Metric 1:	Methodology	Acceptable	3	Because this monitoring was done under a variety of sampling times and conditions. with variable amounts of brake drum dust, and variable asbestos concentrations in the dust. and by different test methods, the results should be viewed only as rough estimates of worker exposure.
Domain 2: Representative	Metric 2:	Exposure Scenario	Acceptable	1	very relevant: dust control for brake maintenance workers
Domain 3: Accessibility/Clarity	Metric 3:	Documentation of References	Acceptable	3	A mix of old agency reports and publications, industry papers, and also some personal communications and workshops; but well documented
Domain 4: Variability and Uncertainty	Metric 4:	Variability and Uncertainty	Acceptable	2	Variability described and uncertainty addressed; ultimately a comparison of dust control methods relative to each other.
Overall Quality Determination*			Medium	2.2	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Survey

ED_005636_00006117-00064

Study Citation:	H. J. Cohen, D. R. Van Orden. 2008. Asbestos exposures of mechanics performing clutch service on motor vehicles. Journal of Occupational and Environmental Hygiene.
Data Type	Survey
Hero ID	2603896

Domain	Metric	Rating	Score	Comments
Domain 1: Reliability	Metric 1: Data Collection Methodology	Acceptable	2	A telephone survey was initiated to learn about the nature and frequency of performing clutch service from mechanics who began this work in the 1950s"1970s. Various individuals were contacted from automotive manufacturers and suppliers to solicit names and contact numbers for such older mechanics. Names and telephone numbers of 23 mechanics were obtained. Four of these individuals could not be contacted; one who indicated that he had never performed clutch service on vehicleswas excluded; and two individuals did not have time to participate in this survey. The 16 mechanics who participated in this survey worked at a variety of small (two-bay) to large (30-bay) shops and performed either general mechanical work or specialized in transmission service. These mechanics worked at a variety of locations in the following states: Connecticut, California, Texas, Ohio, Indiana, Pennsylvania, and New York. All of the mechanics volunteered to participate in this survey and did not receive compensation for their time (approximately 10"15 min). In the questionnaire, participants were asked specifically to refer to their work in the 1970s"1980s and not more recent times when clutch service was likely to be less frequent. Each participant was informed that their information would be confidential and that the purpose was to write a paper that described clutch service activities and to estimate asbestos exposures that occurred 20"30 years ago. Questions were asked to solicit their input regarding the nature of their workplace, the frequency of clutch repair work, the time required to perform this service, and the methods employed in performing their work. A copy of the questionnaire was included as Appendix A.

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Study Citation:	H. J. Cohen, D. R. Van Orden. 2008. Asbestos exposures of mechanics performing clutch service on motor vehicles. Journal of Occupational and Environmental Hygiene.
Data Type	Survey
Hero ID	2603896

Domain	Metric		Rating	Score	Comments
	Metric 2:	Data Analysis Methodology	Acceptable	2	Sixteen mechanics participated in the telephone survey, and a summary of their responses is displayed in Table II. These mechanics stated that they performed clutch service approximately once every 3 weeks, and the time involved servicing clutches averaged about 4 hr (a wide range of responses from 1"10 hr). Mechanics (15 out of 16) indicated they always replaced the entire clutch assembly when they performed service, not just the clutch plate. Most mechanics stated that it was their usual practice to clean the bell housing with a wet method using an automotive cleaner. Most mechanics learned of the hazards of asbestos by the 1970s, and they stopped using compressed air during their work. None of the respondents ever indicated that they had worn a respirator while handling asbestos containing friction materials.
Domain 2: Representative	Metric 3:	Geographic Area	Acceptable	1	The mechanics surveyed worked in at a variety of locations in the following states: Connecticut, California, Texas, Ohio, Indiana, Pennsylvania, and New York.
	Metric 4:	Sampling / Sampling Size	Acceptable	2	Sixteen mechanics participated in the telephone survey, and a summary of their responses is displayed in Table II.
	Metric 5:	Response Rate	Acceptable	2	Sixteen mechanics participated in the telephone survey, and a summary of their responses is displayed in Table II. Data in Table II excluded one mechanic who did not perform brake service and one mechanic who estimated that the ratio of brake to clutch jobs was 216:1.

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ED_005636_00006117-00066

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Study Citation:	H. J. Cohen, D. R. Van Orden. 2008. Asbestos exposures of mechanics performing clutch service on motor vehicles. Journal of Occupational and Environmental Hygiene.
Data Type	Survey
Hero ID	2603896

Domain	Metric		Rating	Score	Comments
Domain 3: Accessibility/Clarity	Metric 6:	Reporting of Results	Acceptable	2	Sixteen mechanics participated in the telephone survey, and a summary of their responses is displayed in Table II. These mechanics stated that they performed clutch service approximately once every 3 weeks, and the time involved servicing clutches averaged about 4 hr (a wide range of responses from 1"10 hr). Mechanics (15 out of 16) indicated they always replaced the entire clutch assembly when they performed service, not just the clutch plate. Most mechanics stated that it was their usual practice to clean the bell housing with a wet method using an automotive cleaner. Most mechanics learned of the hazards of asbestos by the 1970s, and they stopped using compressed air during their work. None of the respondents ever indicated that they had worn a respirator while handling asbestos containing friction materials.
	Metric 7:	Quality Assurance	Acceptable	3	QA/QC control techniques and results not directly discussed.
Domain 4: Variability and Uncertainty	Metric 8:	Variability and Uncertainty	N/A	N/A	Key uncertainties, limitations, and data gaps are not discussed.
Overall Quality Determination*			Medium	2.1	
Extracted			Yes		

* If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High=$\geq$ 1 to $<$ 1.7; Medium =$\geq$ 1.7 to $<$ 2.4; Low =$\geq$ 2.4 to $<$ 3.

Modeling

ED_005636_00006117-00068

For references containin information on multiple test organisms, durations, and/or effects in the TSCA Risk Evaluation of Asbestos, multiple data quality evaluation tables are provided *only if* the metrics were evaluated differently. Some papers that underwent evaluatoin but fell off-topic later on are not summarized in the data evaluation tables. Refer to Appendix F of '*Application of Systematic Review in TSCA Risk Evaluations*' at https://www.epa.gov for more information of evaluation procedures and parameters.

ED_005636_00006118-00001

Table 1: Data Evaluation table for reference 621276 (https://heronet.epa.gov/heronet/index.cfm/reference/download/reference_id/621276).

Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.. 2007. Environmental contamination of chrysotile asbestos and its toxic effects on antioxidative system of Lemna gibba. Archives of Environmental Contamination and Toxicology 52:355-362
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	621276

Domain		Metric	Rating†	MWF*	Score	Comments††
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	× 2	2	The test substance was identified definitively.
	Metric 2:	Test Substance Source	Low	× 1	3	Although the test material source not defined there is no indication this impacted the results of the study.
	Metric 3:	Test Substance Purity	Low	× 1	3	Although the purity was not reported, there is no indication that this had an effect on the results.
Domain 2: Test Design						
	Metric 4:	Negative Controls	Medium	× 2	4	Although aquatic plants used as controls were cultured in nutrient mediumwithout chrysotile fiber, they were from the third generation of plants obtained from a natural habitat in an aquatic body that was contaminated with asbestos. There are uncertainties (e.g., due to epigenetics) around how the initial exposure to asbestos at the parent generation would affect the plants from the third generation.
	Metric 5:	Negative Control Response	Medium	× 1	2	There were minor uncertainties or limitations regarding the biological responses of the negative control group(s).
	Metric 6:	Randomized Allocation	Low	× 1	3	Researchers did not report how organisms were allocated to study group.
Domain 3: Exposure Characterization						
	Metric 7:	Experimental System/Test Media Preparation	Unacceptable		4	The test organisms were cultured in a media containing asbestos, while also being exposed at a rate that is reported in terms of exposure per frond. The authors did not provide sufficient detail about the test organisms or exposure regime (ex. how many fronds per plant? Does excess test media applied to fronds enter the test suspension?) to allow the reviewer to confirm the scientific validity of this study.

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Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.. 2007. Environmental contamination of chrysotile asbestos and its toxic effects on antioxidative system of Lemna gibba. Archives of Environmental Contamination and Toxicology 52:355-362
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	621276

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 8:	Consistency of Exposure Administration	Unacceptable		4	There were serious flaws in how the aquatic plants were exposed to asbestos. The authors described the test media as containing asbestos, while describing the exposure of asbestos to the fronds. This led the reviewer to question the source of the effects observed in this study and whether it was due to asbestos in the media or the asbestos applied to the frond. In addition, the lack of detail about the procedure used to apply asbestos to the fronds meant that the exposure cannot be adequately understood from the information provided in this study.
	Metric 9:	Measurement of Test Substance Concentration	N/A		N/A	Exposure concentrations to fronds in the plants were not measured due to the insoluble nature of asbestos fibers.
	Metric 10:	Exposure Duration and Frequency	High	× 2	2	Experiments were carried out for a test duration of 28 days. EPA determined this to be acceptable.
	Metric 11:	Number of Exposure Groups/Spacing of Exposure Levels	Low	× 1	3	There were no Justifications provided for the selection of the test concentrations.
	Metric 12:	Testing at or Below Solubility Limit	N/A		N/A	Test media was left in suspension because asbestos is an insoluble particle. .
Domain 4: Test Organism						
	Metric 13:	Test Organism Characteristics	Medium	× 2	4	There are minor reservations or uncertainties about the source of test organisms.
	Metric 14:	Acclimitization and Pretreatment Conditions	Unacceptable		4	Plants were cultured in a media containing asbestos which may interfere with the ability of the authors to adequately quantify the effects of the test material.
	Metric 15:	Number of Organisms and Replicates per Group	High	× 1	1	The numbers of test organisms and replicates were reported and sufficient to characterize toxicological effects.
	Metric 16:	Adequacy of Test Conditions	Unacceptable		4	Plants were cultured in a media containing asbestos in addition to having suspensions containing asbestos applied to their fronds.
Domain 5: Outcome Assessment						
	Metric 17:	Outcome Assessment Methodology	Low	× 2	6	The results were sufficiently reported, but uncertainties regarding the exposure led the reviewer to question the applicability of the results.

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Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.. 2007. Environmental contamination of chrysotile asbestos and its toxic effects on antioxidative system of Lemna gibba. Archives of Environmental Contamination and Toxicology 52:355-362
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	621276

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 18:	Consistency of Outcome Assessment	Medium	× 1	2	There were incomplete reporting of minor details of outcome assessment protocol execution, but these uncertainties or limitations are unlikely to have substantial impact on results.
Domain 6: Confounding / Variable Control						
	Metric 19:	Confounding Variables in Test Design and Procedures	Medium	× 2	4	The study reported minor differences among the study groups with respect to environmental conditions or other non-treatment-related factors, but these are unlikely to have a substantial impact on results.
	Metric 20:	Outcomes Unrelated to Exposure	High	× 1	1	There were no differences among groups that could influence the outcome assessment.
Domain 7: Data Presentation and Analysis						
	Metric 21:	Statistical Methods	High	× 1	1	Statistical methods were clearly described and appropriate for dataset(s).
	Metric 22:	Reporting of Data	Unacceptable		4	Results were reported in terms of asbestos applied to each frond, but there were critical details lacking about the characteristics of the test organisms, particularly regarding the number of fronds /plant.
	Metric 23:	Explanation of Unexpected Outcomes	High	× 1	1	There were no unexpected outcomes, or unexpected outcomes were satisfactorily explained.
Overall Quality Determination‡			Unacceptable		4.0	
Extracted			No			

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Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.. 2007. Environmental contamination of chrysotile asbestos and its toxic effects on antioxidative system of Lemna gibba. Archives of Environmental Contamination and Toxicology 52:355-362
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	621276

Domain	Metric	Rating†	MWF*	Score	Comments††

* MWF = Metric Weighting Factor

† High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

‡ The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \sum_i (\text{Metric Score}_i \times \text{MWF}_i) \,/\, \sum_j \text{MWF}_j \right\rceil_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3. If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow points to the new rating.

†† Reviewers document uncertainties and strengths for each metric, when deemed necessary.

** Note: This metric met the criteria for medium or high confidence rating as described in Appendix F of the Application of Systematic Review for TSCA Risk Evaluations document. EPA acknowledges that there are instances where the characteristics of the study does not fully fulfill the criteria of the particular metrics. EPA plans to default to the definitions of the confidence levels and corresponding scores at the metric level (see below) when the criteria language is not currently optimized to capture a variety of study characteristics. EPA is in the process of identifying these issues to optimize the evaluation tool. **(a)** High: No notable deficiencies or concerns are identified in the domain metric that are likely to influence the results [score of 1]. **(b)** Medium: Minor uncertainties or limitations are noted in the domain metric that are unlikely to have a substantial impact on the results [score of 2]. **(c)** Low: Deficiencies or concerns are noted in the domain metric that are likely to have a substantial impact on the results [score of 3]. **(d)** Unacceptable: Serious flaws are noted in the domain metric that consequently make the data/information source unusable. [score of 4]. **(e)** Not rated/applicable: Rating of this metric is not applicable to the data/information source being evaluated [no score].

Table 2: Data Evaluation table for reference 3080106 (https://heronet.epa.gov/heronet/index.cfm/reference/download/reference_id/3080106).

Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.,Rahman, Q.. 2004. Environmental contamination of chrysotile asbestos and its toxic effects on growth and physiological and biochemical parameters of Lemna gibba. Archives of Environmental Contamination and Toxicology 47:281-289
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	3080106

Domain	Metric		Rating†	MWF*	Score	Comments††
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	× 2	2	The test substance was identified definitively.
	Metric 2:	Test Substance Source	Low	× 1	3	Although the test material source not defined there is no indication this impacted the results of the study.
	Metric 3:	Test Substance Purity	Low	× 1	3	Although the purity was not reported, there is no indication that this had an effect on the results.
Domain 2: Test Design						
	Metric 4:	Negative Controls	Medium	× 2	4	Although aquatic plants used as controls were cultured in nutrient mediumwithout chrysotile fiber, they were from the third generation of plants obtained from a natural habitat in an aquatic body that was contaminated with asbestos. There are uncertainties (e.g., due to epigenetics) around how the initial exposure to asbestos at the parent generation would affect the plants from the third generation.
	Metric 5:	Negative Control Response	Medium	× 1	2	There were minor uncertainties or limitations regarding the biological responses of the negative control group(s).
	Metric 6:	Randomized Allocation	Low	× 1	3	Researchers did not report how organisms were allocated to study group.
Domain 3: Exposure Characterization						
	Metric 7:	Experimental System/Test Media Preparation	Unacceptable		4	The test organisms were cultured in a media containing asbestos, while also being exposed at a rate that is reported in terms of exposure per frond. The authors did not provide sufficient detail about the test organisms or exposure regime (ex. how many fronds per plant? Does excess test media applied to fronds enter the test suspension?) to allow the reviewer to confirm the scientific validity of this study.

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ED_005636_00006118-00006

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Study Citation: Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.,Rahman, Q.. 2004. Environmental contamination of chrysotile asbestos and its toxic effects on growth and physiological and biochemical parameters of Lemna gibba. Archives of Environmental Contamination and Toxicology 47:281-289

Data Type: Chronic (>21 days); Aquatic; Plants

Hero ID: 3080106

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 8:	Consistency of Exposure Administration	Unacceptable		4	There were serious flaws in how the aquatic plants were exposed to asbestos. The authors described the test media as containing asbestos, while describing the exposure of asbestos to the fronds. This led the reviewer to question the source of the effects observed in this study and whether it was due to asbestos in the media or the asbestos applied to the frond. In addition, the lack of detail about the procedure used to apply asbestos to the fronds meant that the exposure cannot be adequately understood from the information provided in this study.
	Metric 9:	Measurement of Test Substance Concentration	N/A		N/A	Exposure concentrations to fronds in the plants were not measured due to the insoluble nature of asbestos fibers.
	Metric 10:	Exposure Duration and Frequency	High	× 2	2	Experiments were carried out for a test duration of 28 days. EPA determined this to be acceptable.
	Metric 11:	Number of Exposure Groups/Spacing of Exposure Levels	Low	× 1	3	There were no Justifications provided for the selection of the test concentrations.
	Metric 12:	Testing at or Below Solubility Limit	N/A		N/A	Test media was left in suspension because asbestos is an insoluble particle.
Domain 4: Test Organism						
	Metric 13:	Test Organism Characteristics	Medium	× 2	4	There are minor reservations or uncertainties about the source of test organisms.
	Metric 14:	Acclimitization and Pretreatment Conditions	Unacceptable		4	Plants were cultured in a media containing asbestos which may interfere with the ability of the authors to adequately quantify the effects of the test material.
	Metric 15:	Number of Organisms and Replicates per Group	High	× 1	1	The numbers of test organisms and replicates were reported and sufficient to characterize toxicological effects.
	Metric 16:	Adequacy of Test Conditions	Unacceptable		4	Plants were cultured in a media containing asbestos in addition to having suspensions containing asbestos applied to their fronds.
Domain 5: Outcome Assessment						

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ED_005636_00006118-00007

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Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.,Rahman, Q.. 2004. Environmental contamination of chrysotile asbestos and its toxic effects on growth and physiological and biochemical parameters of Lemna gibba. Archives of Environmental Contamination and Toxicology 47:281-289
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	3080106

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 17:	Outcome Assessment Methodology	Low	× 2	6	The results were sufficiently reported, but uncertainties regarding the exposure led the reviewer to question the applicability of the results.
	Metric 18:	Consistency of Outcome Assessment	Medium	× 1	2	There were incomplete reporting of minor details of outcome assessment protocol execution, but these uncertainties or limitations are unlikely to have substantial impact on results.
Domain 6: Confounding / Variable Control						
	Metric 19:	Confounding Variables in Test Design and Procedures	Medium	× 2	4	The study reported minor differences among the study groups with respect to environmental conditions or other non-treatment-related factors, but these are unlikely to have a substantial impact on results.
	Metric 20:	Outcomes Unrelated to Exposure	High	× 1	1	There were no differences among groups that could influence the outcome assessment.
Domain 7: Data Presentation and Analysis						
	Metric 21:	Statistical Methods	High	× 1	1	Statistical methods were clearly described and appropriate for dataset(s).
	Metric 22:	Reporting of Data	Unacceptable		4	Results were reported in terms of asbestos applied to each frond, but there were critical details lacking about the characteristics of the test organisms, particularly regarding the number of fronds /plant.
	Metric 23:	Explanation of Unexpected Outcomes	High	× 1	1	There were no unexpected outcomes, or unexpected outcomes were satisfactorily explained.
Overall Quality Determination‡			Unacceptable		4.0	
Extracted			No			

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Study Citation:	Trivedi, A. K.,Ahmad, I.,Musthapa, M. S.,Ansari, F. A.,Rahman, Q.. 2004. Environmental contamination of chrysotile asbestos and its toxic effects on growth and physiological and biochemical parameters of Lemna gibba. Archives of Environmental Contamination and Toxicology 47:281-289
Data Type:	Chronic (>21 days); Aquatic; Plants
Hero ID:	3080106

Domain	Metric	Rating†	MWF*	Score	Comments††

* MWF = Metric Weighting Factor

† High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

‡ The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \sum_i (\text{Metric Score}_i \times \text{MWF}_i) \,/\, \sum_j \text{MWF}_j \right\rceil_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3. If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow points to the new rating.

†† Reviewers document uncertainties and strengths for each metric, when deemed necessary.

** Note: This metric met the criteria for medium or high confidence rating as described in Appendix F of the Application of Systematic Review for TSCA Risk Evaluations document. EPA acknowledges that there are instances where the characteristics of the study does not fully fulfill the criteria of the particular metrics. EPA plans to default to the definitions of the confidence levels and corresponding scores at the metric level (see below) when the criteria language is not currently optimized to capture a variety of study characteristics. EPA is in the process of identifying these issues to optimize the evaluation tool. **(a)** High: No notable deficiencies or concerns are identified in the domain metric that are likely to influence the results [score of 1]. **(b)** Medium: Minor uncertainties or limitations are noted in the domain metric that are unlikely to have a substantial impact on the results [score of 2]. **(c)** Low: Deficiencies or concerns are noted in the domain metric that are likely to have a substantial impact on the results [score of 3]. **(d)** Unacceptable: Serious flaws are noted in the domain metric that consequently make the data/information source unusable. [score of 4]. **(e)** Not rated/applicable: Rating of this metric is not applicable to the data/information source being evaluated [no score].

Table 3: Data Evaluation table for reference 3093600 (https://heronet.epa.gov/heronet/index.cfm/reference/download/reference_id/3093600).

Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. UPTAKE OF CHRYSOTILE ASBESTOS FIBERS ALTERS GROWTH AND REPRODUCTION OF ASIATIC CLAMS. Canadian Journal of Fisheries and Aquatic Sciences 43:43-52
Data Type:	Chronic (>21 days); Aquatic; Invertebrates
Hero ID:	3093600

Domain		Metric	Rating†	MWF*	Score	Comments††
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	× 2	2	Grade 5 chrysotile asbestos mined ore was used.
	Metric 2:	Test Substance Source	Low	× 1	3	The study authors did not report the specific commercial supplier or batch/lot # used to obtain the test substance.
	Metric 3:	Test Substance Purity	Low	× 1	3	The study authors mentioned "Grade 5 chrysotile asbestos" was used but did not define what the "Grade 5" represents.
Domain 2: Test Design						
	Metric 4:	Negative Controls	High	× 2	2	The study authors used an appropriate concurrent negative control group (i.e., all conditions equal except chemical exposure).
	Metric 5:	Negative Control Response	High	× 1	1	The biological responses (e.g., survival, growth, reproduction, etc.) of the negative control group(s) were adequate.
	Metric 6:	Randomized Allocation	Low	× 1	3	Study authors obtained clams from New River, Virginia and transported these clams to their lab at Virginia Tech. There were no discussions about separating these clams into formal randomized groups.
Domain 3: Exposure Characterization						
	Metric 7:	Experimental System/Test Media Preparation	High	× 2	2	The experimental system and methods for preparation of test media were described in adequate detail and appropriately accounted for the physical-chemical properties of the test substance.
	Metric 8:	Consistency of Exposure Administration	Low	× 1	3	Difficulties with measuring asbestos accurately posed challenges in consistent administration of test substance. Study authors used nominal concentrations of asbestos in their experiments and mentioned that the detection limits for all concentrations ranged from 1.79E4 to 6.91E4 fibers. However, they tested concentrations up to 10E8. Although troubling, this issue is an inherent challenge to asbestos, a difficult to test chemical.

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Study Citation: Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. UPTAKE OF CHRYSOTILE ASBESTOS FIBERS ALTERS GROWTH AND REPRODUCTION OF ASIATIC CLAMS. Canadian Journal of Fisheries and Aquatic Sciences 43:43-52

Data Type: Chronic (>21 days); Aquatic; Invertebrates

Hero ID: 3093600

Domain		Metric	Rating†	MWF*	Score	Comments††
	Metric 9:	Measurement of Test Substance Concentration	N/A		N/A	Nominal values are highly uncertain due to the nature of the test substance. As a result, the effect concentrations reported in this study may misrepresent the actual effect concentrations.
	Metric 10:	Exposure Duration and Frequency	High	× 2	2	The duration of exposures and/or exposure frequency were reported and appropriate for the study type and/or outcome(s) of interest.
	Metric 11:	Number of Exposure Groups/Spacing of Exposure Levels	High	× 1	1	The number of exposure groups and spacing of exposure levels were justified by study authors, adequate to address the purpose of the study (e.g., the selected doses produce a range of responses), and allowed for identification of endpoint values.
	Metric 12:	Testing at or Below Solubility Limit	N/A		N/A	Asbestos fibers are insoluble in water and organic solvents.
Domain 4: Test Organism						
	Metric 13:	Test Organism Characteristics	High	× 2	2	The test organisms were adequately described and were obtained from a reliable source. The test organisms were appropriate for evaluation of the specific outcome(s) of interest.
	Metric 14:	Acclimitization and Pretreatment Conditions	High	× 1	1	Clams were acclimatized to laboratory conditions for 1-2 weeks prior to experiments and all pretreatment conditions were the same for control and exposed populations
	Metric 15:	Number of Organisms and Replicates per Group	Medium	× 1	2	The numbers of test organisms and replicates were sufficient to characterize toxicological effects, but minor uncertainties or limitations were identified regarding the number of test organisms and/or replicates that are unlikely to have a substantial impact on results.
	Metric 16:	Adequacy of Test Conditions	High	× 1	1	Clams were adequately housed and fed in exposure system.
Domain 5: Outcome Assessment						
	Metric 17:	Outcome Assessment Methodology	High	× 2	2	Measured endpoints that were able to detect a true biological effect or hazard.

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Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. UPTAKE OF CHRYSOTILE ASBESTOS FIBERS ALTERS GROWTH AND REPRODUCTION OF ASIATIC CLAMS. Canadian Journal of Fisheries and Aquatic Sciences 43:43-52
Data Type:	Chronic (>21 days); Aquatic; Invertebrates
Hero ID:	3093600

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 18:	Consistency of Outcome Assessment	High	× 1	1	Details of the outcome assessment protocol were reported and outcomes were assessed consistently across study groups (e.g., at the same time after initial exposure) using the same protocol in all study groups.
Domain 6: Confounding / Variable Control						
	Metric 19:	Confounding Variables in Test Design and Procedures	High	× 2	2	There were no reported differences among the study groups in environmental conditions or other factors that could influence the outcome assessment.
	Metric 20:	Outcomes Unrelated to Exposure	High	× 1	1	Details regarding test organism attrition and outcomes unrelated to exposure (e.g., infection) were reported for each study group and there were no differences among groups that could influence the outcome assessment.
Domain 7: Data Presentation and Analysis						
	Metric 21:	Statistical Methods	High	× 1	1	Kruskal-Wallis test used was adequate for test objectives. Statistical methods were clearly described and appropriate for dataset(s).
	Metric 22:	Reporting of Data	High	× 2	2	Data for exposure-related findings were presented for each treatment and control group and were adequate to determine values for the endpoint(s) of interest.
	Metric 23:	Explanation of Unexpected Outcomes	High	× 1	1	There were no unexpected outcomes, or unexpected outcomes were satisfactorily explained.
Overall Quality Determination‡			High		1.3	
Extracted			Yes			

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Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. UPTAKE OF CHRYSOTILE ASBESTOS FIBERS ALTERS GROWTH AND REPRODUCTION OF ASIATIC CLAMS. Canadian Journal of Fisheries and Aquatic Sciences 43:43-52
Data Type:	Chronic (>21 days); Aquatic; Invertebrates
Hero ID:	3093600

Domain	Metric	Rating†	MWF*	Score	Comments††

* MWF = Metric Weighting Factor

† High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

‡ The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \sum_i (\text{Metric Score}_i \times \text{MWF}_i) \,/\, \sum_j \text{MWF}_j \right\rceil_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3. If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow points to the new rating.

†† Reviewers document uncertainties and strengths for each metric, when deemed necessary.

** Note: This metric met the criteria for medium or high confidence rating as described in Appendix F of the Application of Systematic Review for TSCA Risk Evaluations document. EPA acknowledges that there are instances where the characteristics of the study does not fully fulfill the criteria of the particular metrics. EPA plans to default to the definitions of the confidence levels and corresponding scores at the metric level (see below) when the criteria language is not currently optimized to capture a variety of study characteristics. EPA is in the process of identifying these issues to optimize the evaluation tool. **(a)** High: No notable deficiencies or concerns are identified in the domain metric that are likely to influence the results [score of 1]. **(b)** Medium: Minor uncertainties or limitations are noted in the domain metric that are unlikely to have a substantial impact on the results [score of 2]. **(c)** Low: Deficiencies or concerns are noted in the domain metric that are likely to have a substantial impact on the results [score of 3]. **(d)** Unacceptable: Serious flaws are noted in the domain metric that consequently make the data/information source unusable. [score of 4]. **(e)** Not rated/applicable: Rating of this metric is not applicable to the data/information source being evaluated [no score].

Table 4: Data Evaluation table for reference 3093856 (https://heronet.epa.gov/heronet/index.cfm/reference/download/reference_id/3093856).

Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. SEASONAL BEHAVIORAL AND GROWTH CHANGES OF JUVENILE CORBICULA-FLUMINEA EXPOSED TO CHRYSOTILE ASBESTOS. Water Research 20:1243-1250
Data Type:	Chronic (>21 days); Aquatic; Invertebrates
Hero ID:	3093856

Domain		Metric	Rating†	MWF*	Score	Comments††
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	× 2	2	Chrysotile asbestos
	Metric 2:	Test Substance Source	Low	× 1	3	Source of asbestos not specified
	Metric 3:	Test Substance Purity	High	× 1	1	Test is conducted with a fiber; Asbestos fiber used in exposures were prepared by lightly 400 mg of asbestos, followed by sonicating 50 a 0.060mgl -j chrysotile stock for 2h with a Fis trasonic cleaner to eliminate large blocks and age fragments. Micrographs were taken of tl 15-25 fibers encountered and subsequently me for length, width and aspect ratio.
Domain 2: Test Design						
	Metric 4:	Negative Controls	High	× 2	2	
	Metric 5:	Negative Control Response	High	× 1	1	
	Metric 6:	Randomized Allocation	Medium	× 1	2	randomization procedure not specified, no ev that this affected the results of the study
Domain 3: Exposure Characterization						
	Metric 7:	Experimental System/Test Media Preparation		× 2	6	Asbestos fiber stocks used in exposures we pared by lightly milling 400 mg of asbestos, fo by sonicating 500 ml of a 0.060mgl -j chrysotil for 2h with a Fisher ultrasonic cleaner to eli large blocks and cleavage fragments. Susp of asbestos fibers was maintained through ma stirring.
	Metric 8:	Consistency of Exposure Administration	High	× 1	1	Clams were exposed to 0, 10^2, 10^4, 10^5, 1 10^8 fibers ·1 m chrysotile asbestos. aquaria si above a magnetic stirrer that kept asbestos pension.

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Study Citation: Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. SEASONAL BEHAVIORAL AND GROWTH CHANGES OF JUVENILE CORBICULA-FLUMINEA EXPOSED TO CHRYSOTILE ASBESTOS. Water Research 20:1243-1250

Data Type: Chronic (>21 days); Aquatic; Invertebrates

Hero ID: 3093856

Domain		Metric	Rating†	MWF*	Score	Comments††
	Metric 9:	Measurement of Test Substance Concentration	High	× 1	1	Asbestos fiber concentrations in water were mined by the TEM method described above that water samples were directly filtered onto pore filters. Background and blanks were pr simultaneously. Measured asbestos concen for 0, $10^{\hat{2}}$, $10^{\hat{4}}$, $10^{\hat{5}}$, $10^{\hat{6}}$ and $10^{\hat{8}}$ fibers/L were detection at 0, $10^{\hat{4}}$, 5.7 x $10^{\hat{5}}$, 1.3 x $10^{\hat{7}}$ and2. fibers/L, respectively.
	Metric 10:	Exposure Duration and Frequency	High	× 2	2	30-day exposure
	Metric 11:	Number of Exposure Groups/Spacing of Exposure Levels	High	× 1	1	
	Metric 12:	Testing at or Below Solubility Limit		N/A	Insoluble fiber maintained in a suspension	
Domain 4: Test Organism						
	Metric 13:	Test Organism Characteristics	Medium	× 2	4	Juvenile Corbicula (5.2-8.6 mm shell length collected from the New River, Va, by dip ne cent to an industrial pumphouse station (C Fibers Corp., Narrows, Va). It was uncertai collection site was polluted, but the controls no ill effects, or accumulated fibers so it was a that this collection site was appropriate.
	Metric 14:	Acclimitization and Pretreatment Conditions	High	× 1	1	Juvenile clams were sorted from adults an iment in the field and returned to Virgini where they were acclimated to constant te ture (20"C)laboratory conditions for 7 days i aquaria.
	Metric 15:	Number of Organisms and Replicates per Group	High	× 1	1	10 clams/group
	Metric 16:	Adequacy of Test Conditions	High	× 1	1	Groups of 10 clams were placed in a raised ple platform of 315 $cm^{\hat{2}}$ surface area in each tan
Domain 5: Outcome Assessment						
	Metric 17:	Outcome Assessment Methodology	High	× 2	2	
	Metric 18:	Consistency of Outcome Assessment	High	× 1	1	
Domain 6: Confounding / Variable Control						

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Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns J, J. R.. 1986. SEASONAL BEHAVIORAL AND GROWTH CHANGES OF JUVENILE CORBICULA-FLUMINEA EXPOSED TO CHRYSOTILE ASBESTOS. Water Research 20:1243-1250
Data Type:	Chronic (>21 days); Aquatic; Invertebrates
Hero ID:	3093856

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 19:	Confounding Variables in Test Design and Procedures	High	× 2	2	
	Metric 20:	Outcomes Unrelated to Exposure	High	× 1	1	
Domain 7: Data Presentation and Analysis						
	Metric 21:	Statistical Methods	High	× 1	1	Nonparametric statistical techniques were app allanalyses. The one-way analysis of varianc analogue,the Kruskal-Wallis Test, was used f way layout data. If significant differences we cated (= 0.05), a rank-like Least Significant ences Procedure was used to determine the re ships betweengroups. In cases of two sampl (e.g. planimetricanalysis of gill tissue), Wil Rank Sum Test was usedto test differences b groups
	Metric 22:	Reporting of Data	High	× 2	2	
	Metric 23:	Explanation of Unexpected Outcomes	High	× 1	1	
Overall Quality Determination‡			High		1.1	
Extracted			Yes			

* MWF = Metric Weighting Factor

† High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

‡ The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \sum_i (\text{Metric Score}_i \times \text{MWF}_i) \,/\, \sum_j \text{MWF}_j \right\rceil_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High=≥ 1 to < 1.7; Medium =≥ 1.7 to < 2.4; Low =≥ 2.4 to < 3. If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow p the new rating.

†† Reviewers document uncertainties and strengths for each metric, when deemed necessary.

** Note: This metric met the criteria for medium or high confidence rating as described in Appendix F of the Application of Systematic Review for TSCA Risk Evaluations document. EPA acknowledges that there are instances where the char of the study does not fully fulfill the criteria of the particular metrics. EPA plans to default to the definitions of the confidence levels and corresponding scores at the metric level (see below) when the criteria language is not currently to capture a variety of study characteristics. EPA is in the process of identifying these issues to optimize the evaluation tool. **(a)** High: No notable deficiencies or concerns are identified in the domain metric that are likely to influence t [score of 1]. **(b)** Medium: Minor uncertainties or limitations are noted in the domain metric that are unlikely to have a substantial impact on the results [score of 2]. **(c)** Low: Deficiencies or concerns are noted in the domain metric that to have a substantial impact on the results [score of 3]. **(d)** Unacceptable: Serious flaws are noted in the domain metric that consequently make the data/information source unusable. [score of 4]. **(e)** Not rated/applicable: Rating of t is not applicable to the data/information source being evaluated [no score].

Table 5: Data Evaluation table for reference 3584231 (https://heronet.epa.gov/heronet/index.cfm/reference/download/reference_id/3584231).

Study Citation:	Belanger, S. E.,Schurr, K.,Allen, D. J.,Gohara, A. F.. 1986. Effects of chrysotile asbestos on coho salmon and green sunfish: evidence of behavioral and pathological stress. Environmental Research 39:74-85
Data Type:	Chronic (>21 days); Aquatic; Fish
Hero ID:	3584231

Domain		Metric	Rating†	MWF*	Score	Comments††
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	× 2	2	Asbestos was in the form of mined chrysotile.
	Metric 2:	Test Substance Source	Medium	× 1	2	Asbestos used in this study was a gift from a major asbestos producer.
	Metric 3:	Test Substance Purity	Low	× 1	3	Purity and/or grade of test substance were not reported. The test chemical was in the form of mined chrysotile.
Domain 2: Test Design						
	Metric 4:	Negative Controls	High	× 2	2	Study authors reported using an appropriate concurrent negative control group.
	Metric 5:	Negative Control Response	High	× 1	1	The biological responses of the negative control group(s) were adequate (e.g., mortality of control fish "20 percent in the chronic tests).
	Metric 6:	Randomized Allocation	High	× 1	1	The study reported that organisms were randomly allocated into study groups.
Domain 3: Exposure Characterization						
	Metric 7:	Experimental System/Test Media Preparation	High	× 2	2	The experimental system and methods for preparation of test media were described in adequate detail and appropriately accounted for the physical-chemical properties of the test substance.
	Metric 8:	Consistency of Exposure Administration	High	× 1	1	Test organisms were consistently dosed with asbestos (i.e., only once at the beginning of the experiment).
	Metric 9:	Measurement of Test Substance Concentration	N/A		N/A	Nominal values are highly uncertain due to the nature of the test substance. As a result, the effect concentrations reported in this study may misrepresent the actual effect concentrations.
	Metric 10:	Exposure Duration and Frequency	High	× 2	2	Test organisms were dosed with asbestos only once at the beginning of the experiment. This is sufficient because asbestos fibers are insoluble and the possibility of the fibers degrading during the experiment is low. The length of exposure was adequate for the objectives of the experiments.

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Study Citation: Belanger, S. E.,Schurr, K.,Allen, D. J.,Gohara, A. F.. 1986. Effects of chrysotile asbestos on coho salmon and green sunfish: evidence of behavioral and pathological stress. Environmental Research 39:74-85
Data Type: Chronic (>21 days); Aquatic; Fish
Hero ID: 3584231

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 11:	Number of Exposure Groups/Spacing of Exposure Levels	High	× 1	1	Two levels of exposure were used (i.e., 1.5E6 and 3E6 fibers/liter). These concentrations are similar to concentrations found in many aquatic environments at the time of the study.
	Metric 12:	Testing at or Below Solubility Limit	N/A		N/A	Asbestos fibers are insoluble in water and organic solvents. Nominal values are highly uncertain due to the nature of the test substance. The effect concentrations reported in these studies may misrepresent the actual effect concentrations.
Domain 4: Test Organism						
	Metric 13:	Test Organism Characteristics	High	× 2	2	This study was designed to evaluate the effects of chrysotile asbestos on recentlyhatched coho salmon larvae (Oncorhynchus kisutch) and juvenile greensunfish (Lepomis cyanellus). These species and life stages were chosen due tothe importance of salmonids (e.g., coho) in the Great Lakes ecosystem and theprobable susceptibility of young fish to asbestos intoxication. The test organisms were adequately described and were obtained from a reliable source.
	Metric 14:	Acclimitization and Pretreatment Conditions	High	× 1	1	Fish were allowed to acclimate for 5 days at room temperature (20.0 + 2.0"C) and were randomly divided into six groups of 20 fish each. The test organisms were acclimatized to test conditions and all pretreatment conditions were the same for control and exposed populations, such that the only difference was exposure to test substance.
	Metric 15:	Number of Organisms and Replicates per Group	Medium	× 1	2	The numbers of test organisms and replicates were sufficient to characterize toxicological effects, but minor uncertainties or limitations were identified regarding the number of test organisms and/or replicates that are unlikely to have a substantial impact on results.
	Metric 16:	Adequacy of Test Conditions	High	× 1	1	Organism housing, environmental conditions, food, water, and nutrients were conducive to maintenance of health and biomass loading was appropriate.
Domain 5: Outcome Assessment						

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Study Citation:	Belanger, S. E.,Schurr, K.,Allen, D. J.,Gohara, A. F.. 1986. Effects of chrysotile asbestos on coho salmon and green sunfish: evidence of behavioral and pathological stress. Environmental Research 39:74-85
Data Type:	Chronic (>21 days); Aquatic; Fish
Hero ID:	3584231

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 17:	Outcome Assessment Methodology	High	× 2	2	The outcome assessment methodology addressed or reported the intended outcome(s) of interest and was sensitive for the outcomes(s) of interest.
	Metric 18:	Consistency of Outcome Assessment	Medium	× 1	2	Details of the outcome assessment protocol were reported but the outcomes were not assessed consistently across study. The experiments with higher concentrations of asbestos occurred for a lesser duration compare to the experiments with lower concentrations of asbestos.
Domain 6: Confounding / Variable Control						
	Metric 19:	Confounding Variables in Test Design and Procedures	High	× 2	2	There were no reported differences among the study groups in environmental conditions or other factors that could influence the outcome assessment.
	Metric 20:	Outcomes Unrelated to Exposure	Medium	× 1	2	Data on attrition and/or outcomes unrelated to exposure were not reported for each study group, but this deficiency is not likely to have a substantial impact on results.
Domain 7: Data Presentation and Analysis						
	Metric 21:	Statistical Methods	High	× 1	1	Statistical methods were clearly described and appropriate for dataset(s).
	Metric 22:	Reporting of Data	High	× 2	2	Data for exposure-related findings were presented for each treatment and control group and were adequate to determine values for the endpoint(s) of interest. Negative findings were reported qualitatively or quantitatively.
	Metric 23:	Explanation of Unexpected Outcomes	High	× 1	1	There were no unexpected outcomes, or unexpected outcomes were satisfactorily explained.
Overall Quality Determination‡			High		1.2	
Extracted			Yes			

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Study Citation:	Belanger, S. E.,Schurr, K.,Allen, D. J.,Gohara, A. F.. 1986. Effects of chrysotile asbestos on coho salmon and green sunfish: evidence of behavioral and pathological stress. Environmental Research 39:74-85
Data Type:	Chronic (>21 days); Aquatic; Fish
Hero ID:	3584231

Domain	Metric	Rating†	MWF*	Score	Comments††

* MWF = Metric Weighting Factor

† High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

‡ The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \sum_i (\text{Metric Score}_i \times \text{MWF}_i) \,/\, \sum_j \text{MWF}_j \right\rceil_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3. If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow points to the new rating.

†† Reviewers document uncertainties and strengths for each metric, when deemed necessary.

** Note: This metric met the criteria for medium or high confidence rating as described in Appendix F of the Application of Systematic Review for TSCA Risk Evaluations document. EPA acknowledges that there are instances where the characteristics of the study does not fully fulfill the criteria of the particular metrics. EPA plans to default to the definitions of the confidence levels and corresponding scores at the metric level (see below) when the criteria language is not currently optimized to capture a variety of study characteristics. EPA is in the process of identifying these issues to optimize the evaluation tool. **(a)** High: No notable deficiencies or concerns are identified in the domain metric that are likely to influence the results [score of 1]. **(b)** Medium: Minor uncertainties or limitations are noted in the domain metric that are unlikely to have a substantial impact on the results [score of 2]. **(c)** Low: Deficiencies or concerns are noted in the domain metric that are likely to have a substantial impact on the results [score of 3]. **(d)** Unacceptable: Serious flaws are noted in the domain metric that consequently make the data/information source unusable. [score of 4]. **(e)** Not rated/applicable: Rating of this metric is not applicable to the data/information source being evaluated [no score].

Table 6: Data Evaluation table for reference 3585046 (https://heronet.epa.gov/heronet/index.cfm/reference/download/reference_id/3585046).

Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns, J.. 1990. FUNCTIONAL AND PATHOLOGICAL IMPAIRMENT OF JAPANESE MEDAKA (ORYZIAS-LATIPES) BY LONG-TERM ASBESTOS EXPOSURE. Aquatic Toxicology 17:133-154
Data Type:	Chronic (>21 days); Aquatic; Fish
Hero ID:	3585046

Domain		Metric	Rating†	MWF*	Score	Comments††
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	Medium	× 2	4	Study authors mentioned "Grade 5 chrysotile asbestos" but did not define what the "Grade 5" means.
	Metric 2:	Test Substance Source	Low	× 1	3	Study authors did not report the specific commercial supplier or batch/lot # used to obtain the test substance. In addition, they only used nominal concentrations of asbestos in their experiments.
	Metric 3:	Test Substance Purity	Low	× 1	3	Purity and/or grade of test substance were not reported.
Domain 2: Test Design						
	Metric 4:	Negative Controls	High	× 2	2	Study authors reported using an appropriate concurrent negative control group (i.e., all conditions equal except chemical exposure).
	Metric 5:	Negative Control Response	High	× 1	1	The biological responses of the negative control group(s) were adequate (e.g., mortality of control fish "20 percent in the chronic tests).
	Metric 6:	Randomized Allocation	Medium	× 1	2	The study reported methods of allocation of organisms to study groups, but there were minor limitations in the allocation method.
Domain 3: Exposure Characterization						
	Metric 7:	Experimental System/Test Media Preparation	High	× 2	2	The experimental system and methods for preparation of test media were described in adequate detail and appropriately accounted for the physical-chemical properties of the test substance. Water and asbestos were completely changed every other week and loading (wet weight of fish per liter) did not exceed 0.33 g/l. Analyses of asbestos concentrations were performed before and after one water exchange every 4 weeks for 4 months of exposures, and 1 month of recovery following exposure (n = 20 for each concentration).
	Metric 8:	Consistency of Exposure Administration	High	× 1	1	Details of exposure administration were reported and exposures were administered consistently across study groups.

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Study Citation: Belanger, S. E.,Cherry, D. S.,Cairns, J.. 1990. FUNCTIONAL AND PATHOLOGICAL IMPAIRMENT OF JAPANESE MEDAKA (ORYZIAS-LATIPES) BY LONG-TERM ASBESTOS EXPOSURE. Aquatic Toxicology 17:133-154
Data Type: Chronic (>21 days); Aquatic; Fish
Hero ID: 3585046

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 9:	Measurement of Test Substance Concentration	N/A		N/A	Nominal values are highly uncertain due to the nature of the test substance. As a result, the effect concentrations reported in this study may misrepresent the actual effect concentrations.
	Metric 10:	Exposure Duration and Frequency	High	× 2	2	The duration of exposure and/or exposure frequency were reported and appropriate for the study type and/or outcome(s) of interest.
	Metric 11:	Number of Exposure Groups/Spacing of Exposure Levels	High	× 1	1	The number of exposure groups and spacing of exposure levels were justified by study authors and adequate to address the purpose of the study
	Metric 12:	Testing at or Below Solubility Limit	N/A		N/A	Asbestos fibers are insoluble in water and organic solvents. Nominal values are highly uncertain due to the nature of the test substance. The effect concentrations reported in these studies may misrepresent the actual effect concentrations.
Domain 4: Test Organism						
	Metric 13:	Test Organism Characteristics	High	× 2	2	The test organisms were adequately described and were obtained from a reliable source. The test species, strain, sex, age, size, life stage, and/or embryonic stage of the test organisms reported and appropriate for the evaluation of the specific outcome(s) of interest
	Metric 14:	Acclimitization and Pretreatment Conditions	High	× 1	1	The test organisms were acclimatized to test conditions and all pretreatment conditions were the same for control and exposed populations, such that the only difference was exposure to test substance.
	Metric 15:	Number of Organisms and Replicates per Group	High	× 1	1	The numbers of test organisms and replicates were reported and sufficient to characterize toxicological effects.
	Metric 16:	Adequacy of Test Conditions	High	× 1	1	Organism housing, environmental conditions, food, water, and nutrients were conducive to maintenance of health and biomass loading was appropriate.
Domain 5: Outcome Assessment						
	Metric 17:	Outcome Assessment Methodology	High	× 2	2	The outcome assessment methodology addressed or reported the intended outcome(s) of interest and was sensitive for the outcomes(s) of interest.

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Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns, J.. 1990. FUNCTIONAL AND PATHOLOGICAL IMPAIRMENT OF JAPANESE MEDAKA (ORYZIAS-LATIPES) BY LONG-TERM ASBESTOS EXPOSURE. Aquatic Toxicology 17:133-154
Data Type:	Chronic (>21 days); Aquatic; Fish
Hero ID:	3585046

Domain	Metric		Rating†	MWF*	Score	Comments††
	Metric 18:	Consistency of Outcome Assessment	High	× 1	1	Details of the outcome assessment protocol were reported and outcomes were assessed consistently across study groups (e.g., at the same time after initial exposure) using the same protocol in all study groups.
Domain 6: Confounding / Variable Control						
	Metric 19:	Confounding Variables in Test Design and Procedures	High	× 2	2	There were no reported differences among the study groups in environmental conditions or other factors that could influence the outcome assessment.
	Metric 20:	Outcomes Unrelated to Exposure	Medium	× 1	2	Data on attrition and/or outcomes unrelated to exposure were not reported for each study group, but this deficiency is not likely to have a substantial impact on results.
Domain 7: Data Presentation and Analysis						
	Metric 21:	Statistical Methods	High	× 1	1	Statistical methods were clearly described and appropriate for dataset(s) (e.g., ANOVA).
	Metric 22:	Reporting of Data	High	× 2	2	Data for exposure-related findings were presented for each treatment and control group and were adequate to determine values for the endpoint(s) of interest. Negative findings were reported qualitatively or quantitatively.
	Metric 23:	Explanation of Unexpected Outcomes	High	× 1	1	There were no unexpected outcomes, or unexpected outcomes were satisfactorily explained.
Overall Quality Determination‡			High		1.3	
Extracted			Yes			

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Study Citation:	Belanger, S. E.,Cherry, D. S.,Cairns, J.. 1990. FUNCTIONAL AND PATHOLOGICAL IMPAIRMENT OF JAPANESE MEDAKA (ORYZIAS-LATIPES) BY LONG-TERM ASBESTOS EXPOSURE. Aquatic Toxicology 17:133-154
Data Type:	Chronic (>21 days); Aquatic; Fish
Hero ID:	3585046

Domain	Metric	Rating†	MWF*	Score	Comments††

* MWF = Metric Weighting Factor

† High = 1; Medium = 2; Low = 3; Unacceptable = 4; N/A has no value.

‡ The overall rating is calculated as necessary. EPA may not always provide a comment for a metric that has been categorized as High.

$$\text{Overall rating} = \begin{cases} 4 & \text{if any metric is Unacceptable} \\ \left\lfloor \sum_i (\text{Metric Score}_i \times \text{MWF}_i) \,/\, \sum_j \text{MWF}_j \right\rceil_{0.1} & \text{(round to the nearest tenth) otherwise} \end{cases},$$

where High=$\geq$ 1 to < 1.7; Medium =$\geq$ 1.7 to < 2.4; Low =$\geq$ 2.4 to < 3. If the reviewer determines that the overall rating needs adjustment, the original rating is crossed out and an arrow points to the new rating.

†† Reviewers document uncertainties and strengths for each metric, when deemed necessary.

** Note: This metric met the criteria for medium or high confidence rating as described in Appendix F of the Application of Systematic Review for TSCA Risk Evaluations document. EPA acknowledges that there are instances where the characteristics of the study does not fully fulfill the criteria of the particular metrics. EPA plans to default to the definitions of the confidence levels and corresponding scores at the metric level (see below) when the criteria language is not currently optimized to capture a variety of study characteristics. EPA is in the process of identifying these issues to optimize the evaluation tool. **(a)** High: No notable deficiencies or concerns are identified in the domain metric that are likely to influence the results [score of 1]. **(b)** Medium: Minor uncertainties or limitations are noted in the domain metric that are unlikely to have a substantial impact on the results [score of 2]. **(c)** Low: Deficiencies or concerns are noted in the domain metric that are likely to have a substantial impact on the results [score of 3]. **(d)** Unacceptable: Serious flaws are noted in the domain metric that consequently make the data/information source unusable. [score of 4]. **(e)** Not rated/applicable: Rating of this metric is not applicable to the data/information source being evaluated [no score].

Table XX. Summary of Inhalation Exposure Concentrations for Automotive Brake Repair and Replacement, and Gasket Replacement (Surrogate Data for DIY Scenario)

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
						Range	Central Tendency	
Brake Repair and Replacement: Personal Breathing Zone								
United States/ Former automobile repair facility; filtered exhaust fan unit used for ventilation. All tests were performed with all seven building outside overhead doors closed.	Automobiles (Chevrolet Impalas) from the 1960s with 4 wheel drum brakes.	July to October 2001	Use of compressed air during removal and replacement of asbestos brake shoes No additional manipulation of the brake shoes.	1 test run	92	--	0.0217 (mean)[a]	3080338; Blake, C. L.,Van Orden, D. R.,Banasik, M.,Harbison, R. D. (2003). Airborne asbestos concentration from brake changing does not exceed permissible exposure limit Regulatory Toxicology and Pharmacology, 38(1), 58-70 (Medium)
				1 test run	85	--	0.0672 (mean)	
		July to October 2001	Use of compressed air during removal and replacement of asbestos brake shoes. Includes filing brakes.	1 test run	102	--	0.0376 (mean)	
			Use of compressed air during removal and replacement of asbestos brake shoes. Includes hand sanding brakes.	1 test run	95	--	0.0776 (mean)	
			Use of compressed air during removal and replacement of asbestos brake shoes. Includes arc grinding brakes.	1 test run	103	--	0.4368 (mean)	
				1 test run	96	--	0.2005 (mean)	
		July 2001	Cleaning only after brake repair	1 test run	30	--	0.0146 (mean)	
Australia/ Three service garages for passenger and light commercial vehicles; natural ventilation	Not specified	Not provided (1999 Publication Date)	Drum brake and disk brake replacement with no dust control measures (Site A); using aerosol spray for dust control (Site B); and	3 (3)	77 - 135	All ND (<0.05)	ND (<0.05)	3080975; Yeung, P.,Patience, K.,Apthorpe, L.,Willcocks, D. (1999). An Australian study to evaluate worker exposure to chrysotile in

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
						Range	Central Tendency	
			using a squirt bottle and compressed air drying for dust control (Site C)					the automotive service industry Applied Occupational and Environmental Hygiene, 14(7), 448-457 (Medium)
Iran/ Thirty brake repair and replacement auto shops	Cars	July-December 2008	Brake repair/replacement, often conducted using a small brush to clean away dust; may include bench grinding.	32	45	0.116-2.48	0.92 ± 2.52 (geometric mean ± geometric standard deviation)	1082293; Kakooei, H.,Hormozy, M.,Marioryad, H. (2011). Evaluation of asbestos exposure during brake repair and replacement Industrial Health, 49(3), 374-380 (Medium)
	Trucks			28		0.117-1.93	0.46 ± 2.57 (geometric mean ± geometric standard deviation)	
Brake Repair and Replacement: Stationary Area Air Sampling								
United States/ Former automobile repair facility; filtered exhaust fan unit used for ventilation. All tests were performed with all seven building outside overhead doors closed.	Automobiles (Chevrolet Impalas) from the 1960s with 4 wheel drum brakes.	July 2001	Use of compressed air during removal and replacement of asbestos brake shoes. No additional manipulation of the brake shoes.	2 test runs ≤3 m from automobile	Not Reported	--	0.00027-0.0258 (mean)	3080338; Blake, C. L.,Van Orden, D. R.,Banasik, M.,Harbison, R. D. (2003). Airborne asbestos concentration from brake changing does not exceed permissible exposure limit Regulatory Toxicology and Pharmacology, 38(1), 58-70 (Medium)
			Use of compressed air during removal and replacement of asbestos brake shoes. Includes filing brakes.	1 test run ≤3 m from automobile	Not reported	--	0.0282 (mean)	
				1 test run >3 m from automobile		--	0.0300 (mean)	

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
						Range	Central Tendency	
			Use of compressed air during removal and replacement of asbestos brake shoes. Includes hand sanding brakes.	1 test run ≤3 m from automobile	Not reported	--	0.0133 (mean)	
				1 test run >3 m from automobile		--	0.0112 (mean)	
				1 test run at work bench used for sanding		--	0.0142 (mean)	
			Use of compressed air during removal and replacement of asbestos brake shoes. Includes arc grinding brakes.	2 test runs ≤3 m from automobile	Not reported	--	0.0276-0.0296 (mean)	
				2 test runs >3 m from automobile		--	0.0265-0.0389 (mean)	
				2 test runs at work bench used for grinding		--	0.0450-0.0895 (mean)	
	Automobiles (Chevrolet Impalas) from the 1960s with 4 wheel drum brakes	July 2001	Cleaning only after brake repair	1 test run ≤3 m from automobile	Not reported	--	0.0069 (mean)	3080338; Blake, C. L.,Van Orden, D. R.,Banasik, M.,Harbison, R. D. (2003). Airborne asbestos concentration from brake changing does not exceed permissible exposure limit Regulatory Toxicology and Pharmacology, 38(1), 58-70 (Medium)
				1 test run >3 m from automobile		--	0.0071 (mean)	
				1 test run at work bench used for filing, sanding, grinding		--	0 (mean)	
Automobile Gasket Repair and Replacement: Personal Breathing Zone								

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
						Range	Central Tendency	
United States/ Operative automotive repair facility performing engine disassembly and reassembly, gasket manipulation and parts cleaning.	Automobiles - 1974 Chevrolet Malibu, 1978 Chevrolet pickup truck and a Ford 390 cubic inch V-8 engine	Not provided (2006 Publication Date)	Engine disassembly - gaskets removed	3 test sessions	60-141	ND (0.007)-0.027	--	3520458; Blake CL, Dotson GS, et al. (2006). Assessment of airborne asbestos exposure during the servicing and handling of automobile asbestos-containing gaskets. Regul Toxicol Pharmacol 45:214–222 (Medium)
			Engine reassembly - gaskets installed	2 test sessions	151-156	ND (0.005)-0.0058	--	
United States/ Independent repair facility; the disassembly and related work was conducted in an open shop.	The engine utilized for this study was a mid-sized, turbocharged, six-cylinder, in-line unit, built in 1982	2005 (pub. Date)	Complete disassembly and cleaning of a medium duty diesel engine by a journeyman mechanic. Asbestos content of gaskets reported.	14 (NR)	25-103	0.017-<0.120	--	3531131; Liukonen LR, Weir FW. (2005). Asbestos exposure from gaskets during disassembly of a medium duty diesel engine. Regul Toxicol Pharmacol 41:113–121. (Medium)

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
						Range	Central Tendency	
United States/ Muffler shop specializing in automobile exhaust repair and custom work for current, as well as vintage automobiles. All service bay doors were closed; the muffler shop was not equipped with any heating, air conditioning, or ventilation systems.	Automobiles (ca. 1945–1975)	January and July 2004	Removal of automobile exhaust systems (ca. 1945–1975) containing asbestos gaskets. In most cases, the mechanic removed most or all of the gaskets with his fingers or by prying them off with a screwdriver. Any residual gasket material left behind was scraped off with the screwdriver or pulled off by hand	23 (17)	9-65	0.006-0.066	0.022 (mean)	3531296; Paustenbach, D. J.,Madl, A. K.,Donovan, E.,Clark, K.,Fehling, K.,Lee, T. C. (2006). Chrysotile asbestos exposure associated with removal of automobile exhaust systems (ca. 1945-1975) by mechanics: results of a simulation study Journal of Exposure Science and Environmental Epidemiology, 16(2), 156-171 (High)

[a] Average fiber concentration during each duration.

Commented [CT1]: Changed max value in text b/c the 0.132 fibers/cc were extracted from Table 3 which are sensitivity limits not concentrations. Concentrations are reported in Table 2.

Commented [CT2]: Nate scored high and Laura scored medium.

Table XX. Summary of Inhalation Exposure Concentrations for Automotive Brake Repair and Replacement, and Gasket Replacement (Surrogate Data for DIY Scenario)

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
						Range	Central Tendency	
Brake Repair and Replacement: Personal Breathing Zone								
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				1 test run	85	--	0.0672 (mean)	
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			Use of compressed air during removal and replacement of asbestos brake shoes. Includes hand sanding brakes.	1 test run	95	--	0.0776 (mean)	
			Use of compressed air during removal and replacement of asbestos brake shoes. Includes arc grinding brakes.	1 test run	103	--	0.4368 (mean)	
				1 test run	96	--	0.2005 (mean)	
		July 2001	Cleaning only after brake repair	1 test run	30	--	0.0146 (mean)	
Australia/ Three service garages for passenger and light commercial vehicles; natural ventilation	Not specified	Not provided (1999 Publication Date)	Drum brake and disk brake replacement with no dust control measures (Site A); using aerosol spray for dust control (Site B); and	3 (3)	77 - 135	All ND (<0.05)	ND (<0.05)	3080975; Yeung, P.,Patience, K.,Apthorpe, L.,Willcocks, D. (1999). An Australian study to evaluate worker exposure to chrysotile in

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
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Iran/ Thirty brake repair and replacement auto shops	Cars	July-December 2008	Brake repair/replacement, often conducted using a small brush to clean away dust; may include bench grinding.	32	45	0.116-2.48	0.92 ± 2.52 (geometric mean ± geometric standard deviation)	1082293; Kakooei, H.,Hormozy, M.,Marioryad, H. (2011). Evaluation of asbestos exposure during brake repair and replacement Industrial Health, 49(3), 374-380 (Medium)
	Trucks			28		0.117-1.93	0.46 ± 2.57 (geometric mean ± geometric standard deviation)	
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			Use of compressed air during removal and replacement of asbestos brake shoes. Includes filing brakes.	1 test run ≤3 m from automobile	Not reported	--	0.0282 (mean)	
				1 test run >3 m from automobile		--	0.0300 (mean)	

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
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				1 test run >3 m from automobile		--	0.0071 (mean)	
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Automobile Gasket Repair and Replacement: Personal Breathing Zone								

Location/Setting	Vehicle Type	Sampling Date	Brief Monitoring Activity Description	N (#ND)	Duration (min)	Asbestos (fibers/cc) PCM analysis (NIOSH Method 7400)		HERO ID; Reference (Data Quality Score)
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United States/ Muffler shop specializing in automobile exhaust repair and custom work for current, as well as vintage automobiles. All service bay doors were closed; the muffler shop was not equipped with any heating, air conditioning, or ventilation systems.	Automobiles (ca. 1945–1975)	January and July 2004	Removal of automobile exhaust systems (ca. 1945–1975) containing asbestos gaskets. In most cases, the mechanic removed most or all of the gaskets with his fingers or by prying them off with a screwdriver. Any residual gasket material left behind was scraped off with the screwdriver or pulled off by hand	23 (17)	9-65	0.006-0.066	0.022 (mean)	3531296; Paustenbach, D. J.,Madl, A. K.,Donovan, E.,Clark, K.,Fehling, K.,Lee, T. C. (2006). Chrysotile asbestos exposure associated with removal of automobile exhaust systems (ca. 1945-1975) by mechanics: results of a simulation study Journal of Exposure Science and Environmental Epidemiology, 16(2), 156-171 (High)

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Commented [CT1]: Changed max value in text b/c the 0.132 fibers/cc were extracted from Table 3 which are sensitivity limits not concentrations. Concentrations are reported in Table 2.

Commented [CT2]: Nate scored high and Laura scored medium.

Message

From: Coleman, Todd [coleman.todd@epa.gov]
Sent: 9/11/2018 5:21:27 PM
To: Courtnage, Robert [Courtnage.Robert@EPA.GOV]; Carmichael, Lea [Carmichael.Lea@epa.gov]
Subject: Document1
Attachments: Document1.docx

Message

From: Carmichael, Lea [Carmichael.Lea@epa.gov]
Sent: 10/18/2018 3:44:22 PM
To: Courtnage, Robert [Courtnage.Robert@EPA.GOV]
Subject: RE: Desk Statement – Canada Bans Asbestos.docx
Attachments: Desk Statement – Canada Bans Asbestos.docx

-----Original Message-----
From: Courtnage, Robert
Sent: Thursday, October 18, 2018 11:44 AM
To: Carmichael, Lea <Carmichael.Lea@epa.gov>
Subject: RE: Desk Statement – Canada Bans Asbestos.docx

I need access again, likely because of my IT move.

Robert T. Courtnage
Acting Chief
Communications Services Branch
Field and External Affairs Division
Office of Pesticide Programs/OCSPP
U.S. Environmental Protection Agency
703.347.0748 (Desk)
202.740.2993 (Mobile)

-----Original Message-----
From: Carmichael, Lea
Sent: Thursday, October 18, 2018 11:42 AM
To: Winchester, Erik <Winchester.Erik@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Subject: Desk Statement – Canada Bans Asbestos.docx

https://usepa-my.sharepoint.com/personal/carmichael_lea_epa_gov/Documents/Desk%20Statement%20%E2%80%93%20Canada%20Bans%20Asbestos.docx?web=1

Message

From: Mary Sullivan Douglas [mdouglas@4cleanair.org]
Sent: 8/29/2018 6:47:18 PM
To: Courtnage, Robert [Courtnage.Robert@EPA.GOV]
Subject: Asbestos SNUR
Attachments: NACAA Asbestos Letter.pdf

Dear Mr. Courtnage,

Attached please find the comments of the National Association of Clean Air Agencies (NACAA) related to the proposed "Asbestos; Significant New Use Rule" (EPA-HQ-OPPT-2018-0159). We are aware that the formal comment deadline has passed, but we still wished to provide you with NACAA's comments.

Thank you.

****

Mary Sullivan Douglas
National Association of Clean Air Agencies
444 North Capitol Street, NW, Suite 307
Washington, DC 20001
(202) 624-7864
mdouglas@4cleanair.org
www.4cleanair.org

NACAA
national association of clean air agencies

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August 29, 2018

Document Control Office (7407M)
Office of Pollution Prevention and Toxics (OPPT)
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Attention: Docket ID EPA–HQ–OPPT–2018–0159

Dear Sir/Madam:

On behalf of the National Association of Clean Air Agencies (NACAA), we are submitting the following comments on the U.S. Environmental Protection Agency's (EPA's) Proposed "Asbestos; Significant New Use Rule (SNUR)," which was published in the *Federal Register* on June 11, 2018 (83 Fed. Reg. 26,922). NACAA is the national, non-partisan, non-profit association of 156 local and state air pollution control agencies in 41 states, the District of Columbia and four territories. The air quality professionals in our member agencies have vast experience dedicated to improving air quality in the U.S. These comments are based on that experience. The views expressed do not represent the positions of every state and local air pollution control agency in the country.

We are concerned that EPA's proposed SNUR for asbestos under the Toxic Substances Control Act (TSCA) could result in asbestos-containing products being manufactured, processed and imported for new uses. Such an outcome could elevate the levels of this material in the environment and increase health risks to the public from exposure to this dangerous substance.

In addition to being regulated under TSCA, asbestos exposure is recognized by the Clean Air Act as a threat to public health and is listed as a "Hazardous Air Pollutant." Exposure to asbestos is associated with severe adverse health effects: according to the Agency for Toxic Substances and Disease Registry (ATSDR), breathing asbestos can cause lung cancer, mesothelioma, asbestosis and pleural disease. Additionally, ASTDR reports that exposure to asbestos can cause cancer of the larynx and ovary, and there is evidence suggesting it may cause cancer of the pharynx, stomach and colorectum as well.[1]

[1] Agency for Toxic Substances and Disease Registry. Accessed August 14, 2018. https://www.atsdr.cdc.gov/asbestos/health_effects_asbestos.html

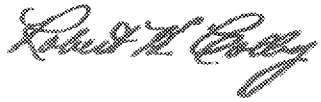
444 North Capitol Street, NW • Suite 307 • Washington, DC 20001 • phone 202.624.7864 • fax 202.624.7863 • www.4cleanair.org

On June 28, 1994, in response to a 1991 court ruling, EPA issued a *Federal Register* notice containing a technical amendment to the "Prohibition of the Manufacture, Importation, Processing, and Distribution in Commerce of Certain Asbestos-containing Products; Labeling Requirements Rule (also known as the Asbestos Ban and Phase Out or ABPO Rule)."[2] In that notice, EPA confirmed that "the court said the rule continued to govern asbestos-containing products that were not being manufactured, imported, or processed on July 12, 1989." In other words, EPA's ban on asbestos remained in place for new uses after July 12, 1989. If EPA goes forward with its recently proposed SNUR, it could open avenues for new uses of asbestos, which have been banned for almost 30 years.

We are very concerned about a proposal that could result in products containing asbestos being manufactured, processed or imported for new uses, especially in light of the adverse impacts on public health from expanding the presence of asbestos in the environment. We recommend that EPA give consideration to the potential negative consequences of this proposed action before advancing it further.

Thank you for your attention to our comments.

Sincerely,



Robert H. Colby
Chattanooga, Tennessee
Co-Chair
NACAA Air Toxics Committee

William O'Sullivan
New Jersey
Co-Chair
NACAA Air Toxics Committee

[2] https://www.gpo.gov/fdsys/pkg/FR-1994-06-28/html/94-15676.htm

Message

From: Groeneveld, Thomas [Groeneveld.Thomas@epa.gov]
Sent: 9/21/2018 2:03:43 PM
To: Winchester, Erik [Winchester.Erik@epa.gov]
CC: Courtnage, Robert [Courtnage.Robert@EPA.GOV]; Coleman, Todd [coleman.todd@epa.gov]; Carmichael, Lea [Carmichael.Lea@epa.gov]
Subject: FW: New Congressional on Asbestos
Attachments: Tester.asbestos.RC 8-27-18.docx; 18-001-0207.pdf

Here's the original and looks like FOB was handling did this go out?

Lea: Welcome to the thread – there is some confusion as to whether this CC was signed/closed out.

Thomas M. Groeneveld
U.S. Environmental Protection Agency
OCSPP/OPPT/NPCD
1200 Pennsylvania Avenue, N.W. (MC 7404T)
Room 5213J
Washington, DC 20460
P: (202) 566-1188
F: (202) 566-0470
E: groeneveld.thomas@epa.gov

From: Courtnage, Robert
Sent: Monday, August 27, 2018 1:34 PM
To: Winchester, Erik <Winchester.Erik@epa.gov>
Cc: Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>
Subject: RE: New Congressional on Asbestos

Erik- Assuming you haven't made additional edits, please find a re-worked version of the response after looking at it again.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Courtnage, Robert
Sent: Friday, August 24, 2018 5:28 PM
To: Winchester, Erik <Winchester.Erik@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>
Cc: Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: FW: New Congressional on Asbestos

Here is a first draft for comment. We can throw it up on Sharepoint if you want. Note, I was silent on the comment period extension part. This came in a month and a half ago.

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Ortiz, Julia
Sent: Friday, August 24, 2018 3:29 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Scheifele, Hans <Scheifele.Hans@epa.gov>
Subject: New Congressional on Asbestos

Hi all,

Please see the attached for an incoming Congressional on the SNUR and a template for our response. I'm hoping this will start trickling out. Since we have so much content for this topic, do you think I could get a draft by COB Wednesday? We're under a lot of pressure to turn ALs around faster. Thank you for your help!

Julia Q. Ortiz
U.S. Environmental Protection Agency
Office of Pollution Prevention and Toxics
202-564-1931 (o)
202-494-4849 (c)

JON TESTER
MONTANA

COMMITTEES:
APPROPRIATIONS
BANKING
COMMERCE
INDIAN AFFAIRS
VETERANS' AFFAIRS

United States Senate

SENATE HART BUILDING
SUITE 311
WASHINGTON, DC 20510
202-224-2644

INTERNET:
tester.senate.gov/contact

July 10, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave NW
Washington, D.C. 20460

Dear Acting Administrator Wheeler,

I write to express my deep concern about recent reports that the Environmental Protection Agency is enacting a Significant New Use Rule to relax asbestos regulations.

This new rule would allow the EPA to evaluate asbestos use on a case-by-case basis, opening the door to very subjective risk assessment of a known carcinogen. Knowingly allowing a deadly chemical into American homes and businesses is irresponsible, and will hurt children and families.

I have heard from Montanans, and they are concerned that this potential new rule could allow products containing asbestos into their towns. This threat hits especially close to home for many Montanans, because asbestos in the Libby vermiculite mines killed more than four hundred residents. This tragedy should serve as a loud reminder that asbestos is toxic, and its use should not be tolerated.

I urge you to reconsider the implementation of the Significant New Use Rule, and that you extend the public comment period 45 days. Folks deserve a good chance to make their voice heard, especially in regard to an important public health issue.

Sincerely,

Jon Tester

BOZEMAN (406) 586-4450 | BUTTE (406) 723-3277 | GLENDIVE (406) 365-2391 | GREAT FALLS (406) 452-9585 | HELENA (406) 449-5401 | KALISPELL (406) 257-3360
BILLINGS (406) 252-0550 | MISSOULA (406) 728-3003

Correspondence Management System
Control Number: AL-18-001-0207
Printing Date: August 27, 2018

Citizen Information

Citizen/Originator: **Tester, Jon**
Organization: U.S. Senate
Address: SH-311 Hart Senate Office Building, Washington, DC 20510-2604

Constituent: N/A
Committee: N/A **Sub-Committee:** N/A

Control Information

Control Number:	AL-18-001-0207	**Alternate Number:**	N/A
Status:	Pending	**Closed Date:**	N/A
Due Date:	Sep 17, 2018	**# of Extensions:**	0
Letter Date:	Jul 10, 2018	**Received Date:**	Aug 22, 2018
Addressee:	AAD-Acting Administrator	**Addressee Org:**	EPA
Contact Type:	LTR (Letter)	**Priority Code:**	Normal
Signature:	AA-OCSPP-Assistant Administrator - OCSPP	**Signature Date:**	N/A

File Code: 301_1051_a Records of Senior Officials - Historically significant records of senior officials
Subject: RE: CONCERN ABOUT RECENT REPORT THAT THE EPA IS ENACTING A SIGNIFICANT NEW USE RULE TO RELAX ASBESTOS REGULATIONS
Instructions: See Template
Instruction Note: Per Sven-erik Kaiser extension has been granted until 9-17-18./km
General Notes: N/A
State-Tribal CNTL: N/A
CC: Denis Borum - OCIR-CA-WPTT
Elizabeth Skane - OCIR-CA-WPTT
Matthew Klasen - OCIR-CA-WPTT
R8 - Region 8 -- Immediate Office

Lead Information

Lead Author: N/A

Lead Assignments:

Assigner	Office	Assignee	Assigned Date	Due Date	Complete Date
Kathy Mims	OCIR	Sven-erik Kaiser	Aug 22, 2018	Sep 17, 2018	N/A
	Instruction: See Template				
Sven-erik Kaiser	OCIR-CA-WPTT	OCSPP-OPPT	Aug 24, 2018	Sep 17, 2018	N/A
	Instruction: See attached template. Extension requested to 9/17/18				

Supporting Information

Supporting Author: N/A

Supporting Assignments:

Assigner	Office	Assignee	Assigned Date
Sven-erik Kaiser	OCIR-CA-WPTT	OCSPP	Aug 24, 2018

History

Action By	Office	Action	Date
Kathy Mims	OCIR	Assign Sven-erik Kaiser as lead	Aug 22, 2018
Sven-erik Kaiser	OCIR-CA-WPTT	Assign OCSPP-OPPT as lead office	Aug 24, 2018
Sven-erik Kaiser	OCIR-CA-WPTT	Assign OCSPP to support the control	Aug 24, 2018
Kathy Mims	OCIR	Changed Due Date September 05, 2018 September 17, 2018	Aug 24, 2018

Comments

Commentator	Comment	Date
No Record Found.		

JON TESTER
MONTANA

COMMITTEES:
APPROPRIATIONS
BANKING
COMMERCE
INDIAN AFFAIRS
VETERANS' AFFAIRS

United States Senate

SENATE HART BUILDING
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1200 Pennsylvania Ave NW
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Sincerely,

Jon Tester

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BILLINGS (406) 252-0550 | MISSOULA (406) 728-3003

Message

From: Strauss, Linda [Strauss.Linda@epa.gov]
Sent: 4/15/2019 6:49:06 PM
To: Courtnage, Robert [Courtnage.Robert@EPA.GOV]; Winchester, Erik [Winchester.Erik@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]
CC: Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Hartman, Mark [Hartman.Mark@epa.gov]; Pierce, Alison [Pierce.Alison@epa.gov]
Subject: FW: Edits to Asbestos press release
Attachments: Asbestos SNUR Press Release 04 15 19_AD.docx

The press release is now in OPA's court. We need to make sure it doesn't go too far.

Can you give me a ring before editing?

Thanks, Linda

202-564-0797

From: Drinkard, Andrea
Sent: Monday, April 15, 2019 2:34 PM
To: Strauss, Linda <Strauss.Linda@epa.gov>; Konkus, John <konkus.john@epa.gov>; Beach, Christopher <beach.christopher@epa.gov>; Schiermeyer, Corry <schiermeyer.corry@epa.gov>; McFaul, Jessica <mcfaul.jessica@epa.gov>; Grantham, Nancy <Grantham.Nancy@epa.gov>; Hewitt, James <hewitt.james@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: RE: Edits to Asbestos press release

Here are my edits to the document. Please add any additional edits you may have to this document. I will keep the pen and provide a clean version back to OCSPP/OGC for their final review. Linda, if I've gone too far, please flag any areas that need to be fixed.

~~Closing Loophole,~~ **EPA Strengthens Regulation of Asbestos to** Close Loophole and **Protect Consumers**

~~**Regulation Prohibits Asbestos Products from Re-entering Market without Review**~~

WASHINGTON – Today, the U.S. Environmental Protection Agency (EPA) issued a stringent new rule ~~final regulation~~ that broadens EPA's authority to review an expansive list of~~ensures that discontinued~~ asbestos products that are no longer on the market before they could be sold again in the United States. ~~that have not ever been banned but have fallen out of the marketplace cannot be reintroduced into commerce without a rigorous EPA evaluation~~ This important step closes the door on a loophole that allowed old uses and products to come back to the market without approval from EPA, giving the agency the authority to~~and putting in place any necessary restrictions, including~~ ban the~~prohibit~~ use of certain products or put in place ~~ing use, put in place. Prior to today these products could be brought back on the market at any time. Starting today, EPA must review them and put in place~~ any restrictions necessary to product public health. ~~or prohibitions that are needed before any possibility of them being available to consumers.~~

"The Trump Administration is the first administration in 30 years ~~is is the first time in 30 years that EPA is~~to take ~~taking~~ action under the Toxic Substances Control Act to put in place new processes to protect consumers from ~~on~~ products that contain asbestos~~ and, today, we're closing a dangerous loophole~~," said EPA Administrator Andrew Wheeler. ~~"~~

~~"~~The scientific data clearly indicates that asbestos is a known human carcinogen and with today's rule, EPA is ~~EPA is taking steps~~ stopping asbestos products from coming back to the marketplace without a going through a robust and transparent review process."

"Today, we are following the laws Congress gave us to close the door on certain asbestos products to prevent them from returning to the marketplace without EPA's review," ~~to protect the American public from the adverse health effects of asbestos."~~ said EPA Office of Chemical Safety and Pollution Prevention Assistant Administrator Alexandra Dapolito Dunn. "This historic step will protect the American public from the adverse health effects of asbestos."~~Today, we are following the laws Congress gave us to close the door on certain asbestos products to prevent them from returning to the marketplace without EPA's review."~~

Today's action means products like asbestos vinyl floor tiles, insulation, and other building materials, as well as some clothing and manufacturing products containing asbestos, cannot be produced and sold before EPA reviews them and puts in place any necessary restrictions, including prohibiting any such use. For a full list of products covered by today's rule: LINK

This action keeps prohibitions made in 1989 in place and would not amend them in any way. In other words, this action maintains the status quo and goes one step further to ensure that no discontinued products that contain asbestos can come back on the market. The following were banned in 1989 (all remain banned): LINK

The action complements the aAgency's risk evaluation of athe handfullimited, remaining asbestos products that are in use today, part of the is final rule is one part of a holistic approach that EPA is taking under the Frank R. Lautenberg Safety for the 21st Safety Act to protect the public from asbestos exposure. When it comes to the remaining limited, remaining asbestos or asbestos products still in use, because addressing asbestos is a priority for EPA, the Agency has selected aAddressing these remaining uses is one EPA's top priorities and asbestos will be sbestos as one of the first 10 chemicals to undergo a risk evaluation under the amended TSCA. The risk evaluation

In a separate, but related action, EPA is in the process of evaluating the risks associated with other asbestos products. This step is required under TSCA section 6, before EPA can restrict or ban other asbestos uses in products, if unreasonable risk is found. It will This risk evaluation ensures that asbestos uses in products not covered by the 1989 ban or today's final rule are evaluated, and if the evaluation concludes with a finding of unreasonable risk that this will be addressed by EPA. EPA is committed to a transparent and open process to finalize the asbestos risk evaluation using sound science by the end of 2019.

Under today's rule the following products in which asbestos is used are prohibited from being manufactured, imported or processed until EPA conducts a thorough review, makes an appropriate determination, and takes actions as required in association with that determination, including prohibiting use: LINK

The following were banned in 1989 (all remain banned): LINK

The following are part of EPA's risk evaluation: LINK

Today's final action takes effect 60 days after publication in the Federal Register. The final rule and supporting documents will be published in the Federal Register and available under docket identification number (ID) EPA-HQ-OPPT-2018-0159 at: [HYPERLINK "https://www.regulations.gov./"]

Learn more about asbestos: [HYPERLINK "http://www.epa.gov/asbestos"]

Message

From: Groeneveld, Thomas [Groeneveld.Thomas@epa.gov]
Sent: 8/14/2018 3:16:09 PM
To: Winchester, Erik [Winchester.Erik@epa.gov]; Courtnage, Robert [Courtnage.Robert@EPA.GOV]
Subject: FW: Legacy chem slides [***ONLY "NON-LEAD" PRESENTATION FOR REVIEW***]
Attachments: TANYA_PCB101_9-26-13.pptx; PCB Current Activity Briefing 9-26-13 v2 (3).pptx; Regional PCB Issues Briefing for DAAs_07-17-18_final.pptx; PCB Actions Briefing for Nancy Beck_11-08-17.pptx; OMB HCHO Slide Deck_8.10.2018.pptx; DD Briefing Materials_FOB_CLEAN_07.06.2017.docx; Asbestos background briefing.Sept2017.doc; OCSPP-OPPT_Legacy Chemical Overview_Non-Lead_08.13.2018.pptx

Need a huge/quick-ish favor.

Brian asked that I cram all of the attached into a 30 minute presentation on our "non-lead" legacy chemical work. Nothing major.

Can you see what passes muster in the **"non-lead" "08.13.2018"** PowerPoint. I included the others so you could see where I was drawing from – if way off base.

NOTE: The request was for "aiming for those things a new OMB person would want to know, so a bit of the basics on each chemical and its regulatory background, then current and planned actions."

With that in mind… I am ignoring dioxin/furan. Can you chime in on PCBs and any other items that can be dropped? (Also – 6 of the slides are essentially title cards)

THANKS!

Thomas M. Groeneveld
U.S. Environmental Protection Agency
OCSPP/OPPT/NPCD
1200 Pennsylvania Avenue, N.W. (MC 7404T)
Room 5213J
Washington, DC 20460
P: (202) 566-1188
F: (202) 566-0470
E: groeneveld.thomas@epa.gov

From: Symmes, Brian
Sent: Monday, August 13, 2018 1:51 PM
To: Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: Legacy chem slides

Here's the various slide to smash together. We've got 30 mins with the new budget examiner to cover non-lead legacy chemicals. You'll need to add a couple of slides on mercury. A couple of areas will need an addition, e.g., asbestos SNUR. Generally, aiming for those things a new OMB person would want to know, so a bit of the basics on each chemical and its regulatory background, then current and planned actions.

Brian Symmes, Deputy Director
National Program Chemicals Division
Office of Pollution Prevention & Toxics/Office of
Chemical Safety & Pollution Prevention
U.S. Environmental Protection Agency
202-566-1983

Asbestos Background Briefing
September 19, 2017

Overview

Definition:

- Naturally occurring fibrous minerals with high tensile strength, the ability to be woven, and resistance to heat and most chemicals.

- Current regulatory definition (TSCA, NESHAP & OSHA) includes six different fibrous minerals:
    - Chrysotile (most commonly used commercially)
    - Crocidolite
    - Amosite
    - Anthophyllite
    - Tremolite
    - Actinolite

- Other fibers similar to "regulated asbestos" but not regulated as asbestos
    - Libby amphibole (winchite, richterite)
    - Erionite

- The levels at which EPA regulates asbestos are based on the state of knowledge about asbestos and detection limits that existed when regulations were promulgated. These thresholds are not health based.

Historical Use:

- Used mostly in building materials; also friction products, heat-resistant fabrics, packaging, gaskets, and coatings. Some vermiculite or talc products may contain asbestos.

    - Data on the ongoing uses of asbestos is limited
    - No asbestos is mined in the U.S.; at least 95% now imported from Brazil
    - Almost all asbestos used commercially in U.S. is chrysotile
    - No Canadian asbestos has been imported since 2011
    - Estimated domestic consumption declined 12% in 2015 from 2014, continuing the downward trend from the record high of 803,000 tons in 1973, to only 358 tons in 2015.
    - Chlor-alkali facilities represent 90%+ of current consumption
    - The remainder is believed to be used in coatings and compounds, plastics, roofing products, and other unknown applications
    - USGS expert: "I can say that it is no longer used in brakes, asbestos-cement products, insulation, floor tile, spackling and joint compound, roof shingles and felts, etc. There may be a few companies still making specialty gaskets, paints, asbestos-reinforced plastics, and asphalt coatings but these would be in very small quantities and I wouldn't know how to track them down."

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[INCLUDEPICTURE "cid:image003.png@01D1DC1C.8DD7CC20" * MERGEFORMAT]
[INCLUDEPICTURE "cid:image004.png@01D1D6AA.A34DBBE0" * MERGEFORMAT]

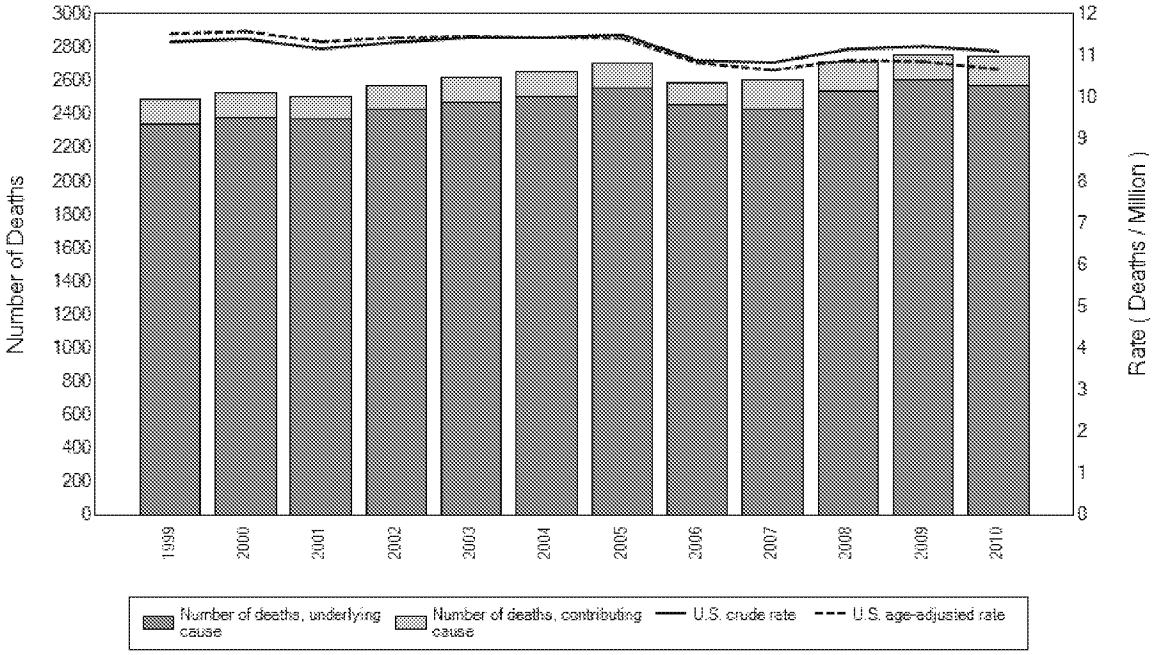
Health Effects:

- Known carcinogen
- Mainly affects the lungs and membranes surrounding the lungs
- Continued exposure increases the amount of fibers that remain in the lung
- Fibers embedded in lung tissue over time may cause serious lung diseases including asbestosis, lung cancer, and mesothelioma
- Smoking increases the risk of developing illness from asbestos exposure
- Disease symptoms may take several years to develop following exposure
- Some studies suggest other diseases such as laryngeal cancer, digestive system cancers, and immune disorders may be associated with asbestos exposure
- At present, EPA cannot establish a safe airborne level of asbestos for the general population, below which exposure might be considered to not present risks
- Very low levels of asbestos are present in the ambient air, particularly in urban and industrial areas but we cannot say with certainty what level of exposure triggers disease

Disease trends:

- 2013: "30 years after peak asbestos use in the United States, 3200 mesothelioma cases are diagnosed annually, showing that the US population is still at risk"

ED_005636_00006215-00002


Number of Deaths
Rate (Deaths / Million)
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
12
11
10
9
8
7
6
5
4
3
2
1
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Number of deaths, underlying cause
Number of deaths, contributing cause
U.S. crude rate
U.S. age-adjusted rate

- Health impacts of asbestos remain a public health concern – mesothelioma mortality from the National Occupational Respiratory Mortality System (NORMS)

[INCLUDEPICTURE "cid:image002.jpg@01D1FA25.D5EDA3F0" * MERGEFORMAT]

ED_005636_00006215-00004

Regulatory Framework

OPPT:

- ASHAA: Asbestos School Hazard Abatement Act of 1984 established a loan and grant program to assist schools in abating asbestos hazards in their buildings. EPA awarded $435 million to 1,428 local educational agencies for 3,262 asbestos abatement projects through 1993, when funding ended.

- AHERA: Asbestos Hazard Emergency Response Act of 1986, requires local education agencies to inspect their schools for asbestos-containing building material and prepare management plans to prevent or reduce asbestos hazards.

- WPR: Asbestos Worker Protection Rule promulgated in 1986 extended OSHA-like worker protection requirements to State and local government employees performing asbestos abatement projects not covered by an OSHA-approved State plan.

- MAP: [SEQ CHAPTER \h \r 1] Model Accreditation Plan for asbestos professionals promulgated in 1987 sets forth training requirements for persons who inspect for asbestos, prepare plans to manage asbestos, or design, conduct, or supervise asbestos abatement projects. Also contained procedures for obtaining EPA approval of asbestos training courses and for establishing State accreditation programs.

- ABPO: Asbestos Ban and Phaseout Rule promulgated in 1989, remanded in 1991, except for ban on any new uses and five existing uses.

- ASHARA[SEQ CHAPTER \h \r 1]: Asbestos School Hazard Abatement Reauthorization Act enacted in 1990 as reauthorization of the ASHAA loan and grant program and also directed EPA to increase the number of training hours required for abatement worker accreditation under the MAP and to expand the accreditation requirements to cover asbestos abatement projects in all public and commercial buildings in addition to schools.

- [SEQ CHAPTER \h \r 1]WPR Amendment: Promulgated in 2000 to add OSHA-like worker protection requirements for State and local government employees performing building operations and maintenance projects and automotive brake and clutch repair.

Other EPA Regulatory Authorities:

- Superfund/CERCLA authorities for site cleanups, e.g., Libby.
- [SEQ CHAPTER \h \r 1]National Emission Standards for Hazardous Air Pollutants (NESHAP) regulates asbestos mills, asbestos product manufacturing, building demolition and renovation, fabricating, insulating materials, waste disposal, and the conversion of asbestos into nonhazardous materials (vitrification).
- OW has proposed a concentration limit of 7 million fibers per liter of drinking water for long fibers.

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Schools:

- Since the 1980s, EPA has regulated asbestos in schools (TSCA Title II) and this effort has helped substantially reduce exposure to asbestos for both children and teachers.

- Legacy asbestos continues to be present in some schools, as well as homes and buildings across the U.S. Most uses of asbestos remain legal.

- Asbestos can be safely managed in-place provided the material is not "friable" – that is, if the material is not damaged or when disturbed can generate respirable fibers.

- EPA will take enforcement action against schools which are not in compliance with asbestos regulations.

Vermiculite:

- EPA launched a public awareness campaign about vermiculite attic insulation (VAI) in May 2003. The intent was to arm the homeowner with the specific information they need to help them determine whether they have vermiculite insulation in their attics and, if so, how to best handle it by following the Agency's 'do not disturb' guidance.

- Published a joint consumer guidance brochure with the Agency for Toxic Substances and Disease Registry (ATSDR) titled, *Current Best Practices for Vermiculite Attic Insulation.*

- Also published a pilot study to estimate asbestos exposure to vermiculite attic insulation also in May 2003. The study presented the results of tests and simulations performed in containment barriers, modeled after attics, and also within 6 homes in Vermont.

- Worked with various stakeholders including home improvement stores and realtor, homeowner, and construction associations to disseminate information to consumers. As an example, Sears agreed to stock the VAI brochure in their stores nationwide and also distributed the brochure to homeowners during home installation sales visits.

- In 2009, EPA made minor revisions to the VAI guidance, released in web form only.

- EPA has consistently advised consumers to leave vermiculite attic insulation in place, undisturbed, and to contact professionals if it needs to be removed or disturbed during renovation or remodeling. EPA has not changed this public guidance.

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Asbestos Ban & Phase Out Rule

- EPA promulgated a TSCA Section 6(a) rule on July 12, 1989 banning most asbestos-containing products.

- The manufacture, importation, processing, and distribution in commerce of asbestos-containing products were banned in three stages.

- The 1989 final Asbestos Ban and Phase-out Rule (ABPO) did not restrict mining or importation of bulk asbestos, nor did it regulate asbestos as a contaminant if the percentage of asbestos was below one percent.

- EPA was sued on the rule by Corrosion Proof Fittings and other asbestos-containing product manufacturers, the Asbestos Information Association (an asbestos industry trade group), and Canada.

- On October 18, 1991, the U.S. Court of Appeals for the Fifth Circuit vacated a major portion of the rule and remanded it to EPA for further review.

[SEQ CHAPTER \h \r 1]The Court Decision:

- EPA has authority to ban substances under TSCA and asbestos is hazardous.

- EPA failed to sustain its burden of showing an unreasonable risk and did not adequately show that a less burdensome regulation would not adequately protect against that risk..

- The rule also failed to provide public notice and comment on the use of "analogous exposure" data.

What's Banned and Not Banned:

- Six asbestos-containing product categories are still subject to the asbestos ban:

  1) corrugated paper, 2) rollboard, 3) commercial paper, 4) specialty paper, 5) flooring felt, and 6) new uses of asbestos.

- Asbestos-containing product categories no longer subject to the 1989 TSCA ban include:

  asbestos-cement corrugated sheet, asbestos-cement flat sheet, asbestos clothing, pipeline wrap, roofing felt, vinyl-asbestos floor tile, asbestos-cement shingle, millboard, asbestos-cement pipe, automatic transmission components, clutch facings, friction materials, disc brake pads, drum brake linings, brake blocks, gaskets, non-roofing coatings, and roof coatings.

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Current Action Under New TSCA

- In December 2016, EPA named asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations, as required by TSCA § 6(b)(2)(A).

- For the purposes of scoping and the risk evaluation, EPA has adopted the definition of asbestos as defined by TSCA Title II or the Asbestos Hazard Emergency Response Act which includes chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite.

- EPA plans to evaluate existing ongoing uses of asbestos, but not "legacy uses" or uses where there is no active manufacture, distribution in commerce or import for use.

- Published and took comment on the use documents for the first 10 chemicals, including asbestos, on February 10, 2017 and held a public meeting on the initial 10 chemicals February 14, 2017.

- Published scope documents to frame the risk evaluations for the first 10 chemicals on June 22, 2017, but did not take comment on the document.

- Tentatively publishing the problem formulation documents for the first 10 chemicals in late December 2017.

- May pursue an existing chemical SNUR on asbestos to help shrink the universe of uses to be evaluated.

- EPA has until December 2019 to complete the risk evaluations.

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Message

From: Silagi, William [Silagi.William@epa.gov]
Sent: 6/1/2018 2:39:24 PM
To: Courtnage, Robert [Courtnage.Robert@EPA.GOV]
CC: Carmichael, Lea [Carmichael.Lea@epa.gov]
Subject: Asbestos SNUR EA for docket
Attachments: EA for Proposed Asbestos SNUR.pdf

Importance: High

See attached.

Economic Analysis for the Proposed Significant New Use Rule for Asbestos

May 2018

Economic and Policy Analysis Branch
Chemistry, Economics and Sustainable Strategies Division
Office of Pollution Prevention and Toxics
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Notice

This is not an official guidance document and should not be relied upon to determine applicable regulatory requirements. This document was prepared to provide economic information for the rulemaking process, and to meet various administrative and legislative requirements. Due to the nature of the information available to EPA, the document contains various assumptions that may not reflect the regulatory determinations that an individual firm would make were it to apply the rule's requirements to its specific circumstances. Persons seeking information on proposed regulatory requirements as they would apply to specific facilities should consult the notice of proposed rulemaking.

ED_005636_00006251-00002

Table of Contents

1. Introduction 1-1
1.1 Statutory Authority 1-1
1.2 Significant New Uses under the Proposed SNUR 1-1
1.3 Summary of Methodology 1-2
1.4 Organization of This Report 1-2
2. Regulated Substance: Uses and Manufacturers 2-1
2.1 Chemical Uses 2-1
2.1.1 Historical Uses 2-1
2.1.2 Ongoing Uses 2-2
2.2 Potentially Affected Companies 2-3
3. Industry Compliance Costs 3-1
3.1 Wage Rates 3-2
3.2 Unit Industry Compliance Costs 3-2
3.2.1 Rule Familiarization 3-2
3.2.2 Electronic Reporting 3-3
3.2.3 Form Completion and Submission Fee 3-5
3.2.4 Recordkeeping 3-7
3.2.5 Customer Notification 3-8
3.2.6 Import Certification 3-8
3.2.7 Export Notification 3-8
3.2.8 Article Importation and Processing 3-11
3.3 Summary of Per Submission Costs, by Option 3-15
3.4 Likelihood of SNUN Submission 3-16
3.5 Potential for Subsequent Regulatory Actions 3-16
4. Agency Costs 4-1
5. Benefits 5-1
6. Additional Analyses 6-1
6.1 Regulatory Flexibility Act 6-1
6.2 Unfunded Mandates Reform Act (UMRA) 6-1
6.3 Paperwork Reduction Act (PRA) 6-2
6.4 Executive Order 13132 – Federalism 6-2
6.5 Executive Order 12898 – Environmental Justice 6-2
6.6 Executive Order 13045 – Children's Health 6-3
6.7 Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments 6-3
6.8 Executive Order 13211 – Energy Supply, Distribution, or Use 6-3
6.9 Executive Order 13563 – Improving Regulation and Regulatory Review 6-3
6.10 National Technology Transfer and Advancement Act 6-3
6.11 Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs 6-4

ED_005636_00006251-00003

Executive Summary

This report estimates the costs of a Significant New Use Rule (SNUR) being proposed by the U.S. Environmental Protection Agency (EPA) for asbestos. The term "asbestos," as defined in TSCA Title II (§202(7): 15 U.S.C. §2642) means asbestiform varieties of chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite, or actinolite. EPA is promulgating a SNUR under the Toxic Substances Control Act (TSCA) section 5(a)(2). The proposed significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for the following uses identified by the Agency as no longer ongoing: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; extruded sealant tape and other tape; filler for acetylene cylinders; high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; and any other building material (other than cement). For this rule, the general SNUR article exemption would not apply for persons who import or process asbestos for a significant new use identified above.

The SNUR requires manufacturers (including importers) or processors of asbestos to notify EPA at least 90 days prior to the occurrence of any significant new use. A firm intending to engage in these activities would be required to submit a Significant New Use Notice (SNUN), incurring an estimated submission cost of $7,537 for small businesses and $9,937 for other businesses, as well as potentially other minor costs such as consumer notification costs. These costs are listed in Table ES-1. The required notification initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period.

In addition to any firms that may make a SNUN submission, the SNUR may also affect firms that do not make a submission. By avoiding a significant new use, a firm can avoid submission and testing costs but may incur other compliance costs. The firm may also incur "hidden" costs; for example, it could forego profitable opportunities to use the chemical in an application that would be a significant new use, or limit production volume to avoid a significant new use.

Costs are estimated at the firm level and reflect the burden of a SNUR on the firms that make a submission. The hidden costs to the firms that do not make a submission are not quantified. EPA's experience to date is that, in response to the promulgation of SNURs covering over 1,000 chemical substances, EPA receives fewer than ten SNUNs per year. The number of firms affected by not making submissions to EPA is not known; therefore, costs are not aggregated across the affected entities.

ED_005636_00006251-00004

Table ES-1: Compliance Options and Associated Costs Incurred by a Firm Due to the SNUR

	Option	Costs [1]	Average Quantified Costs per Chemical (2017$)
1.	Electronic submission of a Significant New Use Notice (SNUN), indicating to EPA that the firm would like to manufacture, import, or process the chemical for a Significant New Use as defined in the SNUR.	Costs of submitting a SNUN, including rule familiarization, CDX registration (for companies that are first-time submitters), form completion, user fee, and any test costs.	$67 rule familiarization cost; $9,937 submission and recordkeeping cost for large businesses (including $2,500 fee) and $7,537 for small businesses (including $100 fee[2]). First time submitters would incur $128 for CDX registration and associated activities. Companies manufacturing, importing, or processing a chemical currently used in commerce in the United States will incur a cost of $81 for notifying consumers of SNUR regulatory activities.
2.	Manufacture, import, or process in a way that avoids a Significant New Use.	Cost of the profit foregone as a result of not engaging in the commercial activity originally planned (opportunity costs), and recordkeeping.	Opportunity costs are not quantified. Other costs including rule familiarization ($67), recordkeeping ($5), and customer notification ($80) may apply. Costs associated with article importation may include activities such as article identification ($160 to $1,916), supplier identification ($1,151), recordkeeping ($5), collecting data from suppliers ($6 to $639 per article), and testing ($130 per article tested).

Notes:

[1] SNURs typically trigger export notification requirements at an estimated cost of $96 per notification. However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for products containing asbestos. Therefore there is no additional cost for export notification for this rule.

[2] On February 26, 2018 EPA proposed raising the fee for SNUNs to $2,800 for small businesses and $16,000 for other businesses (83 FR 8212). And on November 30, 2017 EPA determined that revisions to the current small business size standards for TSCA reporting and recordkeeping requirements are warranted (82 FR 56824).

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1. Introduction

EPA is concerned that commencement of the manufacture (including import) or processing for significant new uses of asbestos could significantly increase the magnitude and duration of exposure to asbestos and that such an increase should not occur without an opportunity for EPA to review any proposed new use before such use could occur. The SNUR requires manufacturers (including importers) or processors of asbestos, including as part of an article, to notify EPA at least 90 days prior to the occurrence of any significant new use. A firm intending to engage in these activities would be required to submit a Significant New Use Notice (SNUN). The required notification initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. For this proposed rule, the general SNUR article exemption at 40 CFR 721.45(f) would not apply.

1.1 Statutory Authority

Section 5(a)(2) of the Toxic Substances Control Act (TSCA) (15 U.S.C. 2604(a)(2)) authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors, including those listed in TSCA section 5(a)(2):

- The projected volume of manufacturing and processing of the chemical substance;
- The extent to which a use changes the type or form of exposure of human beings or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of human beings or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1)(B) requires persons to submit a SNUN to EPA at least 90 days before manufacturing (including importing) or processing the chemical substance for that use (15 U.S.C. 2604(a)(1)(B)).

1.2 Significant New Uses under the Proposed SNUR

The general SNUR provisions are found at 40 CFR Part 721, Subpart A. EPA may promulgate a SNUR for a substance when potential use could result in significant changes in human exposure or environmental release levels and/or concern exists about the substance's health or environmental effects (40 CFR §721.170).

The proposed significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for the following uses identified by the Agency as no longer ongoing: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; extruded sealant tape and other tape; filler for acetylene cylinders; high-grade electrical paper; millboard; missile liner; pipeline wrap;

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reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; and any other building material (other than cement).

1.3 Summary of Methodology

This analysis quantifies, to the extent possible, the costs to society of the proposed rule by identifying the costs to industry associated with performing the required reporting and recordkeeping, and the costs to EPA for administering the rule. Industry costs consist of rule familiarization; registration with the Central Data Exchange (CDX) electronic reporting tool; collection, compilation, and submission of required information for significant new uses of the subject chemical; and recordkeeping. Agency costs include reviewing and processing the data received as a result of the rule. Data sources for this analysis include burden estimates derived from previous information collection requests and economic analyses for related rules, compensation data acquired from government publications, and supplementary market research.

In addition to costs, this report qualitatively discusses the benefits of the rule based on the value of the information it will provide. The benefits analysis was undertaken to address the requirements of Executive Order 12866.

Note that all dollar amounts in this analysis are reported in 2017 dollars.

1.4 Organization of This Report

The remainder of this report presents EPA's economic analysis in support of the proposed rule. A description of asbestos market information is provided in Chapter 2. Chapter 3 contains estimates of the industry costs to comply with the rule, and Chapter 4 shows estimates of the government costs associated with the administration of the rule. Chapter 5 addresses the benefits of the rule. Several additional impact analyses are presented in Chapter 6, including: small entity impact analysis, as mandated by the Regulatory Flexibility Act (RFA); a burden hour analysis that responds to the requirements of the Paperwork Reduction Act (PRA); an analysis of unfunded mandates that pertains to the Unfunded Mandates Reform Act (UMRA); an analysis of environmental justice implications that addresses the requirements of Executive Order 12898; and an analysis of children's health pertinent to Executive Order 13045.

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2. Regulated Substance: Uses and Manufacturers

Asbestos is a mineral fiber that occurs naturally in rock and soil. Asbestos is a "generic commercial designation for a group of naturally occurring mineral silicate fibers of the serpentine and amphibole series" (IARC, 2012). The Chemical Abstract Service (CAS) definition of asbestos is "a grayish, non-combustible fibrous material. It consists primarily of impure magnesium silicate minerals."

TSCA Title II (added to TSCA in 1986), Section 202 defines asbestos as the "*asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite.*" EPA is using this definition of asbestos for the proposed SNUR. The most common form of asbestos used in the United States is chrysotile, which is found in serpentine rock formations (chrysotile content average 5%, with a maximum 50%) (WHO, 2014). Chrysotile was the predominant type of asbestos used in the United States and is currently the only type of raw asbestos imported. The three varieties of amphibole fibers that are the most commonly found are crocidolite, amosite and tremolite. Crocidolite and amosite were the only amphiboles with significant industrial uses in recent years. Tremolite, although having essentially no industrial application, may be found as a contaminant associated with other fibers or in other industrial minerals (e.g., chrysotile and talc) (Virta, 2011).

2.1 Chemical Uses

To determine the current uses of asbestos, EPA conducted extensive research and outreach. This included EPA's review of published literature and online databases including EPA's Chemical Data Reporting program (CDR), Safety Data Sheets (SDSs), the United States Geological Survey's Mineral Commodities Summaries and Minerals Yearbook, the U.S. International Trade Commission's Dataweb, the U.S. Customs and Border Protection's Automated Commercial Environment (ACE) System, and commercial trade databases. EPA also reviewed the company websites of potential manufacturers, importers, distributors, retailers, or other users of asbestos. EPA also received comments on the *Scope of the Risk Evaluation for Asbestos* (EPA, 2017a) that were used to help determine the current conditions of use. In addition, prior to the June 2017 publication of the scope document, EPA convened meetings with companies, industry groups, chemical users, and other stakeholders to aid in identifying conditions of use and verifying conditions of use identified by EPA. This process is described in more detail in the preamble for this SNUR rulemaking.

2.1.1 Historical Uses

Asbestos has not been mined or otherwise produced in the United States since 2002 (Flanagan, 2016).

In developing the *Scope of the Risk Evaluation for Asbestos* (EPA 2017a), EPA identified uses including pre-existing materials currently in place within buildings (e.g., insulation materials, flooring, etc.) and also within pre-existing non-building equipment. Many asbestos products fall into this category. These materials were installed in the past, and EPA's *Scope of the Risk Evaluation for Asbestos* indicated that there was no evidence at that time to suggest that manufacturing, processing, or distribution for such activities was intended, known, or reasonably foreseen. The Scope document concluded that legacy asbestos-containing products include:

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- Asbestos arc chutes
- Asbestos pipeline wrap
- Asbestos separators in fuel cells and batteries
- Asbestos-cement flat sheet
- Asbestos-cement shingles
- Asbestos-reinforced plastics
- Beater-add gaskets
- Corrugated asbestos-cement sheet
- Extruded sealant tape
- Filler for acetylene cylinders
- High-grade electrical paper
- Millboard
- Missile liner
- Roofing felt
- Vinyl-asbestos floor tile

EPA received no public comments on the scope document for asbestos providing information to indicate these uses are ongoing. But upon further investigation during problem formulation, EPA determined that seven asbestos product categories (asbestos packings, asbestos protective clothing, automatic transmission friction components, clutch facings, asbestos-cement flat sheet, asbestos-cement shingles, and corrugated asbestos-cement sheet) that were listed as legacy uses in the Scope document fall under broader categories that EPA has identified as conditions of use (other gaskets and packing, woven products, automotive friction materials, and asbestos cement products). Therefore, EPA is no longer considering these to be legacy uses because it is reasonably foreseen that these products could be considered under the risk evaluation as specific products in broader categories of conditions of use.

The manufacture, processing, and distribution for a number of additional uses of asbestos were banned under TSCA in 1989 as part of the *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions; Final Rule* (40 CFR Part 763) (also known as Asbestos Ban and Phase-out Rule (Remanded), 1989). The uses of asbestos covered by the ban include:

- Corrugated paper
- Rollboard
- Commercial paper
- Specialty paper
- Flooring felt
- Commercial uses of asbestos not identified in 40 CFR § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989

2.1.2 Ongoing Uses

All asbestos used in this country is imported. According to the U.S. Geological Survey (USGS), the only form of asbestos currently imported into the United States is chrysotile, all of which originated from Brazil in 2017 (USGS, 2018). USGS reports that in 2017, the United States imported approximately

ED_005636_00006251-00009

300 metric tons of raw asbestos almost all of which was used by the chlor-alkali industry (USGS, 2018). In 2016, the United States imported 702 metric tons (1,547,645 pounds) of raw asbestos (USGS, 2018).

Using data from the 2016 Chemical Data Reporting (CDR) rule, EPA identified industrial processing or use activities, industrial function categories and commercial, and consumer use product categories. However, reporting of asbestos in the 2016 CDR period was limited (EPA, 2016a). Only two companies, both from the chlor-alkali industry, reported importing asbestos and the amounts cannot be publicly disclosed due to company claims of confidential business information (CBI).

Table 2-1: 2016 CDR Use Data for Asbestos (CAS No. 1332-21-4)

Site	2015 Total Production Volume	Category of Industrial Use	Industrial Sectors	Type of Process or Use
OLIN CORPORATION	Withheld	Fillers	All other basic inorganic chemical manufacturing	Processing—incorporation into formulation, mixture, or reaction product
AXIALL CORPORATION	Withheld	Used as diaphragm material in Caustic/Chlorine electrolytic cells	All other basic inorganic chemical manufacturing	Use—non-incorporative activities

Source: EPA, 2016a

EPA found limited evidence of asbestos-containing products currently used in the United States. In the scope document, certain asbestos-containing products, such as woven or knitted fabrics, asbestos-cement, aftermarket brake linings, other vehicle friction materials, and other gaskets and packing were identified in the *Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos* (EPA, 2017c). During problem formulation, EPA consulted with USGS staff on what uses of asbestos they consider to be ongoing based on their professional judgement after reviewing government and commercial trade databases. USGS believes that the asbestos-containing products that continue to be imported include raw chrysotile asbestos (for use in chlor-alkali diaphragms), asbestos brake linings, knitted fabrics (woven products), asbestos rubber sheets (i.e., sheet gaskets) and potentially asbestos-cement pipe. USGS and EPA believe that other asbestos imports listed by harmonized tariff schedule (HTS) code in government and commercial trade databases are likely misreported and are not ongoing current conditions of use. EPA contacted several suspected users of asbestos-containing products to determine that those particular products are no longer imported or used in the United States.

2.2 Potentially Affected Companies

The SNUR will require manufacturers, importers, and processors to notify EPA at least 90 days before commencing the manufacture, import, or processing of asbestos (including as part or an article) for any significant new use. The proposed significant new uses are: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; extruded sealant tape and other tape; filler for acetylene cylinders; high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; and any other building material (other than cement). The proposed significant new uses are detailed in Table 2-2. EPA has not identified any firm manufacturing, importing, or processing asbestos (including as part of an article) for the uses listed above. The proposed SNUR may affect firms that currently do not manufacture, import, or process

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asbestos, but who may be interested in manufacturing, importing, or processing asbestos for a new use in the future.

Table 2-2: Product Categories of Proposed Significant New Uses of Asbestos

Product Category	Description of the Product Category
Arc Chutes	Ceramic arc chutes containing asbestos were used to guide electric arcs in motor starter units in electric generating plants.
Beater-Add Gaskets	Asbestos fibers were incorporated within various elastomeric binders and other fillers to form the beater-add paper. These products were used extensively for internal combustion applications and for the sealing component of spiral wound gaskets. Gaskets were used to seal one compartment of a device from another in non-dynamic applications such as engine and exhaust manifolds.
Extruded Sealant Tape and Other Tape	Sealant tape was made from a semi-liquid mixture of butyl rubber and asbestos. On exposure to air, the sealant solidified forming a rubber tape about an inch wide and an eighth of an inch thick. The tape acted as a gasket for sealing building windows, automotive windshields, and mobile home windows. It was also used in the manufacture of parts for the aerospace industry and in the manufacture of insulated glass.
Filler for Acetylene Cylinders	Asbestos was used to produce a sponge-like filler, which held the liquefied acetylene gas (acetone) in suspension in the steel cylinder and puled the acetone up through the tank as the gas was released through the oxyacetylene torch. The torch was used to weld or cut metal and sometimes used as an illuminant gas. The filler also acted as an insulator that offered fire protection in case the oxidation of the acetylene became uncontrollable.
High-Grade Electrical Paper	The major use of asbestos electrical paper was insulation for high temperature, low voltage applications such as in motors, generators, transformers, switch gears, and other heavy electrical apparatuses.
Millboard	Asbestos millboard was essentially a heavy cardboard product that was used for gasketing, insulation, fireproofing, and resistance against corrosion and rot. Millboard was used in many industrial applications to include linings in boilers, kilns, and foundries; insulation in glass tank crowns, melters, refiners, and sidewalls in the glass industry; linings for troughs and covers in the aluminum, marine, and aircraft industries; and thermal protection in circuit breakers in the electrical industry. In addition, thin millboard was inserted between metal to produce gaskets. Commercial applications for millboard included fireproof linings for safes, dry-cleaning machines, and incinerators.
Missile Liner	A missile liner was an asbestos and rubber compound used to insulate the outer casing of the rocket from the intense heat generated in the rocket motor while the rocket fuel was burned. Rockets and rocket boosters were used to propel a number of objects including military weapons and the space shuttle.
Adhesives, Sealants, and Roof and Non-Roof Coatings	The automobile industry historically used asbestos in a wide variety of adhesive, sealant, and coating applications. The aerospace industry used asbestos in extremely specialized applications such as firewall sealants and epoxy adhesives. Non-roof coatings were used to prevent corrosion (e.g. as vehicle undercoatings and underground pipe coatings). Roof coatings were used to repair and patch roofs, seal around projections such as chimneys and vent pipes, and bond horizontal and vertical surfaces.
Pipeline Wrap	Pipeline wrap was an asbestos felt product primarily used by the oil and gas industry for coating its pipelines. Asbestos pipeline wrap was also used in the coal tar enamel method of coating pipes, some above-ground applications (such as for special piping in cooling towers), and was also used by the chemical industry for underground hot water and steam piping.
Reinforced Plastics	Asbestos-reinforced plastics were used for electro-mechanical parts in the automotive and appliance industries and as high-performance plastics for the aerospace industry. Asbestos-reinforced plastic was typically a mixture of some type of plastic resin (usually phenolic or epoxy), a general filler (often chalk or limestone), and raw asbestos fiber.
Roofing Felt	Asbestos roofing felt was single or multi-layered grade and used for built-up roofing. Asbestos was used in roofing felts because of its dimensional stability and resistance to rot, fire, and heat.

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Separators in Fuel Cells and Batteries	In very specialized aerospace applications, asbestos functioned as an insulator and separator between the negative and positive terminals of a fuel cell/battery.
Vinyl-Asbestos Floor Tile	Vinyl-asbestos floor tile was used in commercial, residential, and institutional buildings in heavy traffic areas such as supermarkets, department stores, commercial plants, kitchens, and "pivot points" -- entry ways and areas around elevators
Any Other Building Materials (other than cement)	Examples include insulation, plasters, mastics, textured paints (e.g., simulates stucco), and block filler paints (e.g., for coating masonry).

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3. Industry Compliance Costs

The SNUR discussed in this report specifies that any manufacture (including import) or processing of asbestos or the importation or processing of an article for a designated significant new use will require reporting under Section 5(a)(1)(A) of TSCA. Therefore, a firm intending to manufacture, import, and/or process asbestos for these applications must submit a SNUN. Alternatively, a firm can decide not to manufacture, import, and/or process this chemical or to manufacture, import, and/or process this chemical in such a way that it is not considered a significant new use. The firm, therefore, has two options:

- ***Option 1: Submit a SNUN.*** A SNUN indicates to EPA that the firm would like to manufacture, import, and/or process the chemical or import or process an article for a significant new use, which, in this case, means any use of asbestos identified in Table 2-2. The firm must submit the SNUN to EPA at least 90 days before it plans to commence the manufacture, import, and/or processing of the new use of the substance; the SNUN initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing asbestos (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. If EPA allows the manufacture, import, and/or processing of asbestos for a significant new use, then the costs associated with this option are the costs of submitting the SNUN (including paying a user fee).

- ***Option 2: Comply with SNUR limits (not manufacture, import, and/or process a new use of the chemical).*** A firm can avoid engaging in a Significant New Use and submitting a SNUN by not manufacturing (including importing) and/or processing asbestos (including as part of an article) in a manner such that it would be considered a significant new use. That is, if the firm does not manufacture (including import) or process asbestos (including as part of an article) for a significant new use identified in Table 2-2, it would not be subject to the proposed SNUR. While this option avoids the costs of submitting a SNUN, it may entail the "hidden" cost of the foregone profit as a result of not engaging in the commercial activity originally planned, and may involve substituting another, more costly, substance. If the firm elects to produce the chemical for research and development (R&D) purposes only (an exemption for R&D purposes is provided in 40 CFR §721.47), it may incur costs associated with R&D recordkeeping. The firm may also pursue this option temporarily by complying with SNUR restrictions while also pursuing Option 1. Due to the uncertainty related to this option, and EPA's expectation that affected entities will select Option 1, the costs of Option 2 are not fully quantified in this report.

The remainder of this chapter estimates the quantified portion of costs associated with the SNUR for asbestos. Section 3.1 summarizes the wage rates used in this chapter. Section 3.2 provides the unit industry compliance costs, including the costs of rule familiarization, registration with the Central Data Exchange (CDX) electronic reporting tool, completing the SNUN form, submission fee, and import certification. Total costs under each option are presented in Section 3.3. Sections 3.4 and 3.5 discuss probability of SNUN submission and promulgation of subsequent regulatory actions related to this SNUR, respectively.

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3.1 Wage Rates

The proposed rule involves activities that may require efforts by employees in three labor classifications: managerial, technical, and clerical. Costs for each activity are calculated by estimating the labor hours required in each labor category and multiplying those burdens by the wage rate for each labor category. This section presents the estimated wage rate in each labor category.

Loaded wage rates for each labor category are derived by combining data on wages and fringe benefits with estimates of overhead rates following the methodology described in *Wage Rates for Economic Analysis of the TRI Program* (EPA, 2002). Wage and fringe benefit data for managerial, professional/technical, and clerical labor are calculated using the September 2017 quarterly estimates from the Employer Costs for Employee Compensation (ECEC) Supplemental Tables available on the Bureau of Labor Statistics (BLS) website (BLS, 2018a). The loaded wage rate for managerial labor is $84.03; technical labor is $79.85; and clerical labor is $34.80.

Table 3-1 presents the basic data used to calculate the loaded wage rates for all four categories of labor, and Appendix A provides more detailed information on the estimation of these wage rates.

Table 3-1: Loaded Industry Wage Rates, 2017$

Labor Category	Base Wages[a]	Fringe Benefits[a] + Overhead Factor[b]	Loaded Wages
Managerial	$50.21	1.67	**$84.03**
Professional/Technical	$46.23	1.73	**$79.85**
Clerical	$20.73	1.68	**$34.80**

Notes:
[a] Wage rates and fringe benefits are calculated using the September 2017 estimates from BLS, 2018a.
[b] An overhead rate of 17% of base wages is used here, based on methodology and assumptions in EPA, 2002.

3.2 Unit Industry Compliance Costs

This section estimates the "unit industry compliance costs," which are the costs to the individual site that would report under the proposed rule.

3.2.1 Rule Familiarization

The proposed rule would require manufacturers (including importers) and processors of asbestos and certain articles containing asbestos to become familiar with the SNUR and its various requirements. Rule familiarization is estimated to require 0.55 hours of technical labor and 0.27 hours of managerial labor, as described in the *Economic Analysis of the Premanufacture Notification Electronic Reporting Final Rule* (EPA, 2009), which measures the costs of mandatory electronic reporting of SNUNs and other TSCA Section 5 notices. As shown in Table 3-2, the labor cost associated with rule familiarization is $66.61.

Table 3-2: Industry Cost Estimate to Familiarize with the Rule (2017$) (per Site)

Reporting Activity	Clerical Labor (at $34.80/hour)		Technical Labor (at $79.85/hour)		Managerial Labor (at $84.03/hour)		Total Labor Cost	
	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)
Rule Familiarization	0	$0.00	0.55	$43.92	0.27	$22.69	**0.82**	**$66.61**

Sources: Wage rates: Table 3-1; Burden estimates: EPA, 2009.

ED_005636_00006251-00015

3.2.2 Electronic Reporting

The proposed rule would require submitters to register with EPA's Central Data Exchange (CDX) and use the Chemical Information Submission System (CISS) to prepare and submit a data file. CDX is EPA's electronic system for environmental data exchange to the Agency. CDX also provides the capability for submitters to access their data through the use of web services. EPA developed CISS for use in submitting data for TSCA electronically to the Agency. CISS, a web-based reporting tool, provides user-friendly navigation, works with CDX to secure online communication, creates a completed Portable Document Format (PDF) for review prior to submission, and enables data, reports, and other information to be submitted easily.

EPA estimates that affected facilities will incur burden and cost due to the electronic reporting requirements of the proposed rule. This includes costs to complete a subscriber agreement and register with CDX. Understanding the electronic reporting requirements is expected to be part of rule familiarization discussed in Section 3.2.1 and is not included again in this section.

Some company users who have already registered with CDX to meet other EPA electronic reporting requirements, for example to submit Premanufacture Notices (PMNs), will not need to register again as a result of this rule. Therefore, these activities are only required of first-time submitters of any Section 5 notice. These activities are estimated to require the following burdens, based on the estimates presented in the *Supporting Statement for EPA Information Collection Request Number 2002.05, "Cross-Media Electronic Reporting Rule"* (EPA, 2011).

When registering with CDX, users are assigned to one of two roles in the CDX system, an Authorized Official or a Support Registrant.

> **Authorized Official (AO)**: The AO is the person legally responsible for the submission. The AO is typically a senior official for the respondent. The AO is the only user who can start a new form, or reopen a completed form to begin the amendment process and is the only user who can electronically sign and submit a form. AOs can also assign Support Registrants to edit and complete forms on his or her behalf. AOs must submit a subscriber agreement to EPA and register with CDX.
>
> **Support Registrants**: A Support Registrant is a person designated by an AO to submit supporting documents on his or her behalf. Support Registrants can edit a submission that is created by the AO. Support Registrants are only allowed to edit the submissions to which the AO has granted him or her access. Support Registrants do not have any access rights to create or submit a form. Once the AO creates a form, they will provide the Support Registrant with a passphrase to access the submission and complete all sections of the form. Once the Support Registrant has finished completing the form, the AO will access the document, review it, and then submit it. Support Registrants must register with CDX but do not need to submit a subscriber agreement to EPA.

This analysis uses a simplifying assumption that an average of five employees at each respondent firm will register with CDX: one manager (who will serve as AO) and four technical staff members (who will serve as Support Registrants).

ED_005636_00006251-00016

Respondents will incur electronic reporting costs to register with CDX, submit a subscriber agreement, set up payment, and contact EPA's CDX Help Desk for assistance if necessary.

CDX Registration. CDX users will need to register with CDX. This involves selecting a user name and password, providing contact information, and identifying the facility and the registrant's role (e.g., AO or Support Registrant) at the facility. This is estimated to take an average of 10 minutes per user (EPA, 2011). Because there are assumed to be one manager and four technical staff registering, this results in an estimate that each respondent (business) will spend 10 minutes of managerial time and 40 minutes of technical time to register with CDX.

Subscriber Agreement/Electronic Signature Agreement. An AO must complete a subscriber agreement in order to establish their identity and their relationship to the entity for which they will submit electronic documents, as well as to document a unique correlation with the device that will be used to create their electronic signature. While users can comply with the subscriber agreement provisions in CDX either by submitting a paper subscriber agreement with a wet-ink signature or by submitting an electronic signature agreement, this analysis assumes that all AOs will submit electronic signature agreements. Preparing, submitting, and filing a subscriber agreement and an electronic signature agreement is estimated to require an average of 15 minutes of time per registrant (EPA, 2011). Because only an AO must complete the subscriber and electronic signature agreement, this is assumed to be managerial time. In addition, the burden estimate is assumed to include identity verification through a third party electronic verification process, which is an available service through CDX.

Payment via Pay.gov account. EPA estimates that one manager per company will spend approximately 0.13 hours setting up a Pay.gov ID account, logging into the system, finding the appropriate form, and filling it out. This burden does not include the time required to click 'submit' on the form and wait for payment processing (EPA, 2009).

Help Desk. CDX users are assumed to spend an average of 4 minutes contacting EPA's CDX Help Desk for technical support (EPA, 2011), which results in an estimate of 4 minutes of managerial time and 16 minutes of technical time per respondent.

Table 3-3 presents the burden and costs for electronic reporting.

ED_005636_00006251-00017

Table 3-3: Industry Burden and Cost of Electronic Reporting Requirements (First Year, per Site) (2017$)

Reporting Activity	Clerical Labor (at $34.80/hour)		Technical Labor (at $79.85/hour)		Managerial Labor (at $84.03/hour)		Total Labor Cost	
	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)
CDX Registration	0	$0.00	0.67	$53.50	0.17	$14.29	0.84	$67.79
Electronic Subscriber Agreement/ Electronic Signature	0	$0.00	0	$0.00	0.25	$21.01	0.25	$21.01
E-Payment (Pay.gov ID)	0	$0.00	0	$0.00	0.13	$10.92	0.13	$10.92
Help Desk	0	$0.00	0.07	$5.59	0.27	$22.69	0.34	$28.28
						Totals	**1.56**	**$128.00**

Sources: Wage rates: see Table 3-1; Burden estimates: EPA, 2009 and EPA, 2011.

3.2.3 Form Completion and Submission Fee

Respondents who choose to submit a SNUN are required to gather and submit information regarding the data elements identified in the applicable SNUN reporting form. The methodology and calculations used in this analysis assume that the employee responsible for collecting, filling out, and submitting the requested information has a reasonable level of familiarity with the company and knowledge of operations at the site. It is assumed that, for most entities, these tasks are similar to other employee duties that require familiarity with EPA, State, and other Federal agency requests for chemical information and do not require additional familiarization or training beyond the basic rule familiarization described above. In addition, this analysis focuses on the marginal costs of submitting information for the rule and not the total costs for the company to comply with a range of other Federal and State environmental, health, and safety regulations or accounting requirements that rely on this type of information.

Estimates of the costs of completing a Significant New Use Notice (SNUN) form are based on the costs of completing a PMN submission, since the data requirements are the same and the same form is used for both. The PMN submission costs came from EPA's 1994 *Regulatory Impact Analysis of Amendments to Regulations for TSCA Section 5 Premanufacture Notifications,* which relied on industry estimates of the effort needed to collect and compile all data required for a PMN submission, prepare the form, submit the form and data to EPA, and maintain a file of the submission (EPA, 1994, Table III-2 and pages III-11, -12, and -13). The 1994 estimates were based on a survey conducted by the Chemical Manufacturers Association, which became the American Chemistry Council. These burdens include "the time spent reading and becoming familiar with the form, gathering the required information and preparing the report, producing sanitized responses for items claimed as confidential business information, and maintaining a file of the submission" (EPA, 1994, p. III 11-13). The burden associated with SNUN submission and preparation has been adjusted to reflect burden reductions resulting from the 2009 final PMN Electronic

ED_005636_00006251-00018

Reporting (ePMN) Rule that requires the electronic submission of all TSCA section 5 notices. Electronic submission of SNUN forms is expected to remove all clerical burden and reduce the recordkeeping burden associated with preparing a SNUN (EPA, 2009).[1] In addition, electronic submission is expected to generate an additional 0.18 hours of technical burden, for the completion of the User Fee Payment Identification Number and email address data elements on the electronic SNUN form.

SNUN form completion and electronic submission is estimated to require 74.20 hours of technical labor and 18.00 hours of managerial labor (EPA, 2009). Table 3-4 combines the estimated reporting burden and loaded wage rates for all three labor categories to estimate the per-SNUN cost of form completion. The labor cost incurred by a SNUN submission for both large and small business submitters is $7,437.

Table 3-4: Industry Cost Estimate to Complete the SNUN Form

Reporting Activity	Clerical Labor (at $34.80/hour)		Technical Labor (at $79.85/hour)		Managerial Labor (at $84.03/hour)		Total Labor Cost	
	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)
Form Completion	0	$0.00	74.2	$5,925	18	$1,513	**92.2**	**$7,437**

Sources: The estimate of no clerical burden is taken from the *Economic Analysis of the Premanufacture Notice Electronic Reporting Final Rule* (EPA, 2009, page 7).
Technical and managerial labor burden is from the PMN Amendments RIA (EPA, 1994, Table III-2). An additional eleven minutes (0.18 hours) of technical burden is estimated to complete the User Fee Payment Identification Number and Email Address data elements on the Electronic SNUN form (EPA, 2009 page 15).
Wage rates: see Table 3-1.

In addition, each submitting large business must pay a $2,500 per-SNUN submission fee, and each submitting small business must pay a $100 per-SNUN submission fee.[2] Table 3-5 adds the labor cost and submission fee to estimate the total cost of a SNUN submission, which is $9,937 for large business submitters and $7,537 for small business submitters.

[1] *The Economic Analysis of the Premanufacture Notification Electronic Reporting Final Rule* (EPA, 2009) reported a 0.5 hour clerical and a 0.5 hour technical burden associated with recordkeeping in addition to the burden estimates from the 1994 RIA (EPA, 1994, p. III-14). These burden estimates (the 0.5 for clerical burden and 0.5 for technical burden) are based on the recordkeeping burden for polymer exceptions and not the recordkeeping burden associated with PMN submissions. Therefore, for this analysis, the 0.5 hour for clerical labor and the 0.5 hour for technical labor were removed. It is important to note that for this analysis, clerical burden changes are not applicable because the entire clerical burden is assumed to be eliminated under the electronic reporting requirements. In summary, these estimates do not include the one hour recordkeeping burden (0.5 hour for clerical, 0.5 for technical) reported in the ePMN EA.

[2] On February 26, 2018 EPA proposed raising the fee for SNUNs to $2,800 for small businesses and $16,000 for other businesses (83 FR 8212). And on November 30, 2017 EPA determined that revisions to the current small business size standards for TSCA reporting and recordkeeping requirements are warranted (82 FR 56824).

ED_005636_00006251-00019

Table 3-5: Industry Cost Estimate to Complete and Submit the SNUN Form

Reporting Population	Labor Cost	Submission Fee	Total Cost (2017$)
Large Business Submitters	$7,437	$2,500	**$9,937**
Small Business Submitters	$7,437	$100	**$7,537**

Sources: Table 3-4; EPA, 1994

3.2.4 Recordkeeping

Recordkeeping for Companies Choosing to Submit a SNUN

Companies submitting a SNUN must, under 40 CFR §721.40, keep records of the information contained in the SNUN. Some EPA reports have assumed that SNUN recordkeeping hours would be five percent of SNUN submission hours, or about five to six hours.[3] For this report, the SNUN recordkeeping hours were included in the SNUN submission hours (see Section 3.2.3) and the SNUN recordkeeping costs under 40 CFR §721.40 were not separately estimated.[4]

Recordkeeping for Companies that do not Submit a SNUN

If a firm that manufactures, imports, or processes a product subject to the SNUR chooses not to submit a SNUN, EPA assumes they will keep records that document compliance with SNUR conditions for avoiding a Significant New Use. Such recordkeeping is estimated to involve copying and filing relevant records, including those related to category of use. Because records for SNUNs must be maintained for five years from the date of their creation (40 CFR §721.40), EPA also assumes these records would be maintained for a similar amount of time. For firms that choose to not submit a SNUN, costs for compliance with the recordkeeping requirements are estimated to be five percent of the reporting burden for reporting information for a specific section of the SNUN form and are performed by clerical staff (EPA, 2012a, page 14). EPA used the per-activity burden for reporting, human exposure, category of use and releases to the environment presented in the *Information Collection Request (ICR) for TSCA Section 5(a)(2) Significant New Use Rules for Existing Chemicals (Renewal)* (EPA, 2012a, page 12). Any clerical burden associated with the original burden estimates for these activities was removed to reflect the burden reduction associated with electronic submissions (EPA, 2009).

The total recordkeeping burden for a company that does not submit a SNUN is estimated to be 0.15 hours and $5.22, and is derived in Table 3-6.

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[3] For example, OPPT's Information Collection Request (ICR) for *TSCA Section 5(a)(2) Significant New Use Rules for Existing Chemicals (Renewal),* October 11, 2005, estimates SNUN recordkeeping costs at 5.67 hours (ICR 118.08, page 15).

[4] SNUN submission costs estimated in Section 3.2.3 of this report were based on PMN submission costs from a 1994 report, *Regulatory Impact Analysis of Amendments to Regulations for TSC Section 5 Premanufacture Notifications* (EPA, 1994). Page III-14 of the 1994 report refers to "the normal records kept with a PMN submission which are included in the estimates for submission costs." Page III-12 identifies "maintaining a file of the submission" as part of the labor hours for the PMN reporting form. These statements imply that the 95 to 114 total hours for a PMN submission (page III-10 of EPA, 1994) included recordkeeping hours.

ED_005636_00006251-00020

Table 3-6: Annual Per-Chemical Costs of Recordkeeping Requirement for Companies that Choose not to Submit a SNUN

Reporting Activity	Total Burden Associated per Activity (hours)	Percent of Reporting Burden Attributed to Recordkeeping	Clerical Labor (at $34.80/hour)	
			(hours)	(2017$)
Category of use	3	5%	**0.15**	**$5.22**

Sources: Table 3-1 and EPA, 2012a.

3.2.5 Customer Notification

Manufacturers, processors, and importers of products subject to SNURs must notify recipients of such products of the SNUR or verify that knowledge of the SNUR has been otherwise acquired by recipients, or that the recipients are unable to engage in significant new uses. Since it is not expected that all such entities will have complete knowledge of all uses of any products subject to a SNUR, and because filing a SNUN could require significantly more burden, it is assumed that manufacturers, processors, and importers will most often choose to notify their customers of SNUR regulatory activities. As this notification may be accomplished by simply annotating an SDS, EPA estimates the associated burden to be about one hour of a technical employee's time or $79.85 per manufacturer, processor, or importer per chemical (based on wage rates in Table 3-1).

3.2.6 Import Certification

In general, persons importing chemical substances must certify that they are in compliance with applicable rules and orders under TSCA or not subject to TSCA in accordance with TSCA Section 13 regulations at 19 CFR §12.118 to 12.127.[5] The statement must be on or attached to a commercial invoice or entry document belonging to the imported shipment.

Import certification is fulfilled by checking a box on an invoice or entry document and EPA assumes that it generally imposes no additional burden or cost on the importer. Any potential burden associated with submitter's familiarization with this requirement is assumed to be included in the more general SNUR familiarization burden discussed above.

3.2.7 Export Notification

Under Section 12(b) of TSCA, exporters must notify EPA if they export or intend to export a chemical subject to various TSCA sections (see the TSCA Section 12(b) regulations at 40 CFR §707.60 through 75). For TSCA 5(a)(2) (the section under which EPA promulgates significant new use rules) and certain

[5] The exact statements are as follows: For imports of chemical substances subject to TSCA, "I certify that all chemical substances in this shipment comply with all applicable rules or orders under TSCA and that I am not offering a chemical substance for entry in violation of TSCA or any applicable rule or order under TSCA." For imports of chemical substances not subject to TSCA (e.g., pesticides), "I certify that all chemicals in this shipment are not subject to TSCA." (40 CFR §707.20)

ED_005636_00006251-00021

other TSCA sections, this is a one-time notification requirement[6] per destination country for each exporter of a chemical substance. After receiving a notification from a firm, EPA notifies the importing country (40 CFR §707.70).

To calculate the burden associated with making a single export notification, EPA first estimated the average annual number of export notifications made by an exporter. EPA then derived the annual and per notification burden associated with preparing and submitting an export notification.

EPA estimated the average burden associated with making a single notification, but did not estimate either the total number of exporters of a SNUR chemical or the number of notifications per SNUR chemical. This is because the SNUR applies to a variety of unrelated uses, manufacturers, and processors, making it impractical within the resources available for this report to assess the potential number of exporters and importing countries.

Most underlying data in this section come from the 2012 TSCA Section 12(b) ICR, ICR No.: 0795.14 OMB Control Number 2070-0030 [*Information Collection Request for] Notification of Chemical Exports - TSCA Section 12(b) Supporting Statement for Request for OMB Review under the Paperwork Reduction Act* (EPA, 2012b).

Estimated Number of Annual Export Notifications per Exporter

EPA's 2012 TSCA Section 12(b) ICR estimated that the average exporter *making notifications* would make 13 notifications per year.[7] This includes notifications resulting from SNURs and notifications resulting from other TSCA activities. A notification is typically no more than one page per chemical/country combination, and one notification mailing often includes multiple chemicals and/or destination countries.[8]

The percent of notifications resulting from SNURs in general is unknown, and it is also unknown how many notifications may result from this rulemaking, as not all manufacturers may choose to export a chemical, or they may make several notifications for a single chemical.

Exporter Costs

The 2012 TSCA Section 12(b) ICR (EPA, 2012b, page 11, Table 3), estimated the annual export notification cost for an exporter under the one-time export notification requirement. These costs include the cost to the exporter of compiling a list of their products that are subject to TSCA Section 12(b) requirements, writing or revising an export notification letter to EPA, checking the outgoing shipments, and sending the notification letters with the associated shipping costs.

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[6] On November 14, 2006, EPA revised the export notification requirement for chemicals subject to TSCA §5(a)(2), 5(b), 5(e)(1) and 5(e)(2) from an annual to a one-time requirement per destination country for each exporter (November 14, 2006, 71 FR 66234).

[7] EPA calculated the average number of export notifications per exporter in the 2012 TSCA Section 12(b) ICR (EPA, 2012b) by dividing the estimated number of submitted notifications (3,090) by the estimated number of exporters (240).

[8] Based on review by an EPA economist of notifications received under TSCA Sections 4, 5 and 6 over approximately three weeks in early 2010.

ED_005636_00006251-00022

The per-notification cost was calculated based on the average burden per firm. Exporters who make a larger number of notifications per year may benefit from economies of scale and have lower costs per notification; conversely firms making fewer notifications may have a higher cost per notification.

Estimated Submission (Mailing) Costs. Regulated companies will incur mailing costs for export notifications delivered to EPA. Notifications are assumed shipped via the U.S. Postal Service (USPS) as first-class registered mail with a return receipt. Prices are 2017 rates (Stamps.com, 2018). The estimated per-shipment and annual mailing costs incurred by individual submitters are detailed in Table 3-7.

Table 3-7: Derivation of Total Mailing Cost for 13 Export Notification Notices

Postal Service	Cost (2017$)
Registered mail, *regular, with $0 declared value*	$11.70
Return receipt, *requested at time of mailing (receive by mail)*	$2.75
Postage, *regular First Class, up to 1 ounce*	$0.49
Cost per export notice - Subtotal	**$14.94**
Total Mailing Cost for 13 Notices	**$194.22**

Sources: Mailing costs are 2017 rates (Stamps.com, 2018). The mailing method comes from the *Economic Analysis of the Proposed Change to TSCA Section 12(b) Export Notification Requirements,* November 2005 (EPA, 2005), as clarified in a later SNUR economic analysis (EPA, 2007, Table 8).

Compile and Maintain the List of Products. Since TSCA §12(b) information collection activity has been in place for twenty years, most respondents will have already developed a list of their products subject to TSCA §12(b) export notification. Respondents need only check for new regulations promulgated and any new products exported by the company. Updating the list is estimated to take an average of one hour of technical time, which may also include some proportion of legal time (EPA, 2012b). The total burden can vary from two hours per year up to two hours per month, depending on the number of products exported by the company and the number of their products subject to TSCA §12(b) (EPA, 2012b).

The number of submitters per year who report under TSCA §12(b) has varied over time, rising from around 160 in 1991 to over 460 in 2000, and declining since. In the TSCA §12(b) ICR, EPA estimated that there would be approximately 240 submitters per year in near-future years (EPA, 2012b). Of these 240 submitters, EPA estimated that 160 companies were near the lower burden estimate of two hours per year, and 80 companies were near the upper estimate of 24 hours per year. Compiling the list for all respondents was therefore estimated to take 2,240 hours (2 hours x 160 firms plus 24 hours x 80 firms), or an average of about 9.3 hours of technical time per firm per year for 13 notifications per year (EPA, 2012b).

Write or Revise Export Notification. Companies that export chemicals subject to TSCA §12(b) reporting must prepare an export notification to send to EPA when export shipments are made. Time for initial preparation of the export notice may vary depending on whether the company has prior experience with this requirement. This step is estimated to take an average of one hour of technical time (which may also include some proportion of legal time) per firm per year for 13 notifications per year (EPA, 2012b).

Check Orders and Send Notifications. Companies that export chemicals subject to TSCA §12(b) reporting must check outgoing shipments against the list of their products described above. A form letter notifying EPA and providing the required data must be printed and mailed within the required time

ED_005636_00006251-00023

period. This process is estimated to take an average one half hour of clerical time per export notification or 6.5 hours for 13 notifications (EPA, 2012b).

Total Burden and Cost per Notification. The burdens and associated costs for each notification activity are provided in Table 3-8. EPA estimates that the burden associated with making one notification is approximately 1.29 hours and $95.61.

Table 3-8: TSCA 12(b) Export Notification Cost per Notification

Activity	Technical Labor (at $79.85/hour)		Clerical Labor (at $34.80/hour)		Total	
	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)	Burden (hours)	Cost (2017$)
Compile list	9.3	$742.61	0	$0.00	9.3	$742.61
Write letter	1	$79.85	0	$0.00	1	$79.85
Check order and send notice	0	$0.00	6.5	$226.20	6.5	$226.20
Mailing cost[1]	--	--	--	--	--	$194.22
Total per average facility[2]	10.3	$822.46	6.5	$226.20	16.8	$1,242.88
Total per Notification	**0.79**	**$63.27**	**0.5**	**$17.40**	**1.29**	**$95.61**

Sources: Table 3-1 and EPA, 2012b.

Asbestos, as defined in this SNUR, is already subject to TSCA section rules that trigger the export notification provisions of TSCA section 12(b).[9] However, EPA is not proposing to require export notification for articles containing asbestos. Therefore, this rule will not result in additional export notification costs under TSCA section 12(b).

3.2.8 Article Importation and Processing

The proposed SNUR contains a provision to eliminate the exemption for the importation or processing of articles containing asbestos subject to the proposed rule. This will require importers and processors of these articles containing asbestos to notify EPA at least 90 days before importing or processing them. In addition, the rule may also affect firms that do not currently import or process articles containing asbestos, but who may be interested in importing or processing these articles in the future or who may be interested in ensuring that the articles they import or process are in compliance with the requirements of the SNUR. Although there are no specific requirements in the rule for these companies, they may choose to undertake some activities in order to assure themselves that they are not undertaking a new use. Importers have varying levels of knowledge about the chemical content of the articles they import, yet under TSCA the definition of "manufacture" means to "import…, produce or manufacture"[10] and importers are responsible parties under the SNUR. In order to understand and monitor their liability,

[9] Asbestos is subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b).

[10] TSCA section 3(9).

ED_005636_00006251-00024

companies might undertake a range of activities to ensure that the articles they import do not violate existing regulations.

Affected Entities

SNUR reporting requirements for persons who may process articles containing the chemical substance subject to the SNUR are described in 40 CFR §721.5; however, the reporting requirements for processors (including processors of articles containing the subject chemical) are specifically limited. As described in 40 CFR §721.5(c), a processor is not required to submit a SNUN if he can document that (1) he does not know the specific chemical identity of the chemical substance being processed; and (2) that he is processing the chemical substance without knowledge that the substance is subject to a SNUR. This analysis focuses on the standard business practices that a processor would already undertake that would serve to document compliance with the rule.

Potential Compliance Activities (Article Importers)

Given the existing regulatory limitations on certain chemicals both internationally and within the United States, certain regulated industries have begun to develop industry-wide processes and other resources to support companies that are interested in understanding and managing their supply chains. Because the rule would not prescribe the steps that an importer must take to identify a chemical subject to a SNUR in articles, there are a variety of specific actions that a company could take to identify specific substances in its articles. Importers are expected to take actions that are commensurate with the level of risk each company perceives, and the resources it has available.

There is currently no single widely accepted standard procedure to identify regulated chemicals in a supply chain; however, there are a number of organizations that help provide information on the content of articles, organize declarations from suppliers, or certify suppliers based on materials or processes used. Importers (or processors) subject to SNURs may refer to these sources for assistance in their own strategy to identify a chemical subject to a SNUR in articles.

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), has developed a *Standard Guide for Assessment of Materials and Products for Declarable Substances* ("ASTM F2577") which provides guidance for the decision process to assess materials and products for declarable substances. Based on ASTM F2577, the following list includes activities that an importer could perform to identify any restricted chemicals in imported articles. This list is intended to capture the general types of activities that might be performed.

1) **Understand applicable requirements (per firm cost).** The importer would need to read and understand the SNUR, within the context of the company's products. This burden is as derived in Section 3.2.1 of this report.
2) **Identify the type of imported articles that potentially contain the restricted substance (per firm cost).** This determination may be done based on an understanding of the uses of the restricted substance and the application of any *a priori* knowledge of the material and its manufacture to assess the probability that each regulated substance may be present. This step is estimated to take between 2 hours (for companies with simple supply chains) and 24 hours (for companies with complex supply chains) of technical staff time.

ED_005636_00006251-00025

3) **Identify all suppliers involved (per firm cost).** The importer may choose to identify all suppliers from whom the articles identified in the previous step are imported, and as necessary, make aware of the importer's potential notice obligations respecting the regulated chemical substance. This activity is estimated to take approximately 7 hours of technical staff time and 17 hours of clerical staff time.
4) **Collect data from suppliers (per article cost).** Importers may choose to obtain verification from suppliers identified in step 3 that the regulated chemical substance is not found in the article. This may be accomplished through, for example, agreements with suppliers, declarations through databases or surveys, or by using a third-party certification system. This step is estimated to take between 0.08 and 8 hours of technical staff time, depending on data collection method chosen, number of articles, number of suppliers, etc.
5) **Chemical testing (per article cost).** Importers may perform their own laboratory testing of certain articles (or components of articles) to determine if they contain the restricted substance. Test cost prices may range from $18 to $739 per sample, with an average of $128 over the 630 tests priced.
6) **Recordkeeping (per firm cost).** The importer may choose to keep records confirming the activities completed. This burden is as derived in Section 3.2.4 of this report.

Table 3-9 contains the cost ranges associated with the above activities, using the burden hours listed above and current wage rates (see Table 3-1). The activities and burden derivations are discussed in more detail in *Understanding the Costs Associated with Eliminating Exemptions for Articles in SNURs* (EPA, 2014b).

Variation in costs associated with these activities would depend on a company's level of activity to comply with other regulations on chemicals in articles, the complexity of the supply chains; and the size of the company. Total costs per importer will further depend on the number of affected articles and the frequency of supplier change.

The European Union's *Registration, Evaluation, Authorization and Restriction of Chemicals* (REACH) regulations prohibit the manufacture, placing on the market and use of certain asbestos fibers[11] and of articles and mixtures containing these fibres. (Exceptions to REACH's restrictions apply to diaphragms containing chrysotile for electrolysis installations, and articles containing asbestos fibres which were already installed and/or in service before January 2005 (ECHA, 2018). Additionally, all OECD (Organization for Economic Co-operation and Development) countries, except for Canada, Mexico and the United States, have placed bans on asbestos (ASEA, 2018).[12]

Firms that have previously selected suppliers that have agreed to uphold certain standards, or who have otherwise sufficiently demonstrated that they are not supplying asbestos-containing products, would not likely incur any additional costs associated with these activities. Essentially, the product's certification

[11] REACH restrictions apply to the following types of asbestos fibres: Crocidolite (CAS No 12001-28-4), Amosite (CAS No 12172-73-5), Anthophyllite (CAS No 77536-67-5), Actinolite (CAS No 77536-66-4), Tremolite (CAS No 77536-68-6), and Chrysotile (CAS No 12001-29-5 and 32207-32-0).

[12] Canada has proposed prohibiting the import and uses of asbestos and products containing asbestos (with limited exclusions), and restricting the export of all forms of asbestos (Canada Gazette, 2018).

ED_005636_00006251-00026

would allow importers or processors of articles to learn whether an article does or does not contain asbestos or whether suppliers have agreed to uphold certain production standards. There are labeling systems for products in which independent entities ensure that the production of products does not utilize specific chemicals. For example, the European Union has developed a voluntary labeling system, called the EU Ecolabel. Producers, importers and retailers can voluntarily apply for the EU Ecolabel (EC, 2017). Labeled products signal to consumers that the product in question has a reduced environmental impact throughout the product's life cycle, such as the manufacturing stage and/or during the final product disposal. The criteria are specifically designed to focus on the stage of the life cycle where a product has the most environmental impact (EC, 2017).

Table 3-9: Range of Costs Associated with an Importer's Identification of Chemicals Subject to a SNUR

Activity	Cost (2017$)	Notes
Per Rule Costs		
Rule familiarization	$67	Discussed in Section 3.2.1 of this document
Identify the type of imported articles that potentially contain the restricted substance	$160 to $1,916	Actual costs may vary based on number of articles imported and the complexity of the article itself (number of components)
Identify all suppliers involved	$1,151	Actual costs may vary depending on the number of articles imported, number of suppliers, and frequency of supplier changes
Recordkeeping	$5.22	Actual costs may vary depending on recordkeeping system already in place. This cost would particularly be associated with companies that have no previous experience complying with chemical restriction rules; companies that already have methods in place to identify chemicals in articles likely already have recordkeeping systems in place
Per Article-Related Costs		
Collect data from suppliers	$6.39 to $639 per article reviewed. $0 if no data collected.	Actual costs only apply to those companies that choose to collect data from suppliers. They will vary depending on the specific data collection method chosen. Total costs depend on considerations including the number of articles imported, number of suppliers, and frequency of supplier changes.
Chemical testing	$130 per article tested. $0 if no testing.	Actual costs only apply to those companies that choose to collect data from suppliers. They will vary depending on the specific chemical being tested for; the complexity of the article and sample preparation required; and the exact fees of the laboratory chosen for the analysis. Total costs per company will depend on considerations including the number of articles tested, which may be affected by the number of suppliers and risk associated with each, and frequency of supplier changes.

Source: Table 3-1 and EPA, 2014b

Firms with less experience with other regulations that are planning to import articles that could potentially contain asbestos may incur a larger burden should they choose to conduct some or all of the activities listed above to ensure compliance. These firms may choose to reach out to a wide variety of upstream firms to gather information on the chemical content of articles for documentation. Firms may also choose to conduct additional research on their suppliers to ensure that they are purchasing from reputable

ED_005636_00006251-00027

manufacturers and chemical suppliers who will provide necessary technical support, as well as regulatory standards (AFIRM, 2011). Furthermore, a company could choose to have articles tested. If a company chooses to conduct testing they may also need to conduct additional research to ensure the laboratory is accredited, reliable and follows Good Laboratory Practices (GLP) (AFIRM, 2011). For those companies choosing to undertake actions to assess the composition of the articles they import, EPA expects that in all likelihood, these importers would take actions that are commensurate with the level of risk (of a chemical to be a part of an article) each company perceives, and the resources it has available.

Potential Compliance Activities (Processors of Articles)

Under 40 CFR §721.5(a)(2), manufacturers, importers, or processors of subject chemical substances who distribute the substance in commerce must notify the recipient, in writing, of the applicability of SNUR requirements, or document that the recipient has such knowledge or will not undertake any significant new use described in the rule. Therefore, the article processor, as the recipient of any subject chemical substance, should receive written notification from the supplier, and would keep this documentation as part of their standard business practice.

Should a processor need to demonstrate compliance with the SNUR, it is expected that processors would use notification from the supplier or other shipping or labeling documents (such as Material Safety Data Sheets (MSDS), etc.) received with the article in the ordinary course of business.

To the extent that processors desire extra certainty that the articles they process are not subject to a SNUR, they may undertake the steps to identify regulated chemicals outlined above for importers.

3.3 Summary of Per Submission Costs, by Option

The number of firms affected by not making submissions to EPA is not known; therefore, costs are not aggregated across the affected entities. The following table summarizes the costs to comply with the proposed rule, as described in more detail in section 3.2 above.

ED_005636_00006251-00028

Table 3-10: Compliance Options and Associated Costs Incurred by a Firm Due to the SNUR

	Option[1]	Costs	Quantified Costs per Chemical (2017$)[2]
1.	Electronic submission of a Significant New Use Notice (SNUN), indicating to EPA that the firm would like to manufacture, import, or process the chemical for a Significant New Use as defined in the SNUR.	Costs of submitting a SNUN, including rule familiarization, CDX registration (for companies that are first-time submitters), form completion, user fee, and any test costs.[3]	$66.61 rule familiarization cost; $9,937.00 SNUN submission and recordkeeping cost for large businesses (including $2,500 fee) and $7,537 for small businesses (including $100 fee). EPA usually receives well under ten SNUNs per year[4]. First time submitters would incur $128.00 for CDX registration and associated activities. Companies manufacturing, importing, or processing a chemical currently used in commerce in the United States will incur a cost of $79.85 for notifying consumers of SNUR regulatory activities.
2.	Manufacture, import, or process in a way that avoids a Significant New Use.	Cost of the profit foregone as a result of not engaging in the commercial activity originally planned (opportunity costs), and recordkeeping.	Opportunity costs are not quantified. Other costs including rule familiarization ($66.61), recordkeeping ($5.22) and customer notification ($79.85) may apply. Costs associated with article importation may include activities such as article identification ($160 to $1,916), supplier identification ($1,151), recordkeeping ($5.22), collecting data from suppliers ($6.39 to $639 per article), and testing ($130 per article tested).

Notes:

[1] Firms may be subject to both options at once, since submission of a SNUN results in profits foregone as a result of not manufacturing, importing, or processing the chemical.

[2] Quantified costs are attributable to the SNUR only if a firm would not otherwise follow the specified practices. Costs are detailed in Section 3.2. SNURs typically trigger export notification requirements at an estimated cost of $96 per notification. However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for products containing asbestos. Thus, there is no additional cost of export notification for this rule.

[3] EPA does not require the development of test data for submission of a SNUN, although a firm may submit test data already in its possession and/or describe any other available data. Because EPA does not require the development of test data, EPA assumes that no firms will incur testing costs as a result of the SNUR.

[4] See Section 3.4 for more details.

3.4 Likelihood of SNUN Submission

This analysis assumes that very few entities are expected to submit a SNUN. EPA has, over the years, promulgated SNURs that cover a total of more than 1,000 chemicals. In response, the Agency receives only a handful of SNUNs per year. For example, the number of SNUNs received was 4 in Federal fiscal year (FY) 2005, 8 in FY2006, 6 in FY2007, 8 in FY2008, 7 in FY2009, 2 in FY2010, 10 in FY2011, 10 in FY2012, 11 in FY2013, 19 in FY2014 and 9 in FY2015.[13]

3.5 Potential for Subsequent Regulatory Actions

The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to

[13] In-person count of SNUNs conducted by Kimberly Wilson of Abt Associates Inc, on April 8, 2010 at EPA's Confidential Business Information Center (CBIC) and updated values for FY2010 and FY2011 provided by Lynne Blake-Hedges of U.S. EPA on September 1, 2011. Updated values for FY2012 through FY2015 provided by Stephanie Suazo of U.S. EPA on May 18, 2016.

ED_005636_00006251-00029

further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the SNUN is being reviewed).

Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions.

ED_005636_00006251-00030

4. Agency Costs

4.1 Review and Process SNUN Submissions

EPA's cost to review and process SNUN submissions is assumed to be represented by its costs for a larger category of similar TSCA section 5 notices that includes SNUNs. On February 26, 2018, EPA proposed setting new user fees for actions under TSCA sections 4, 5, and 6 (83 FR 8212). In developing the proposed fees, EPA estimated its total annual costs for processing, reviewing, and making determinations under TSCA section 5 between fiscal years 2019 and 2021. EPA estimated its direct and indirect costs for reviewing PMNs, SNUNs, and Microbial Commercial Activity Notices (MCANs) to be $18,934,659 per year during this period, and assumed that an average of 462 PMNs, SNUNs, and MCANs will be submitted per year.[14] This yields an average Agency cost of approximately $41,000 apiece for reviewing and processing PMNs, SNUNs and MCANs.[15] Thus, processing and reviewing any SNUNs submitted due to this SNUR is also expected to cost EPA approximately $41,000.

4.2 Export Notification Cost

Under TSCA section 12(b), exporters must notify EPA if they intend to export chemicals subject to SNURs, as described in Section 3.2.7. As described in that section, asbestos, as defined in this SNUR, is already subject to TSCA rules that trigger the export notification provisions of TSCA section 12(b). However, EPA is not proposing to require export notification for articles containing asbestos. Therefore, this rule will not result in additional export notification costs under TSCA section 12(b).

The Agency burden and cost due to TSCA §12(b) export notification result from three tasks. In the first task, EPA receives export notifications from companies that intend to export one of the chemicals subject to TSCA §12(b) (EPA, 2012b). In the second task, EPA staff prepares separate notification letters that are subsequently reviewed and delivered to importing countries, their embassies, or representatives, and to the importing country's U.S. embassies (EPA, 2012b). (See Table 3-7 for the cost of mailing one notification). The third task is comprised of EPA staff responses to public inquiries and other TSCA 12(b) activities. The work of responding to non-routine requests for information and clarification from industry and importing countries, and of handling other tasks associated with the TSCA §12(b) program, was estimated to require roughly 400 hours per year (EPA, 2012b). Since the current rulemaking covers only a very small percent of the chemicals subject to TSCA 12(b) reporting, a very small percent of such activity would be attributable to the current rulemaking.

Because it is unknown how many, if any, notifications EPA will receive or send as a result of the current rulemaking, the costs to the Agency are presented per activity. The estimated burden for the first two Agency activities is provided in Table 4-1. Agency wage rates are derived in Appendix A.

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[14] Table 9 - Annual Section 5 PMN/SNUN/MCAN Cost Estimates. *EO 12866 Documentation; Draft Submitted to OMB – Technical Background Document (RIN 2070-AK27; Proposed Rule.* EPA-HQ-OPPT-2016-0401-0020. https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0401-0020.

[15] This $41,000 review cost is lower than the overall average cost of $55,200 for TSCA section 5 activities that EPA calculated for the 2018 proposed fees rule because the $55,200 value includes costs for activities (such as issuing SNURs following a PMN review, and reviewing Notices of Commencement) that are not relevant to SNUNs.

ED_005636_00006251-00031

Table 4-1: TSCA 12(b) Export Notification Cost: Agency Burden per Activity (2017$)

Agency Activity	EPA Labor (at $82.37/hour)		Mailing Cost	Total Agency Cost per Activity
	burden (hours)[1]	Cost (2017$)		
Process an incoming notification from an exporting company	0.1	$8.24	$0.00	$8.24
Prepare and mail a notification to an importing country	0.5	$41.18	$14.94	$56.12

Notes:
[1] The burden associated with an Agency activity is the burden for the Agency to process one incoming notification, or to prepare and mail an outgoing notification.
Sources: Appendix A of this report shows the derivation of Agency labor costs. Mailing costs are from Table 3-7 of this report. Other burden estimates are from *ICR No.: 0795.14 [Information Collection Request for] Notification of Chemical Exports - TSCA Section 12(b) Supporting Statement for Request for OMB Review under the Paperwork Reduction Act* (EPA, 2012b).

5. Benefits

Asbestos was listed as a known human carcinogen in the National Toxicology Program's First Annual Report on Carcinogens in 1980 (NTP, 2016). In 1988, EPA assessed the health hazards and effects caused by exposure to asbestos under the Integrated Risk Information System (IRIS) program, and determined that asbestos exposure can lead to lung cancer and mesotheliomas (tumors arising from the thin membranes that line internal organs) (EPA, 1988). Many authorities have established that there is causal association between asbestos and lung cancer and mesotheliomas (NTP, 2016; ATSDR, 2001; IARC, 2012). EPA also noted in the Scope of the Risk Evaluation for Asbestos that there is a causal association between exposure to asbestos and cancer of the larynx and cancer of the ovary (IARC, 2012). There is also suggestive evidence of a positive association between asbestos and cancer of the pharynx (IARC, 2012; NRC, 2006), stomach (ATSDR, 2001; IARC, 2012), and colorectum (NTP, 2016; ATSDR, 2001; IARC, 2012; NRC, 2006; NRC, 1983; EPA, 1980). All types of asbestos fibers have been reported to cause mesothelioma (IARC, 2012).

Increases in lung cancer mortality have been reported in both workers and residents exposed to various asbestos fiber types as well as fiber mixtures (IARC, 2012). There is evidence in in-vitro, animal, and human studies that asbestos is genotoxic, meaning asbestos can damage an organism's genetic material (ATSDR, 2001). There is also evidence that asbestos exposure is associated with adverse respiratory system effects, such as asbestosis and immunotoxicity (ATSDR, 2001; EPA, 2017a).

While the SNUR would not address the risk from ongoing uses, a notification required by the SNUR would initiate EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. The SNUR may also help to limit future exposure to the chemical because a company may choose to modify planned uses in such a way that does not trigger a SNUR, as opposed to submitting a SNUN.

ED_005636_00006251-00033

6. Additional Analyses

Several statutes and executive orders (EOs) pertain to the proposed SNUR. This chapter presents statements discussing paperwork reduction, unfunded mandates, regulatory planning and review, tribal governments, children's health, and environmental justice, among others.

6.1 Regulatory Flexibility Act

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*), the Agency hereby certifies that promulgation of this SNUR would not have a significant adverse economic impact on a substantial number of small entities. The rationale supporting this conclusion is as follows. The requirement to submit a SNUN applies to any person (including small or large entities) who intends to engage in any activity described in the rule as a significant new use. Where a use is new, by definition no small or large entities presently engage in such activities. Although some small entities may decide to manufacture or process a substance for the new use after the SNUR is promulgated, EPA receives very few SNUNs, and few of those are submitted by small entities. In response to the promulgation of SNURs covering over 1,000 chemical substances, the Agency receives only a handful of SNUNs per year. For example, the number of SNUNs was four in Federal fiscal year 2005, eight in FY2006, six in FY2007, eight in FY2008, seven in FY2009, two in 2010, and ten in 2011 (EPA, 2012a), for an average of 6 per year from all SNURs. EPA has no reason to believe that this SNUR will alter the pattern of SNUN submissions that EPA has historically seen. In addition, the estimated reporting cost for submission of a SNUN is minimal regardless of the size of the firm, at about $9,940 for large firms, including SNUN recordkeeping and reporting costs. The Agency currently offers some relief to certain small businesses with sales (including those of subsidiary/parent companies) of less than $40 million per year by reducing the SNUN submission fee from $2,500 to $100. This lower fee reduces the cost of submitting a SNUN to about $7,540 for smaller firms. During the six-year period from 2005 to 2010, only three submitters self-identified as small in their SNUN submission[16] (EPA, 2012a). EPA believes the cost of submitting a SNUN is relatively small compared the cost of developing and marketing a chemical new to a firm and that the requirement to submit a SNUN generally does not have a significant economic impact.

EPA believes that the potential economic impact of complying with a SNUR is not expected to be significant or adversely affect a substantial number of small entities.

6.2 Unfunded Mandates Reform Act (UMRA)

This proposed action contains no Federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA, Public Law 104-4), 2 U.S.C. 1531-1538 for State, local, or tribal governments or the private sector. Based on EPA's experience with similar information collection rules, state, local, and tribal governments have not been affected by this reporting requirement, and EPA does not have any reason to believe that any state, local, or tribal government will be affected by this rulemaking.

[16] The three "small" submitters were identified by review of actual SNUN submissions from the years 2005-2010.

ED_005636_00006251-00034

6.3 Paperwork Reduction Act (PRA)

According to the Paperwork Reduction Act (PRA), 44 USC 3501 et seq., an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information that requires Office of Management and Budget (OMB) approval under the PRA, unless it has been approved by OMB and displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in title 40 of the CFR, after appearing in the *Federal Register*, are listed in 40 CFR, part 9, and included on the related collection instrument, or form, if applicable. The information collection requirements related to this action have already been approved by OMB pursuant to the PRA under OMB control number 2070-0038 (EPA ICR No. 1188) and 2070-0030 (EPA ICR No. 0795).

If an entity were to submit a SNUN to the Agency, the annual burden is estimated to average 96.9 hours per response: 0.82 hours for rule familiarization (Section 3.2.1), 1.56 hours for CDX registration, CDX electronic signature, and pay.gov account setup (Section 3.2.2), 92.2 hours for form completion, submission and recordkeeping under CFR §721.40 (Sections 3.2.3), and 1 hour for consumer notifications (Section 3.2.5) . The burdens for rule familiarization, CDX registration, CDX electronic signature, pay.gov account setup form completion, submission, and recordkeeping consumer notifications are approved under EPA ICR No. 1188 (OMB control number 2070-0038). Burden for export notification is approved under EPA ICR No. 0795 (OMB control number 2070-0030). The burden for export notification is estimated to be 1.29 hours per notification (Section 3.2.7). However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for articles containing asbestos. Therefore, there is no additional cost for export notification for this rule.

6.4 Executive Order 13132 – Federalism

Executive Order 13132, entitled *Federalism* (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." Policies that have federalism implications are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government" (64 FR 43255, August 10, 1999).

This action will not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999), because it will not have substantial direct effect on States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

6.5 Executive Order 12898 – Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* (59 FR 7629, February 16, 1994), establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

This action will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). This action does not affect the level of protection provided to human health or the environment.

ED_005636_00006251-00035

The information collected under this proposed rule would assist EPA and others in determining the potential hazards and risks associated with asbestos. Although not directly impacting environmental justice-related concerns, this information will enable the Agency to better protect human health and the environment, including in low-income and minority communities.

6.6 Executive Order 13045 – Children's Health

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997), requires EPA to identify and assess environmental health and safety risks that may disproportionately affect children. This type of analysis is required for rules that will have an impact of $100 million or more only. The impact of this SNUR will be less than $100 million and therefore no analysis of such impacts on children is required.

6.7 Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments

As required by Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000), EPA has determined that this rule does not have tribal implications because it will not have any effect on tribal governments, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in the Order.

6.8 Executive Order 13211 – Energy Supply, Distribution, or Use

This rule is not subject to Executive Order 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001), because it is not a significant regulatory action under Executive Order 12866 and is not expected to affect energy supply, distribution, or use.

6.9 Executive Order 13563 – Improving Regulation and Regulatory Review

Executive Order 13563, *Improving Regulation and Regulatory Review* (76 FR 3821, January 21, 2011), requires EPA to base regulations on the best available science, allow for public participation and the open exchange of ideas, promote predictability and reduce uncertainty, identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends, consider both the costs and benefits qualitatively and quantitatively and ensure regulations are accessible, consistent, written in plain language, and easy to understand.

The rule establishes reporting and recordkeeping requirements that apply to manufacturers (including importers) and processors of certain chemicals. Consistent with EO 13563, this document qualitatively and quantitatively describes both the costs and benefits of the rule as well as the underlying data used in the analyses. EPA chose the best available data to analyze the costs and benefits described in this document and the best analytic approaches given the available data and other constraints.

6.10 National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical.

ED_005636_00006251-00036

Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

The rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

6.11 Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

Under Executive Order 13771 (82 FR 9339, February 3, 2017), for each new significant regulatory action that imposes costs, EPA is to also issue two "deregulatory" actions. This action is not expected to be an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

ED_005636_00006251-00037

APPENDIX A - Wage Rate Calculations

This appendix describes the derivation of the fully loaded wage rates and inflation factors used in calculating costs of labor, materials, and other inputs. All cost estimates are presented in 2016 dollars.

The fully loaded unit labor cost for managerial, professional/technical, and clerical labor in the regulated industry and for EPA staff is estimated by adding fringe benefits and overhead costs to the hourly wage or annual salary for each category following the method described in *Wage Rates for Economic Analysis of the Toxics Release Inventory Program* (EPA, 2002b). This appendix describes the method employed to estimate the fully loaded unit labor costs for each labor category and presents the results of the analysis.

A.1 Derivation of Industry Unit Wage Rates

Wages and fringe benefit data for managerial, professional/technical[17], and clerical labor are from the BLS Employer Costs for Employee Compensation (ECEC) historical data for September 2017 (BLS, 2018a).

The costs of fringe benefits such as paid leave and insurance, specific to each labor category, are taken from the same BLS report (BLS, 2018a). Fringe benefits as a percentage of wages are calculated separately for each labor category. For example, the wage rate for professional/technical labor in 2017 was $46.23, and the average fringe benefit was $25.76. Therefore, fringe benefits as a percentage of wages were $25.76/$46.23 or approximately 55.72 percent (see Exhibit A-1).

An additional loading factor of 17 percent is applied to wages to account for overhead. This approach is used for consistency with Office of Pollution Prevention and Toxics (OPPT) economic analyses for major rulemaking such as *Wage Rates for Economic Analyses of the Toxics Release Inventory Program* (EPA, 2002). This overhead loading factor is added to the benefits loading factor, and the total is then applied to the base wage to derive the fully loaded wage. For example, fully loaded wage for professional/technical labor in 2017 was $46.23 × (1+ 0.5572 + 0.17) = $79.85.

Fully loaded costs for managerial, and clerical labor are calculated in a similar manner, as shown in Exhibit A-1.

[17] Past economic analyses have used the term "technical" labor. Here the category is called "professional/technical" labor, to make clear how it relates to BLS categories. In 2004, BLS changed from the Occupational Classification System, OCS, to the Standard Occupational Classification system, SOC. In the process, the "Professional specialty and technical" category became the "Professional and related" category. However, the coverage of the old and new occupational groups is approximately the same. See the BLS article, "Comparing Current and Former Industry and Occupation ECEC Series" (Weinstein and Loewenstein, 2004).

ED_005636_00006251-00038

Exhibit A-1 Derivation of Loaded Industry Wage Rates (2017$)

Labor Category	Data Source for Wage Information	Date	Wage (a)	Fringe Benefit (b)	Fringe as % wage (c)=(b)/(a)	Overhead as % wage[1] (d)	Fringe + overhead factor (e)=(c)+(d)+1	Loaded Wages (f)=(a)x(e)
Managerial	BLS ECEC, Private industry workers in manufacturing industries, "Management, business, and financial occupations"[2]	Sept 2017	$50.21	$25.28	50.35%	17%	1.67	$84.03
Professional/ Technical	BLS ECEC, Private industry workers in manufacturing industries, "Professional and related occupations"[2]	Sept 2017	$46.23	$25.76	55.72%	17%	1.73	$79.85
Clerical	BLS ECEC, Private industry workers in manufacturing industries, "Office and administrative support occupations"[2]	Sept 2017	$20.73	$10.55	50.89%	17%	1.68	$34.80

Notes:
[1] An overhead rate of 17% was used based on assumptions in Rice (2002) and U.S. EPA (2002).
Sources:
[2] *Employer Costs for Employee Compensation Supplementary Tables National Compensation Survey, September 2017, US Bureau of Labor Statistics, (BLS, 2018a).*

A.2 Derivation of Agency Unit Wage Rates

Unit wage rates for EPA staff are calculated based on annual Federal salaries for the Washington-Baltimore area published by the Office of Personnel Management (OPM) and effective January 2017 (OPM, 2017). The average salary for one full-time equivalent (FTE) technical/professional staff member is estimated as the salary for a GS-13 Step 5 employee, which is $51.48 hourly without fringe benefits and overhead costs. In order to derive the fully loaded salary, EPA multiplied the annual salary by an assumed loading factor of 1.6 to reflect Federal fringe benefits and overhead, which results in a fully loaded wage rate of $82.37 (see Exhibit A-2).

The Agency loading factor of 1.6 is from an EPA guide entitled *Instructions for Preparing Information Collection Requests (ICRs)* (EPA, 1992, page 30, footnote 9). The 60 percent assumption was labeled "the benefits multiplication factor" in the EPA guide but has been used in many EPA OPPT ICRs to reflect both fringe benefits and overhead for Federal staff. For example, it was used in a document supporting EPA ICR No. 1139.06 (EPA, 2000), with the following explanation:

> The annual costs per FTE are derived by multiplying the annual pay rate by 1.6 (the benefits multiplication factor). The multiplication factor used is recommended in EPA's Office of Policy, Planning, and Evaluation's *Instructions for Preparing Information Collection Requests (ICRs)*

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(June 1, 1992). An EPA internal phone call between Carol Rawie (OPPT/EETD/RIB) and Carl Koch (OPPE/RMD/IMB) on May 3, 1994, indicated that the 1.6 factor included not only benefits but also overhead.

Fully loaded costs for Agency labor are shown in Exhibit A-2.

Exhibit A-2: Derivation of Loaded Agency Wage Rates (2017$)

Labor Category	Data Source for Wage Information	Date	Wage ($ per hour) (a)	Fringe Benefit (b)	Fringes as % wage (c)=(b)/(a)	Overhead as % wage (d)	Fringe + overhead factor (e)=(c)+(d)+1	Loaded Wages ($ per hour) (f)=(a)x(e)
EPA technical staff FTE	OPM Washington-Baltimore-Northern Virginia, DC-MD-PA-VA-WV, area, GS-13 Step 5 pay rates	Jan 2017	$51.48	Included in 60% overhead	N/A	60% [a]	1.6	$82.37

Notes:
[a] The 60% fringe-and-overhead rate is from an EPA guide, *Instructions for Preparing Information Collection Requests (ICRs)* (EPA, 1992, page 30, footnote 9).
Source: OPM, 2017

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APPENDIX B – References

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Asbestos SNUR – screening Anonymous submitter comments (only) in regulations.gov
Sorting by ID Number (A-Z) [=ascending comment number] from ID #0003 to #1809
Begun 8/17/18 @ 9:45 am, [1,807 results shown by regs.gov] - Peter G.

Out of approximately 1,627 anonymous public comments currently posted to the docket, these 8 are the only ones I found that say something other than unqualified opposition to the proposed rule.

ID numbers EPA-HQ-OPPT-2018-0159-xxxx

0010
In Section IX. Economic Analysis, only the cost of submitting and prepare the SNUN and a user fee are included. It is foreseeable any SNUN for asbestos could go through extensive follow-up investigation due to the health concern of the material and public perception of the asbestos use. The overall economic cost for business should include additional data gathering, testing, and health study of using asbestos in the proposed categories. It is reported that EPA is considering additional access fees for risk evaluation (https://chemicalwatch.com/64007/us-epa-highest-fees-for-risk-evaluation-of-existing-chemicals) and the proposed rule listed here (https://www.federalregister.gov/d/2018-02928). It is recommended the proposed rule to include additional information regarding the economic cost related to SNUN for asbestos, which could be significantly higher than the number indicated in the report. A more realistic economic analysis could allow business and public is to make a more informed decision when looking at any potential new uses of asbestos

0317
"Only seems to make sense for missle use, otherwise the lifecycle of the material used will fall outside of the EPAs purview. Of course use of a schedule 3??? Chemical in missiles/military weapons probably has CWC impacts which do not appear to be addressed whatever in the proposed rule."

1027
As I read this rule, it actually tightens/restricts the ability of expanding the use of asbestos by requiring EPA approval prior to import or use in these no longer produced products. I would strongly encourage that if anyone does make this request it not be allowed, but overall, it seems that this rule is a good improved restriction on the use. Some comments see this as a roll back, which I believe is a misinterpretation of the rule and the result of some news articles that have perpetuated this misinterpretation. It would be good to get a clarification of the rule that is a bit easier to follow and understand.

1167
Good afternoon
Aside from all the hysterical comments against your proposed rule, I think this new use rule deserves to be explored and where justified enacted.
My rationale for this is based on a long history of familiarity with the substance and the belief that it has more beneficial attributes to industry and technical applications than it does to outlaw the stuff entirely.

When proper industrial hygiene and work practice controls are used, there is practically zero risk to workers or the public. Bonded asbestos substrates have been used for generations in all types of building products, such as floor tiles, siding etc. and as long as the materials were not friable and

airborne, there is zero risk to health.

I think the legal community, specifically those parties taking part in the Manville settlement, have done an admirable job in convincing the public that the slightest trace or mention of the 'A' word is akin to an Ebola outbreak, hence the mass hysteria and dis-information associated with the topic. Totally misinformed and entirely hyperbolic.

With all due respect , it will be very difficult to separate the hysteria and high emotional pitch in most of these public comments from the technical science and safety aspects of using this material, but I encourage your deliberation to take into consideration the legitimate commercial and industrial applications and use of the product- for which there are few viable alternative products.

Also, as a practicing Occupational Safety Professional, I am somewhat dismayed at the short window to offer comments on this issue, having only learned about it from a random article in a trade publication. A more informed audience would likely offer a better judgement on the actual merits of using the material. But I do support the use of the material in controlled and regulated applications, with appropriate warnings and precautions, technical training, PPE, etc.

And yes, I fully understand that a lot of preventable deaths occurred from uncontrolled exposure to the dust back in the day when it was used wildly uncontrolled, but then again, so was tobacco, until the health community got it into a box and controlled it.

As difficult as it is to say this, in the face of these pages and pages of unsubstantiated comments, I believe the use of asbestos in properly controlled applications will offer appreciably more good than harm, by a large measure, sufficient to justify moving ahead with your rule-making process.

I am a Certified Safety Professional (CSP) and hold an Associates Degree in Risk Management (ARM)
I also teach the OSHA 10 and 30 Hour classes in Construction and teach technical safety classes at the University level.

While I have no doubt there are more capable technical experts on this issue, I think my appraisal is fair and sober, and reflects the science behind the use of this material, vs. emotional hysteria

1345
I have very little objection to the incorporation of asbestos into polymers where the fibers are prevented from becoming loose in the environment. Such products might include sheets of insulation board for retarding heat gain through walls and ceilings. The in-discriminant ways that asbestos was utilized in the past without the thought to ways of controlling the fibers from becoming airborne or water borne was a gigantic problem. To totally reject the use of asbestos without understanding that free asbestos fibers are the problem. There are methods available to prevent the fibers from becoming a problem through encapsulation. I therefore oppose the outright ban of the use of asbestos.

1370
This SNUR is an incremental step, a layer of regulation that serves as a weak watchdog while allowing new uses for asbestos. Asbestos is a thoroughly studied and well known carcinogen. A ban makes the most sense. Let asbestos be removed from all US manufacturing. Let asbestos be left behind as old

thinking. Clean up the 20th-century asbestos mess and prioritize public health and safety. Ban asbestos in all forms, for all uses.

1489
This would be good because it closes loopholes from before, but I am absolutely against not considering essential factors in the new reviews. 1) Not counting previous exposure can be deadly, if there is still asbestos in a building/material from before and new material is added that also includes asbestos you are essentially increasing the amount of the total asbestos exposure to anyone that comes in contact with it. 2) Not factoring in the risk of cancer to asbestos, I should not have to offer reasoning for that, we know that asbestos has lead to cancer, especially for firefighters. Please reconsider these items.

1660
The Environmental Protection Agency should extend public comment time for this important change. The EPA's planned approach for evaluating proposed "new uses" of asbestos ignores consulting pre-existing information on the uses of asbestos, despite the fact that the health risks associated with it have been widely documented.

The proposed change is not in the best interests of public health - clearly there have been millions spent in lawsuits stemming from cases where people were inadvertently exposed to asbestos. How much money has been spent removing asbestos from buildings due to its toxic properties? How many people have died from exposure to asbestos? Why doesnt the EPA strengthen a ban on this toxic substance? It seems the proposed change is based on financial motives - not science and facts. Why has import of asbestos increased this year? According to Newsweek, imports of asbestos has surged this year, four times the amount as the same period in 2017.
The EPA needs to focus on its mission to protect the environment. Not make it more toxic.

Message

From: Altieri, Sonia [Altieri.Sonia@epa.gov]
Sent: 4/15/2019 11:02:52 AM
To: Pierce, Alison [Pierce.Alison@epa.gov]; Courtnage, Robert [Courtnage.Robert@EPA.GOV]
Subject: FW: latest press release attached
Attachments: Asbestos SNUR Press Release 04 15 19 AM.docx

Attached is the latest asbestos PR.

From: Dunton, Cheryl
Sent: Monday, April 15, 2019 7:02 AM
To: Altieri, Sonia <Altieri.Sonia@epa.gov>; Strauss, Linda <Strauss.Linda@epa.gov>
Subject: latest press release attached

Cheryl Dunton
Office of Chemical Safety and Pollution Prevention
U.S. Environmental Protection Agency
202-564-4893

Positive/Corrected/Accurate Coverage of Asbestos SNUR proposal	Negative/Incorrect Coverage of Asbestos SNUR proposal
[HYPERLINK "https://www.conservativedailynews.com/2019/03/epa-posts-new-rules-for-tsca-asbestos-review/"]	[HYPERLINK "https://www.cbsnews.com/news/epa-proposal-on-asbestos-critics-outraged/"]
[HYPERLINK "https://www.washingtonexaminer.com/policy/energy/trumps-epa-targets-russia-new-asbestos-rule"]	[HYPERLINK "https://www.nbcnews.com/news/us-news/could-epa-proposal-could-lead-new-uses-cancer-causing-asbestos-n898546"]
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	[HYPERLINK "https://mtstandard.com/news/state-and-regional/epa-opens-door-to-new-asbestos-use-despite-libby-legacy/article_def0c11c-77de-57a0-a15f-4c6828fc3736.html"]
	[HYPERLINK "https://archinect.com/news/article/150076879/epa-regulation-reform-opens-the-door-to-new-asbestos-use-in-manufacturing-and-architects-are-angry"]
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	[HYPERLINK "https://www.nytimes.com/2018/08/10/climate/epa-asbestos-rule.html"]
	[HYPERLINK "https://www.theguardian.com/environm

	ent/2018/aug/10/epa-staff-agency-new-rules-asbestos-emails"]
	[HYPERLINK "https://www.pbs.org/newshour/science/this-epa-rule-may-expand-asbestos-use-and-theres-one-more-day-to-give-feedback"]
	[HYPERLINK "https://www.vanityfair.com/news/2018/08/donald-trump-asbestos?verso=true"]

About EPA Pushback to critiques:

[HYPERLINK "https://thehill.com/policy/energy-environment/400966-epa-pushes-back-on-asbestos-criticisms"]

Mixed coverage:

Bloomberg: [HYPERLINK "https://news.bloombergenvironment.com/environment-and-energy/asbestos-rule-protests-by-epa-staff-could-bolster-future-lawsuit"] [HYPERLINK "https://news.bloombergenvironment.com/environment-and-energy/epas-chemical-analysis-plans-unlawful-11-attorneys-general-say"] [HYPERLINK "https://news.bloombergenvironment.com/environment-and-energy/worker-risks-feared-as-epa-asbestos-probe-excludes-past-uses"] [HYPERLINK "https://news.bloombergenvironment.com/environment-and-energy/epa-proposes-asbestos-limits-releases-risk-plans-for-10-chemicals"]

Inside EPA: [HYPERLINK "https://insideepa.com/daily-feed/environmentalists-sue-compel-epa-asbestos-reporting-rule"] [HYPERLINK "https://insideepa.com/content/epa-asbestos-removal-proposal-prompts-concerns"] [HYPERLINK "https://insideepa.com/daily-feed/epas-proposed-asbestos-removal-method-prompts-criticism"] [HYPERLINK "https://insideepa.com/content/industry-groups-back-epas-narrowed-asbestos-analysis-plan"] [HYPERLINK "https://insideepa.com/daily-news/industry-backs-epas-plan-narrow-asbestos-analysis-sparking-clash"]

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/4/2019 6:01:07 PM
To: lcourtnage@pentechealth.com
Subject: FW: Funding Request from NPCD: Asbestos Final SNUR
Attachments: Asbestos SNUR Typeset Request (Final Rule).pdf

Can you print this for me please?

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Carmichael, Lea
Sent: Thursday, April 04, 2019 2:00 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Subject: Funding Request from NPCD: Asbestos Final SNUR

Robert,

Can you sign and date in box 10 on Erik's behalf?

Lea Carmichael
Environmental Protection Specialist
National Program Chemicals Division
Fibers and Organics Branch
(202) 564-4689
Carmichael.Lea@epa.gov

United States
Environmental Protection Agency
Washington, DC 20460

FEDERAL REGISTER TYPESETTING REQUEST

Requestor: Complete items 1, 2, 7, 8, 9, 10, 11, 12, and 13. Retain copy number 7 and submit the balance with manuscript copy to the Hq. Federal Register Office.
HQ Federal Register Office: Complete Items 3, 4, 5, and 6. Retain copy number 5 and submit balance to Hq. Printing Management.

1. TITLE

Asbestos; Significant New Use Rule

2. SUBMITTING ACTIVITY	3. ASSIGNED FRL NUMBER *(include alpha & numeric characters for* identification)
For publication in the Federal Register	9991-33
4. OPEN REQUISITION NUMBER	**5. BILLING CODE**
	6560-50-P

6. FORWARDED TO GSA, NARS - SIGNATURE	DATE

7. NUMBER OF MANUSCRIPT PAGES	8. ESTIMATED NUMBER OF COLUMNS	9. ESTIMATED COST
57	43	$6,493.00

10. SIGNATURE: (a) REQUESTING OFFICER		11. SIGNATURE: (a) FEDERAL REGISTER DESIGNEE	
(b) DATE	(c) TELEPHONE NUMBER	(b) DATE	(c) TELEPHONE NUMBER
	(202) 566-1081		

12. FUNDS ARE AVAILABLE

NAME OF FUNDS CERTIFYING OFFICER	SIGNATURE OF FUNDS CERTIFYING OFFICER	PHONE NUMBER OF FUNDS CERTIFYING OFFICER
Vanessa Smith		(202) 564-0344

RCS: Justo"Tito" Pastor
FRL: 9991-33
SAN 6677
FR Document Contact: Robert Courtnage, OPPT/NPCD, 202-566-1081

13. Financial and Accounting Data — Click to Lookup Accounting Data

Line	DCN (Max 7)	Budget/FYs (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Results Code (Max 9)	Object Class (Max 4)	SFO (Max 2)
1							
2							
3							

	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1				
2				
3				

EPA Form 2340-15 (Rev. 09/2017) Electronic and paper versions acceptable. Previous editions are obsolete.

COPY 1 – PRINTING MANAGEMENT OFFICER

Contents of this Final Significant New Use Rule Package

Federal Register Notice – Asbestos; Significant New Use Rule
EPA-HQ-OPPT-2018-0159; FRL XXXX-XX

1. Action Memorandum

2. Action Information Sheet

3. Communications Strategy
    a. Desk Statement

4. Economic Analysis

5. Workgroup Member List

6. OGC Concurrence

7. Typesetting Request

8. Docket Certification

Workgroup Member List

Asbestos; Significant New Use Rule
(Final Rule)

OAR:	Korbin Smith
OECA:	Jessica Goldstein Geraldine Gardner Mark Seltzer
OGC:	Steve Anderson
OP:	Sharon Cooperstein
ORD:	Steve Watkins
OW:	Colleen Flaherty Kathryn Gallagher Ashley Harper
OCSPP:	Lea Carmichael Robert Courtnage Tyler Lloyd Andrea Pfahles-Hutchens Louis "Gino" Scarano Bill Silagi Peter Smith

Action Information

Action: Final rule

Title: Asbestos; Significant New Use Rule

SAN: 6677; Tier Level: 3; RIN: 2070–AK45; OMB Not Significant; RCS: 18T-0126; FRL: 9978-76.

Purpose: Under the Toxic Substances Control Act (TSCA), EPA is finalizing a significant new use rule (SNUR) for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types: chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The final significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency has found no information indicating that the following uses of asbestos are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required significant new use notice (SNUN) provides EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

Background: In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The risk evaluation focuses on the conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise prohibited (that can resume at any time) must be reviewed and approved by EPA prior to commencing.

Stakeholder Involvement: No external stakeholder involvement.

Key Issues/Internal Review: The final significant new use rule was reviewed by Agency workgroup staff including Office of General Counsel, Office of Policy, Office of Research and Development, Office of Enforcement and Compliance Assurance, Office of Air, and Office of Water.

Legal Deadline: No statutory or court-ordered deadlines apply to this action.

Timing: The final rule is intended to be published on or before April 30, 2019 along with EPA's response to an asbestos related TSCA section 21 petition.

Action Information

Contact: Robert Courtnage (202-566-1081, [HYPERLINK "mailto:Courtnage.Robert@epa.gov"]) or Lea Carmichael (202-564-4689, [HYPERLINK "mailto:Carmichael.Lea@epa.gov"]).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: Asbestos; Significant New Use Rule (Final Rule)
(Tier 3; SAN 6677; RIN 2070-AK45; EPA-HQ-OPPT-2018-0159)
– **ACTION MEMORANDUM**

FROM: Tanya Hodge Mottley, Director
National Program Chemicals Division

TO: Jeffery T. Morris, Director
Office of Pollution Prevention and Toxics

PURPOSE

Attached for your signature is a Federal Register notice for a final significant new use rule (SNUR) for asbestos under Section 5(a)(2) of the Toxic Substances Control Act.

DEADLINE

No statutory or court-ordered deadlines apply to this action; however, the final SNUR is intended to be published on or before April 29, 2019, along with the agency's response to an asbestos-related TSCA section 21 petition.

OVERVIEW

Authority

Section 5(a)(2) of TSCA (15 U.S.C. 2604(a)(2)) authorizes the EPA to determine that a use of a chemical substance is a "significant new use." The EPA must make this determination by rule after considering all relevant factors, including those listed in TSCA section 5(a)(2). Once the EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1) requires persons to submit a significant new use notice (SNUN) to the EPA at least 90 days before manufacturing (including importing) or processing the chemical substance for that intended activity (15 U.S.C. 2604(a)(1)(B)(i)). TSCA further prohibits such manufacturing (including importing) or processing from commencing until the EPA has conducted a review of the notice, made a determination on the notice, and taken such actions as are required in association with that determination (15 U.S.C. 2604(a)(1)(B)(ii)). Additionally, Section 5(a)(5) of TSCA (15 U.S.C. 2604(a)(5)) authorizes the EPA to require notification for the import or processing of a chemical substance as part of an article or category of articles under TSCA section 5(a)(1) (15 U.S.C. 2604(a)(1)(A)(ii)), if the EPA makes an affirmative finding in a rule under TSCA section 5(a)(2) (15 U.S.C. 2604(a)(2)) that the reasonable potential for exposure to the chemical substance through the article or category of articles subject to the rule justifies notification. General SNUR provisions are found at 40 CFR part 721, subpart A.

Summary of the Final Action

The EPA is finalizing a significant new use rule for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify the EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required SNUN provides the EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until the EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

The EPA issued the proposed asbestos SNUR on June 11, 2018, which opened a 60-day public comment period that closed on August 10, 2018. The agency received nearly 5,900 public comments; however, the majority of comments were not germane to the scope and intent of the rule. Overall, the agency received approximately 30 germane comments, half of which are substantive. Of the substantive comments, most suggested broadening the scope of the SNUR. In response to public comments, the agency is revising the final rule to provide clarifications and ensure all discontinued uses of asbestos are subject to the rulemaking.

Based on public comments received, the EPA is clarifying the following issues in the final rule:

- The distinction between a "new use" under the existing partial ban and a "significant new use rule"
- The agency's review process of significant new use notices
- Whether and how mining for asbestos is subject to the SNUR
- Whether and how recycling of legacy asbestos-containing material is subject to the SNUR

After consideration of the public comments, in addition to the 14 significant new uses identified in the proposed rule, in the final rule the EPA is broadening the scope of regulated significant new uses of asbestos (including as part of an article) to include:

- Cement products
- Friction Materials (with some exception)
- Packings
- Woven products
- Any other use of asbestos that is neither ongoing nor already prohibited under TSCA

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Two issues raised in public comment that the agency is not addressing in this final SNUR are 1) to require TSCA section 12(b) export notification for all asbestos-containing articles; and 2) to require a significant new use notice for *any* asbestos mining in the United States. The agency views including these two issues as actions to go beyond the intended focus of the SNUR. The EPA is currently evaluating options for how these issues might be addressed in the future. For the first issue (export notification for articles), the agency believes this would impact ongoing uses of asbestos, not just uses that have been discontinued as identified in the SNUR. The EPA believes that this issue would be more appropriately addressed during consideration of any potential risk management actions following completion of the EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination. For the second issue (a notice for *any* asbestos mining beyond mining for the significant new uses), the EPA believes, if addressed, that further opportunity for public comment would be useful prior to a final action.

Background

In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, the EPA designated asbestos as one of the first 10 chemical substances subject to the agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The TSCA section 6 risk evaluation focuses on the ongoing conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The ongoing uses are not considered significant new uses and would not require a significant new use notification submission to the agency. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by the EPA prior to commencing.

Regardless of the outcome of the risk evaluation pursuant to TSCA section 6(b)(4)(A), the EPA is concerned about the potential for adverse health effects of asbestos based on established sound scientific data indicating that asbestos is a known carcinogen. Since its peak usage, the national consumption of asbestos has declined approximately 99 percent, and asbestos has not been mined or otherwise produced in the United States since 2002. The EPA believes any significant new use of asbestos (including as part of an article) could increase the duration and magnitude of human and environmental exposure to the substance, reverse the declining trend of national import volumes of the substance, and reintroduce exposure scenarios that have become obsolete over the past several decades. Thus, it is imperative that the EPA be notified of any intended significant new use of asbestos (including as part of an article) and be provided the opportunity to evaluate such intended new use.

ANTICIPATED PUBLIC AND STAKEHOLDER RESPONSE

The final rule will be of interest to multiple stakeholders including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.

The EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive agency research of ongoing uses of asbestos and considering the availability of safer

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and affordable alternatives, the EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).

The tribal, state, and local government reactions are expected to be generally positive as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive of the final rule if the purpose and impact of the rule is clearly communicated and understood. Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, the EPA expects interest in agency actions related to asbestos to continue.

INTERNAL DEVELOPMENT AND REVIEW PROCESS

This action was developed with participation from the Office of General Counsel, Office of Policy, Office of Research and Development, Office of Enforcement and Compliance Assurance, Office of Air, and Office of Water.

OMB TRANSACTION

On March xx, 2019, the Office of Management and Budget determined that this final rule is not a significant regulatory action under Executive Orders 12866 and 13563. As such, this final rule was not reviewed by OMB.

IMPACTS

Potentially Regulated Entities

Potentially affected entities may include, but are not limited to the following list of industries identified by North American Industrial Classification System codes:

- Construction (NAICS code 23)
- Manufacturing (NAICS codes 31 – 33)
- Wholesale Trade (NAICS code 42)
- Transportation (NAICS code 48)

Economic Impacts

In the event that a SNUN is submitted, costs are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters. Asbestos is already subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20), and the agency is not requiring export notifications for articles containing asbestos as articles are generally excluded from the TSCA section 12(b) export notification requirements. Therefore, the EPA assumes no additional costs under TSCA section 12(b) for this rule.

Small Entity Impacts

Analysis supporting the rulemaking indicates that this action would not have a significant adverse economic impact on a substantial number of small entities.

Recordkeeping and Reporting Impacts

The information collection requirements associated with existing chemical SNURs are already approved under OMB control number 2070-0038 (EPA ICR No. 1188) and the information collection activities associated with export notifications are already approved under OMB control number 2070-0030 (EPA ICR No. 0795). If an entity were to submit a SNUN to the agency, the annual burden is estimated to be less than 100 hours per response, and the burden is estimated to be reduced for submitters who have

already registered to use the electronic submission system. Since asbestos is already subject to a TSCA section 6(a) rule (40 CFR part 763, subpart I) that triggers the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20) and because the EPA is not proposing to require export notifications for articles, the EPA assumes there is no cost or burden associated with export notifications under the proposed rule.

Governmental Impacts

The EPA has determined that the final rule will not significantly or uniquely affect state, local, or tribal governments.

STAKEHOLDER INVOLVEMENT

Stakeholder input was obtained through public comment on the proposed *Asbestos Significant New Use Rule* issued in June 2018. Additionally, this action was informed by the related outreach conducted in 2016 and 2017 during the early stages of the TSCA section 6 risk evaluation for asbestos involved numerous meetings and consultations with the American Chemistry Council, stakeholders from the chemical manufacturing industry (including the chlor-alkali industry), the International Association of Drilling Contractors, the Motor and Equipment Manufacturers Association, federal government agencies, non-government organizations, environmental groups, and public citizens. The agency also sought and received public comment on the *Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos*, released in February 2017, the *Scope of the Risk Evaluation for Asbestos*, released in June 2017 and the *Problem Formulation of the Risk Evaluation for Asbestos* released in June 2018.

PEER REVIEW

There were no major scientific or technical products supporting this action as defined by the EPA's Peer Review Handbook. Therefore, no support documents were submitted for peer review.

CONTACT

Please direct any questions regarding the Federal Register notice to the final rule workgroup lead, Robert Courtnage at 202-566-1081 or Courtnage.Robert@epa.gov.

RECOMMENDATION

I recommend that you sign the attached Federal Register notice.

Attachments

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OCSPP Communications Plan
Publication of Final Rule – Asbestos; Significant New Use Rule
INTERNAL DELIBERATIVE DRAFT

Summary (Includes background and topline messages)

- EPA is finalizing a significant new use rule (SNUR) for asbestos. This action will prevent discontinued uses of asbestos (that are not already prohibited under the partial 1989 Toxic Substances Control Act (TSCA) ban) from restarting without EPA evaluating those uses for safety and taking any necessary regulatory action.
- This final SNUR does not provide any means by which prohibited uses under the partial 1989 TSCA ban can return to the marketplace. On the contrary, the action ensures that otherwise unregulated uses of asbestos undergo EPA evaluation.
- Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use.
- Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.
- This SNUR compliments the TSCA section 6 risk evaluation for asbestos by ensuring that any discontinued use of asbestos not already prohibited (and that can otherwise absent the SNUR resume at any time) be reviewed by EPA for safety and any necessary regulatory action taken.

Background:

EPA is finalizing a significant new use rule for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The risk evaluation focuses on the conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by EPA prior to commencing.

In order to identify ongoing uses of asbestos in the United States to define the scope of the risk evaluation, EPA conducted extensive research, convened stakeholder meetings, and requested and considered public comment. EPA will conduct the risk evaluation for asbestos based on the conditions of use, which have been identified through scoping and refined during problem formulation as the following: imported raw bulk chrysotile asbestos for the fabrication of diaphragms for use in chlorine and sodium hydroxide production, sheet gaskets for use in titanium dioxide chemical production, brake blocks for use in oil drilling, aftermarket automotive brakes/linings and other vehicle friction products, and other gaskets. These ongoing uses are not considered significant new uses and would not require a significant new use notification submission to the Agency.

Regardless of the outcome of the risk evaluation pursuant to TSCA section 6(b)(4)(A), EPA is concerned about the potential for adverse health effects of asbestos based on established sound scientific data indicating that asbestos is a known carcinogen. Since its peak usage, the national consumption of asbestos has declined approximately 99 percent, and asbestos has not been mined or otherwise produced in the United States since 2002. EPA believes any significant new use of asbestos (including as part of an article) could increase the duration and magnitude of human and environmental exposure to the substance, reverse the declining trend of national import volumes of the substance, and reintroduce exposure scenarios that have become obsolete over the past several decades. It is imperative that EPA be notified of any intended significant new use of asbestos (including as part of an article) and be provided the opportunity to evaluate such intended new use.

Spokespeople

- OCSPP – notify interested parties, update website

Contents

- Communications rollout plan
- Communications resources
- Communications and management contacts

Attachments

- **Web content on:**
  - Asbestos [HYPERLINK "https://www.epa.gov/asbestos"]
  - Risk Evaluation for Asbestos [HYPERLINK "https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-evaluation-asbestos-0"]

Communications Rollout Plan

DATE	TASK	WHO	DONE
PRE-RELEASE			
Week before FRN publication	Draft communications plan, list serve + web materials to OPPT/OCSPP	Alison Pierce/ Julia Ortiz, OPPT IO	
	Draft communications plan + web materials to OPA	Linda Strauss, OCSPP IO	
	Final HQ approved comms plan, list serve + web materials	OPA	

Communications Resources

- **Desk Statement**
- **OPPT Listserv**
- **Asbestos website -** [HYPERLINK "https://www.epa.gov/asbestos"]

Communications and Management Contacts

Communications Contacts	
OCSPP	**HQ**
Linda Strauss, OCSPP IO 202-564-0797, [HYPERLINK "mailto:strauss.linda@epa.gov"] **Alison Pierce, OPPT IO** 202-564-2437, [HYPERLINK "mailto:pierce.alison@epa.gov"] **Cheryl Dunton, OCSPP IO – web** 202-564-4893, [HYPERLINK "mailto:Dunton.cheryl@epa.gov"]	**Nancy Grantham, Office of Public Affairs** 202-564-6879, [HYPERLINK "mailto:grantham.nancy@epa.gov"] **Cathy Milbourn, Office of Public Affairs** 202-564-7849, [HYPERLINK "mailto:Milbourn.cathy@epa.gov"] **Sven-Erik Kaiser, Office of Congressional Rel.** 202-566-2753, [HYPERLINK "mailto:Kaiser.sven-erik@epa.gov"]
Management Contacts	
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Nancy Beck, Principal Deputy Assistant Administrator, OCSPP 202-564-2910, [HYPERLINK "mailto:beck.nancy@epa.gov"] **Jeffery T. Morris, Director, OPPT** 202-564-6756, [HYPERLINK "mailto:morris.jeff@epa.gov"] **Tala Henry, Acting Deputy Director, OPPT** 202-564-2959, [HYPERLINK "mailto:mottley.tanya@epa.gov"]	**Tanya Mottley, Director, National Program Chemicals Division/OPPT** 202-564-3152, [HYPERLINK "mailto:mottley.tanya@epa.gov"] **Brian Symmes, Deputy Director, National Program Chemicals Division/OPPT** 202-566-1983, [HYPERLINK "mailto:Symmes.Brian@epa.gov"] **Erik Winchester, Chief, Fibers and Organics Branch/NPCD** 202- 564-6450, [HYPERLINK "mailto:Winchester.Erik@epa.gov"]

Key Audiences & Stakeholders

- Industry
- Government Agencies
- Environmental Groups
- Non-Governmental Organizations

The final rule will be of interest to multiple stakeholders including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the

general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.

EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive Agency research of ongoing uses of asbestos and considering the availability of safer and affordable alternatives, EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).

The tribal, state, and local government reactions are expected to be generally positive as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive of the final rule. Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, EPA expects interest in Agency actions related to asbestos to continue.

Desk statement

Under the Toxic Substances Control Act (TSCA), EPA is finalizing a significant new use rule (SNUR) for asbestos. This action prevents any discontinued use of asbestos that is not already prohibited under the partial 1989 TSCA ban from restarting without EPA evaluating that use for safety and taking any necessary regulatory action. This final SNUR does not allow prohibited uses under the partial 1989 TSCA ban to return to the marketplace. On the contrary, the action ensures that the otherwise unregulated discontinued uses that are not covered by the partial 1989 asbestos ban undergo EPA evaluation for risk before any use can re-commence.

The following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. That notification would then trigger an EPA evaluation of that use for safety and any necessary regulatory action.

Listserv

Title: EPA Issues Final Rule to Require Review of Unregulated Asbestos Uses

EPA today issued a final significant new use rule (SNUR) in the Federal Register that requires any person who intends to manufacture (including import) or process discontinued (but not already banned) uses of asbestos (including as part of an article) to notify EPA at least 90 days before commencing that action. In accordance with the final SNUR, manufacturing (including importing) or processing for the intended significant new use would be prohibited until EPA conducts a review of the notice, makes an appropriate determination on the notice, and takes such actions as are required in association with that determination.

The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for asbestos uses that are neither ongoing nor already prohibited under TSCA. The following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

To view the final rule, or for additional information, please visit: [URL]

Economic Analysis for the Significant New Use Rule for Asbestos

DRAFT

March 5, 2019

Economic and Policy Analysis Branch
Chemistry, Economics and Sustainable Strategies Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Contributors

Analytical and draft preparation support was provided by Abt Associates Inc. under EPA Contract No. EP-W-16-009.

Notice

This is not an official guidance document and should not be relied upon to determine applicable regulatory requirements. This document was prepared to provide economic information for the rulemaking process, and to meet various administrative and legislative requirements. Due to the nature of the information available to EPA, the document contains various assumptions that may not reflect the regulatory determinations that an individual firm would make were it to apply the rule's requirements to its specific circumstances. Persons seeking information on regulatory requirements as they would apply to specific facilities should consult the final rule.

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Table of Contents

[TOC \o "1-3" \h \z \u]

Executive Summary

This report estimates the costs of a Significant New Use Rule (SNUR) being finalized by the U.S. Environmental Protection Agency (EPA) for asbestos. The term "asbestos," as defined in TSCA Title II (§202(7): 15 U.S.C. §2642) means asbestiform varieties of chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite, or actinolite. EPA is promulgating a SNUR under the Toxic Substances Control Act (TSCA) section 5(a)(2). The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency has found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to this SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products, extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions), high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks uses in oilfield drawworks); any other building material, and any other use of asbestos not identified in § 763.165 the manufacture, importation or processing of which had been initiated prior to August 25, 1989 (other than chrysotile asbestos diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets). For this rule, the general SNUR article exemption will not apply for persons who import or process asbestos for a significant new use identified above.

The SNUR requires manufacturers (including importers) or processors of asbestos to notify EPA at least 90 days prior to the occurrence of any significant new use. A firm intending to engage in these activities is required to submit a Significant New Use Notice (SNUN), incurring an estimated submission cost of $10,052 for small businesses and $23,252 for other businesses, as well as potentially other minor costs such as consumer notification costs. These costs are listed in Table ES-1. The required notification initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period.

In addition to any firms that may make a SNUN submission, the SNUR may also affect firms that do not make a submission. By avoiding a significant new use, a firm can avoid submission and testing costs but may incur other compliance costs. The firm may also incur "hidden" costs; for example, it could forego profitable opportunities to use the chemical in an application that would be a significant new use, or limit production volume to avoid a significant new use.

Costs are estimated at the firm level and reflect the burden of a SNUR on the firms that make a submission. The hidden costs to the firms that do not make a submission are not quantified. EPA's experience to date is that, in response to the promulgation of SNURs covering over 1,000 chemical substances, EPA receives fewer than ten SNUNs per year. The number of firms affected by not making submissions to EPA is not known; therefore, costs are not aggregated across the affected entities.

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Table ES-[SEQ Table_ES- * ARABIC]: Compliance Options and Associated Costs Incurred by a Firm Due to the SNUR

	Option	Costs [1]	Average Quantified Costs per Chemical (2018$)
1.	Electronic submission of a Significant New Use Notice (SNUN), indicating to EPA that the firm would like to manufacture, import, or process the chemical for a Significant New Use as defined in the SNUR.	Costs of submitting a SNUN, including rule familiarization, CDX registration (for companies that are first-time submitters), form completion, user fee, and any test costs.	$65 rule familiarization cost; $23,252 SNUN submission and recordkeeping cost for large businesses (including $16,000 fee) and $10,052 for small businesses (including $2,800 fee[2]). First time submitters would incur $123 for CDX registration and associated activities. Companies manufacturing, importing, or processing a chemical currently used in commerce in the United States will incur a cost of $79 for notifying consumers of SNUR regulatory activities.
2.	Manufacture, import, or process in a way that avoids a Significant New Use.	Cost of the profit foregone as a result of not engaging in the commercial activity originally planned (opportunity costs), and recordkeeping.	Opportunity costs are not quantified. Other costs including rule familiarization ($65), recordkeeping ($5), and customer notification ($79) may apply. Costs associated with article importation may include activities such as article identification ($157 to $1,887), supplier identification ($1,144), recordkeeping ($5), collecting data from suppliers ($6 to $629 per article), and testing ($130 per article tested).

Notes:

[1] SNURs typically trigger export notification requirements at an estimated cost of $95 per notification. However, asbestos is already subject to export notification, and this rulemaking does not require export notification for products containing asbestos. Therefore there is no additional cost for export notification for this rule.

[2] On October 17, 2018 EPA published a rule raising the fee for SNUNs to $2,800 for small businesses and $16,000 for other businesses (83 FR 52694).

ED_005636_00006369-00005

1. Introduction

EPA is concerned that commencement of the manufacture (including import) or processing for significant new uses of asbestos could significantly increase the magnitude and duration of exposure to asbestos and that such an increase should not occur without an opportunity for EPA to review any intended significant new use before such use could occur. The SNUR requires manufacturers (including importers) or processors of asbestos, including as part of an article, to notify EPA at least 90 days prior to the occurrence of any significant new use. A firm intending to engage in these activities is required to submit a Significant New Use Notice (SNUN). The required notification initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. For this rule, the general SNUR article exemption at 40 CFR 721.45(f) does not apply.

1.1 Statutory Authority

Section 5(a)(2) of the Toxic Substances Control Act (TSCA) (15 U.S.C. 2604(a)(2)) authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors, including those listed in TSCA section 5(a)(2):

- The projected volume of manufacturing and processing of the chemical substance;
- The extent to which a use changes the type or form of exposure of human beings or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of human beings or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1)(B) requires persons to submit a SNUN to EPA at least 90 days before manufacturing (including importing) or processing the chemical substance for that use (15 U.S.C. 2604(a)(1)(B)).

1.2 Significant New Uses under the SNUR

The general SNUR provisions are found at 40 CFR Part 721, Subpart A. EPA may promulgate a SNUR for a substance when potential use could result in significant changes in human exposure or environmental release levels and/or concern exists about the substance's health or environmental effects (40 CFR §721.170).

The significant new use of asbestos (including as part of an article) as defined under this SNUR is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency has found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to this SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products, extruded sealant tape and other tape;

ED_005636_00006369-00006

filler for acetylene cylinders; friction materials (with certain exceptions), high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks), any other building material, and any other use of asbestos not identified in § 763.165 the manufacture, importation or processing of which had been initiated prior to August 25, 1989 (other than chrysotile asbestos diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets and packing).

1.3 Summary of Methodology

This analysis quantifies, to the extent possible, the costs to society of the rule by identifying the costs to industry associated with performing the required reporting and recordkeeping, and the costs to EPA for administering the rule. Industry costs consist of rule familiarization; registration with the Central Data Exchange (CDX) electronic reporting tool; collection, compilation, and submission of required information for significant new uses of the subject chemical; and recordkeeping. Agency costs include reviewing and processing the data received as a result of the rule. Data sources for this analysis include burden estimates derived from previous information collection requests and economic analyses for related rules, compensation data acquired from government publications, and supplementary market research.

In addition to costs, this report qualitatively discusses the benefits of the rule based on the value of the information it will provide. The benefits analysis was undertaken to address the requirements of Executive Order 12866.

Note that all dollar amounts in this analysis are reported in 2018 dollars.

1.4 Organization of This Report

The remainder of this report presents EPA's economic analysis in support of the final rule. A description of asbestos market information is provided in Chapter [REF _Ref507586716 \r \h]. Chapter [REF _Ref507586727 \r \h] contains estimates of the industry costs to comply with the rule, and Chapter [REF _Ref259449206 \r \h] shows estimates of the government costs associated with the administration of the rule. Chapter [REF _Ref469436320 \r \h] addresses the benefits of the rule. Several additional impact analyses are presented in Chapter [REF _Ref242608476 \r \h], including: small entity impact analysis, as mandated by the Regulatory Flexibility Act (RFA); a burden hour analysis that responds to the requirements of the Paperwork Reduction Act (PRA); an analysis of unfunded mandates that pertains to the Unfunded Mandates Reform Act (UMRA); an analysis of environmental justice implications that addresses the requirements of Executive Order 12898; and an analysis of children's health pertinent to Executive Order 13045.

ED_005636_00006369-00007

2. Regulated Substance: Uses and Manufacturers

Asbestos is a mineral fiber that occurs naturally in rock and soil. Asbestos is a "generic commercial designation for a group of naturally occurring mineral silicate fibers of the serpentine and amphibole series" (IARC, 2012). The Chemical Abstract Service (CAS) definition of asbestos is "a grayish, non-combustible fibrous material. It consists primarily of impure magnesium silicate minerals."

TSCA Title II (added to TSCA in 1986), Section 202 defines asbestos as the "*asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite*." EPA uses this definition of asbestos for the SNUR. The most common form of asbestos used in the United States is chrysotile, which is found in serpentine rock formations (chrysotile content average 5%, with a maximum 50%) (WHO, 2014). Chrysotile was the predominant type of asbestos used in the United States and is currently the only type of raw asbestos imported.

2.1 Chemical Uses

To determine the current uses of asbestos, EPA conducted extensive research and outreach. This included EPA's review of published literature and online databases including EPA's Chemical Data Reporting program (CDR), Safety Data Sheets (SDSs), the United States Geological Survey's Mineral Commodities Summaries and Minerals Yearbook, the U.S. International Trade Commission's Dataweb, the U.S. Customs and Border Protection's Automated Commercial Environment (ACE) System, and commercial trade databases. EPA also reviewed the company websites of potential manufacturers, importers, distributors, retailers, or other users of asbestos. EPA received comments on the *Scope of the Risk Evaluation for Asbestos* (EPA, 2017a), the *Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos* (EPA 2017c) and the *Problem Formulation of the Risk Evaluation for Asbestos* (EPA 2018) that were used to help determine the current conditions of use. In addition, prior to the June 2017 publication of the scope document, EPA convened meetings with companies, industry groups, chemical users, and other stakeholders to aid in identifying conditions of use and verifying conditions of use identified by EPA. And EPA sought and received public comment on the proposed Asbestos SNUR. This process is described in more detail in the preamble for the notice of proposed rulemaking for this SNUR (83 FR 26922, June 11, 2018). Furthermore, EPA is separately conducting a risk evaluation of asbestos under its conditions of use, pursuant to TSCA section 6(b)(4)(A), as described in the preamble for this SNUR rulemaking.

2.1.1 Historical Uses

Asbestos has not been mined or otherwise produced in the United States since 2002 (Flanagan, 2016).

In developing the *Scope of the Risk Evaluation for Asbestos* (EPA 2017a), EPA identified uses including pre-existing materials currently in place within buildings (e.g., insulation materials, flooring, etc.) and also within pre-existing non-building equipment. Many asbestos products fall into this category. These materials were installed in the past, and EPA's *Scope of the Risk Evaluation for Asbestos* indicated that there was no evidence at that time to suggest that manufacturing, processing, or distribution for such activities was intended, known, or reasonably foreseen. The Scope document concluded that legacy asbestos-containing products include:

- Asbestos arc chutes
- Asbestos pipeline wrap
- Asbestos separators in fuel cells and batteries
- Asbestos-cement flat sheet
- Asbestos-cement shingles
- Asbestos-reinforced plastics
- Beater-add gaskets
- Corrugated asbestos-cement sheet
- Extruded sealant tape
- Filler for acetylene cylinders
- High-grade electrical paper
- Millboard
- Missile liner
- Roofing felt
- Vinyl-asbestos floor tile

EPA received no public comments on the scope document for asbestos providing information to indicate these uses are ongoing. However, upon further investigation during problem formulation, EPA determined that seven asbestos product categories (asbestos packings, asbestos protective clothing, automatic transmission friction components, clutch facings, asbestos-cement flat sheet, asbestos-cement shingles, and corrugated asbestos-cement sheet) that were listed as legacy uses in the Scope document fell under broader categories that EPA had identified (other gaskets and packing, woven products, automotive friction materials, and asbestos cement products).

EPA found limited evidence of asbestos-containing products currently used in the United States. EPA believes that imports of certain asbestos products listed by harmonized tariff schedule (HTS) code in government and commercial trade databases are likely misreported and are not current uses. EPA contacted several suspected users of asbestos-containing products to determine that those particular products are no longer imported or used in the United States.

Because EPA's research indicates that cement products, woven products (other than brake blocks uses in oilfield drawworks) and packings are not in fact ongoing uses, this significant new use rule includes them as significant new uses.

EPA requested public comment on the proposed SNUR for information regarding any ongoing uses not identified by the Agency as well as additional uses not identified as no longer ongoing. The Agency did not receive any comments providing additional information regarding the ongoing uses or discontinued uses of asbestos.

The manufacture, processing, and distribution for a number of additional uses of asbestos were banned under TSCA in 1989 as part of the *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions; Final Rule* (40 CFR Part 763) (also known as Asbestos Ban and Phase-out Rule (Remanded), 1989). The uses of asbestos covered by the ban include:

- Corrugated paper

- Rollboard
- Commercial paper
- Specialty paper
- Flooring felt
- Commercial uses of asbestos not identified in 40 CFR § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989

In addition to the asbestos product categories that EPA identified in the proposed SNUR where manufacturing (including importing) and processing for the use is no longer ongoing, the Agency has determined that the product category "friction materials" is also a significant new use of asbestos. While this product category was in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products* for the 1989 Asbestos Ban and Phaseout final rule, it was not included in the proposed SNUR because the broad category definition could be viewed as contradictory to uses not subject to the rule – brake blocks in particular. However, in response to public comments, the Agency is including friction materials (except for specifically identified ongoing uses) within the significant new use for asbestos, in order to encompass all uses that the Agency has determined to be neither ongoing in the United States nor already prohibited under TSCA. With the addition of the exception for certain friction products that are ongoing uses (i.e., oil field brake blocks), the Agency believes it is appropriate to include the product category of "friction materials" in the scope of this SNUR and doing so will not create confusion or potentially overlapping definitions.

2.1.2 Ongoing Uses

EPA is separately conducting a risk evaluation of asbestos under its conditions of use, pursuant to TSCA section 6(b)(4)(A). Through scoping and subsequent research for the asbestos risk evaluation, EPA identified several conditions of use of asbestos to include in the risk evaluation, and since publication of the proposed Asbestos SNUR (83 FR 26922, June 11, 2018) and problem formulation document in June 2018 (EPA, 2018), the Agency has further refined the conditions of use of asbestos. The conditions of use of asbestos include imported raw bulk chrysotile asbestos for the fabrication of diaphragms for use in chlorine and sodium hydroxide production and several imported chrysotile asbestos-containing materials, including sheet gaskets for use in titanium dioxide chemical production, brake blocks for use in oil drilling, aftermarket automotive brakes/linings and other vehicle friction products, and other gaskets.

All asbestos used in the United States is imported. According to the U.S. Geological Survey (USGS), the only form of asbestos currently imported into the United States is chrysotile, all of which originated from Brazil in 2018 [ADDIN EN.CITE <EndNote><Cite><Author>USGS</Author><Year>2017</Year><RecNum>155</RecNum><IDText>3827270</IDText><DisplayText>(USGS, 2017)</DisplayText><record><rec-number>155</rec-number><foreign-keys><key app="EN" db-id="5ftese5szxf0ane9r5dxp0z6ztred9t525pt" timestamp="1494271811">155</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>USGS,</author></authors></contributors><titles><title>Mineral Commodity Summaries 2017</title></titles><dates><year>2017</year></dates><pub-location>Washington, DC</pub-location><publisher>U.S. Department of the Interior</publisher><label>3827270</label><urls><related-urls><url>https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf</url></related-urls></urls><language>English</language><modified-date>U.S. Geological Survey</modified-

date></record></Cite></EndNote>]. USGS estimates that in 2018, the United States imported approximately 750 metric tons (1,653,467 pounds) of raw asbestos, all of which was used by the chlor-alkali industry (USGS, 2019). In 2017, the United States imported 332 metric tons (731,935 pounds) of raw asbestos [ADDIN EN.CITE <EndNote><Cite><Author>USGS</Author><Year>2017</Year><RecNum>155</RecNum><IDText>3827270</IDText><DisplayText>(USGS, 2017)</DisplayText><record><rec-number>155</rec-number><foreign-keys><key app="EN" db-id="5ftese5szxf0ane9r5dxp0z6ztred9t525pt" timestamp="1494271811">155</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>USGS,</author></authors></contributors><titles><title>Mineral Commodity Summaries 2017</title></titles><dates><year>2017</year></dates><pub-location>Washington, DC</pub-location><publisher>U.S. Department of the Interior</publisher><label>3827270</label><urls><related-urls><url>https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf</url></related-urls></urls><language>English</language><modified-date>U.S. Geological Survey</modified-date></record></Cite></EndNote>].

Using data from the 2016 Chemical Data Reporting (CDR) rule, EPA identified industrial processing or use activities, industrial function categories and commercial, and consumer use product categories (EPA, 2016a). Two companies, both from the chlor-alkali industry, reported importing asbestos; however, the amounts cannot be publicly disclosed due to company claims of confidential business information (CBI).

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: 2016 CDR Use Data for Asbestos (CAS No. 1332-21-4)

Site	2015 Total Production Volume	Category of Industrial Use	Industrial Sectors	Type of Process or Use
OLIN CORPORATION	Withheld	Fillers	All other basic inorganic chemical manufacturing	Processing—incorporation into formulation, mixture, or reaction product
AXIALL CORPORATION	Withheld	Used as diaphragm material in Caustic/Chlorine electrolytic cells	All other basic inorganic chemical manufacturing	Use—non-incorporative activities

Source: EPA, 2016a

2.2 Potentially Affected Companies

The SNUR will require manufacturers, importers, and processors to notify EPA at least 90 days before commencing the manufacture, import, or processing of asbestos (including as part of an article) for any significant new use. The significant new uses are: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products, extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions), high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks), packings; any other building material, and any other use of asbestos not identified in § 763.165 the manufacture, importation or processing of which had been initiated prior to August 25, 1989 (other than chrysotile asbestos diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets). The significant new uses are detailed in [REF _Ref513035377 \h *

MERGEFORMAT]. EPA has not identified any firm manufacturing, importing, or processing asbestos (including as part of an article) for the uses listed above. The SNUR may affect firms that currently do not manufacture, import, or process asbestos, but who may be interested in manufacturing, importing, or processing asbestos for a new use in the future. The following list of North American Industrial Classification System (NAICS) codes describes potentially affected entities:

- Construction (NAICS code 23)
- Manufacturing (NAICS codes 31 – 33)
- Wholesale Trade (NAICS code 42)
- Transportation (NAICS code 48)

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Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Product Categories of Significant New Uses of Asbestos

Product Category	Description of the Product Category
Adhesives, Sealants, and Roof and Non-Roof Coatings	The automobile industry historically used asbestos in a wide variety of adhesive, sealant, and coating applications. The aerospace industry used asbestos in extremely specialized applications such as firewall sealants and epoxy adhesives. Non-roof coatings were used to prevent corrosion (e.g. as vehicle undercoatings and underground pipe coatings). Roof coatings were used to repair and patch roofs, seal around projections such as chimneys and vent pipes, and bond horizontal and vertical surfaces.
Arc Chutes	Ceramic arc chutes containing asbestos were used to guide electric arcs in motor starter units in electric generating plants.
Beater-Add Gaskets	Asbestos fibers were incorporated within various elastomeric binders and other fillers to form the beater-add paper. These products were used extensively for internal combustion applications and for the sealing component of spiral wound gaskets. Gaskets were used to seal one compartment of a device from another in non-dynamic applications such as engine and exhaust manifolds.
Cement Products	Includes asbestos cement product categories in the 1989 RIA: Asbestos-Cement Pipe and Fittings, Asbestos-Cement Flat Sheet, Corrugated Asbestos-Cement Sheet, and Asbestos-Cement Shingles.
Extruded Sealant Tape and Other Tape	Sealant tape was made from a semi-liquid mixture of butyl rubber and asbestos. On exposure to air, the sealant solidified forming a rubber tape about an inch wide and an eighth of an inch thick. The tape acted as a gasket for sealing building windows, automotive windshields, and mobile home windows. It was also used in the manufacture of parts for the aerospace industry and in the manufacture of insulated glass.
Filler for Acetylene Cylinders	Asbestos was used to produce a sponge-like filler, which held the liquefied acetylene gas (acetone) in suspension in the steel cylinder and puled the acetone up through the tank as the gas was released through the oxyacetylene torch. The torch was used to weld or cut metal and sometimes used as an illuminant gas. The filler also acted as an insulator that offered fire protection in case the oxidation of the acetylene became uncontrollable.
Friction Materials (except those identified as ongoing conditions of use)	Friction materials were used as braking and gear-changing (clutch) components in a variety of industrial and commercial machinery. Applications included agricultural equipment such as combines, mining and oil-well-drilling equipment, construction equipment such as cranes and hoists, heavy equipment used in various manufacturing industries (e. g., machine tools and presses), military equipment, marine engine transmissions, elevators, chain saws, and consumer appliances such as lawn mowers, washing machines, and vacuum cleaners.
High-Grade Electrical Paper	The major use of asbestos electrical paper was insulation for high temperature, low voltage applications such as in motors, generators, transformers, switch gears, and other heavy electrical apparatuses.
Millboard	Asbestos millboard was essentially a heavy cardboard product that was used for gasketing, insulation, fireproofing, and resistance against corrosion and rot. Millboard was used in many industrial applications to include linings in boilers, kilns, and foundries; insulation in glass tank crowns, melters, refiners, and sidewalls in the glass industry; linings for troughs and covers in the aluminum, marine, and aircraft industries; and thermal protection in circuit breakers in the electrical industry. In addition, thin millboard was inserted between metal to produce gaskets. Commercial applications for millboard included fireproof linings for safes, dry-cleaning machines, and incinerators.
Missile Liner	A missile liner was an asbestos and rubber compound used to insulate the outer casing of the rocket from the intense heat generated in the rocket motor while the rocket fuel was burned. Rockets and rocket boosters were used to propel a number of objects including military weapons and the space shuttle.

ED_005636_00006369-00013

Packings	Packings were dynamic or mechanical (static packings are gaskets) and used to seal fluids in devices where motion was necessary. The design of a packing was to control the amount of leakage of fluid at shafts, rods or valve systems and other functional parts or equipment requiring containment of liquids or gases. Packings were used in rotary, centrifugal, and reciprocating pumps, valves, expansion joints, soot blowers, and many other types of mechanical equipment.
Pipeline Wrap	Pipeline wrap was an asbestos felt product primarily used by the oil and gas industry for coating its pipelines. Asbestos pipeline wrap was also used in the coal tar enamel method of coating pipes, some above-ground applications (such as for special piping in cooling towers), and was also used by the chemical industry for underground hot water and steam piping.
Reinforced Plastics	Asbestos-reinforced plastics were used for electro-mechanical parts in the automotive and appliance industries and as high-performance plastics for the aerospace industry. Asbestos-reinforced plastic was typically a mixture of some type of plastic resin (usually phenolic or epoxy), a general filler (often chalk or limestone), and raw asbestos fiber.
Roofing Felt	Asbestos roofing felt was single or multi-layered grade and used for built-up roofing. Asbestos was used in roofing felts because of its dimensional stability and resistance to rot, fire, and heat.
Separators in Fuel Cells and Batteries	In very specialized aerospace applications, asbestos functioned as an insulator and separator between the negative and positive terminals of a fuel cell/battery.
Vinyl-Asbestos Floor Tile	Vinyl-asbestos floor tile was used in commercial, residential, and institutional buildings in heavy traffic areas such as supermarkets, department stores, commercial plants, kitchens, and “pivot points” -- entry ways and areas around elevators
Woven Products	Includes Protective Clothing and Asbestos Textiles from the 1989 RIA.
Any Other Building Materials	Examples include insulation, plasters, mastics, textured paints (e.g., simulates stucco), and block filler paints (e.g., for coating masonry).
Any Use of Asbestos not Otherwise Identified	Except those uses prohibited under § 763.165 (i.e. Corrugated Paper, Rollboard, Commercial Paper Specialty Paper, Flooring Felt and New Uses) and uses of imported chrysotile (including as part of an article) that are currently ongoing in the United States (i.e. diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets and packing).

3. Industry Compliance Costs

The SNUR discussed in this report specifies that any manufacture (including import) or processing of asbestos or the importation or processing of an article for a designated significant new use will require reporting under Section 5(a)(1)(A) of TSCA. Therefore, a firm intending to manufacture, import, and/or process asbestos for these applications must submit a SNUN. Alternatively, a firm can decide not to manufacture, import, and/or process this chemical or to manufacture, import, and/or process this chemical in such a way that it is not considered a significant new use. The firm, therefore, has two options:

- ***Option 1: Submit a SNUN.*** A SNUN indicates to EPA that the firm would like to manufacture, import, and/or process the chemical or import or process an article for a significant new use, which, in this case, means any use of asbestos identified in [REF _Ref513035377 \h * MERGEFORMAT]. The firm must submit the SNUN to EPA at least 90 days before it plans to commence the manufacture, import, and/or processing of the significant new use of the substance; the SNUN initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing asbestos (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. If EPA allows the manufacture, import, and/or processing of asbestos for a significant new use, then the costs associated with this option are the costs of submitting the SNUN (including paying a user fee).

- ***Option 2: Comply with SNUR limits (not manufacture, import, and/or process a new use of the chemical).*** A firm can avoid engaging in a Significant New Use and submitting a SNUN by not manufacturing (including importing) and/or processing asbestos (including as part of an article) in a manner such that it would be considered a significant new use. That is, if the firm does not manufacture (including import) or process asbestos (including as part of an article) for a significant new use identified in [REF _Ref513035377 \h * MERGEFORMAT], it would not be subject to the SNUR. While this option avoids the costs of submitting a SNUN, it may entail the "hidden" cost of the foregone profit as a result of not engaging in the commercial activity originally planned, and may involve substituting another, more costly, substance. If the firm elects to produce the chemical for research and development (R&D) purposes only (an exemption for R&D purposes is provided in 40 CFR §721.47), it may incur costs associated with R&D recordkeeping. The firm may also pursue this option temporarily by complying with SNUR restrictions while also pursuing Option 1. Due to the uncertainty related to this option, and EPA's expectation that affected entities will select Option 1, the costs of Option 2 are not fully quantified in this report.

The remainder of this chapter estimates the quantified portion of costs associated with the SNUR for asbestos. Section [REF _Ref507586806 \r \h] summarizes the wage rates used in this chapter. Section [REF _Ref242523921 \r \h] provides the unit industry compliance costs, including the costs of rule familiarization, registration with the Central Data Exchange (CDX) electronic reporting tool, completing the SNUN form, submission fee, and import certification. Total costs under each option are presented in Section [REF _Ref508200019 \r \h]. Sections [REF _Ref507586920 \r \h] and [REF _Ref507586922 \r

\h] discuss probability of SNUN submission and promulgation of subsequent regulatory actions related to this SNUR, respectively.

3.1 Wage Rates

The rule involves activities that may require efforts by employees in three labor classifications: managerial, technical, and clerical. Costs for each activity are calculated by estimating the labor hours required in each labor category and multiplying those burdens by the wage rate for each labor category. This section presents the estimated wage rate in each labor category.

Loaded wage rates for each labor category are derived by combining data on wages and fringe benefits with estimates of overhead rates following the methodology described in *Wage Rates for Economic Analysis of the TRI Program* (EPA, 2002). Wage and fringe benefit data for managerial, professional/technical, and clerical labor are calculated using the September 2018 quarterly estimates from the Employer Costs for Employee Compensation (ECEC) Supplemental Tables available on the Bureau of Labor Statistics (BLS) website (BLS, 2018). The loaded wage rate for managerial labor is $78.77; technical labor is $78.63; and clerical labor is $34.91. [REF _Ref243206842 \h * MERGEFORMAT] presents the basic data used to calculate the loaded wage rates for all three categories of labor, and Appendix A provides more detailed information on the estimation of these wage rates.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Loaded Industry Wage Rates, 2018$

Labor Category	Base Wages[a]	Fringe Benefits[a] + Overhead Factor[b]	Loaded Wages
Managerial	$47.81	1.65	**$78.77**
Professional/Technical	$46.60	1.69	**$78.63**
Clerical	$21.05	1.66	**$34.91**

Notes:
[a] Wage rates and fringe benefits are calculated using the September 2018 estimates from BLS, 2018.
[b] An overhead rate of 17% of base wages is used here, based on methodology and assumptions in EPA, 2002.

3.2 Unit Industry Compliance Costs

This section estimates the "unit industry compliance costs," which are the costs to the individual site that would report under the rule.

3.2.1 Rule Familiarization

The rule requires manufacturers (including importers) and processors of asbestos and certain articles containing asbestos to become familiar with the SNUR and its various requirements. Rule familiarization is estimated to require 0.55 hours of technical labor and 0.27 hours of managerial labor, as described in the *Economic Analysis of the Premanufacture Notification Electronic Reporting Final Rule* (EPA, 2009), which measures the costs of mandatory electronic reporting of SNUNs and other TSCA Section 5 notices. As shown in [REF _Ref253102828 \h * MERGEFORMAT], the labor cost associated with rule familiarization is $64.52.

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Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Cost Estimate to Familiarize with the Rule (2018$) (per Site)

Reporting Activity	Clerical Labor (at $34.91/hour)		Technical Labor (at $78.63/hour)		Managerial Labor (at $78.77/hour)		Total Labor Cost	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)
Rule Familiarization	0	$0.00	0.55	$43.25	0.27	$21.27	**0.82**	**$64.52**

Sources: Wage rates: [REF _Ref507588209 \h * MERGEFORMAT]; Burden estimates: EPA, 2009.

3.2.2 Electronic Reporting

The rule requires submitters to register with EPA's Central Data Exchange (CDX) and use the Chemical Information Submission System (CISS) to prepare and submit a data file. CDX is EPA's electronic system for environmental data exchange to the Agency. CDX also provides the capability for submitters to access their data through the use of web services. EPA developed CISS for use in submitting data for TSCA electronically to the Agency. CISS, a web-based reporting tool, provides user-friendly navigation, works with CDX to secure online communication, creates a completed Portable Document Format (PDF) for review prior to submission, and enables data, reports, and other information to be submitted easily.

EPA estimates that affected facilities will incur burden and cost due to the electronic reporting requirements of the rule. This includes costs to complete a subscriber agreement and register with CDX. Understanding the electronic reporting requirements is expected to be part of rule familiarization discussed in Section [REF _Ref468050440 \r \h] and is not included again in this section.

Some company users who have already registered with CDX to meet other EPA electronic reporting requirements, for example to submit Premanufacture Notices (PMNs), will not need to register again as a result of this rule. Therefore, these activities are only required of first-time submitters of any Section 5 notice. These activities are estimated to require the following burdens, based on the estimates presented in the *Supporting Statement for EPA Information Collection Request Number 2002.05, "Cross-Media Electronic Reporting Rule"* (EPA, 2011).

When registering with CDX, users are assigned to one of two roles in the CDX system, an Authorized Official or a Support Registrant.

> **Authorized Official (AO)**: The AO is the person legally responsible for the submission. The AO is typically a senior official for the respondent. The AO is the only user who can start a new form or reopen a completed form to begin the amendment process and is the only user who can electronically sign and submit a form. AOs can also assign Support Registrants to edit and complete forms on his or her behalf. AOs must submit a subscriber agreement to EPA and register with CDX.
>
> **Support Registrants**: A Support Registrant is a person designated by an AO to submit supporting documents on his or her behalf. Support Registrants can edit a submission that is created by the AO. Support Registrants are only allowed to edit the submissions to which the AO has granted him or her access. Support Registrants do not have any access rights to create or submit a form. Once the AO creates a form, they will provide the Support Registrant with a

ED_005636_00006369-00017

passphrase to access the submission and complete all sections of the form. Once the Support Registrant has finished completing the form, the AO will access the document, review it, and then submit it. Support Registrants must register with CDX but do not need to submit a subscriber agreement to EPA.

This analysis uses a simplifying assumption that an average of five employees at each respondent firm will register with CDX: one manager (who will serve as AO) and four technical staff members (who will serve as Support Registrants).

Respondents will incur electronic reporting costs to register with CDX, submit a subscriber agreement, set up payment, and contact EPA's CDX Help Desk for assistance if necessary.

CDX Registration. CDX users will need to register with CDX. This involves selecting a user name and password, providing contact information, and identifying the facility and the registrant's role (e.g., AO or Support Registrant) at the facility. This is estimated to take an average of 10 minutes per user (EPA, [HYPERLINK \l "_ENREF_29" \o "U.S. Environmental Protection Agency (EPA), 2011 #21"]). Because there are assumed to be one manager and four technical staff registering, this results in an estimate that each respondent (business) will spend 10 minutes of managerial time and 40 minutes of technical time to register with CDX.

Subscriber Agreement/Electronic Signature Agreement. An AO must complete a subscriber agreement in order to establish their identity and their relationship to the entity for which they will submit electronic documents, as well as to document a unique correlation with the device that will be used to create their electronic signature. While users can comply with the subscriber agreement provisions in CDX either by submitting a paper subscriber agreement with a wet-ink signature or by submitting an electronic signature agreement, this analysis assumes that all AOs will submit electronic signature agreements. Preparing, submitting, and filing a subscriber agreement and an electronic signature agreement is estimated to require an average of 15 minutes of time per registrant (EPA, [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Author>U.S. Environmental Protection Agency (EPA)</Author><Year>2011</Year><RecNum>21</RecNum><DisplayText>2011b</DisplayText><record><rec-number>21</rec-number><foreign-keys><key app="EN" db-id="dzwvz5wwgt5s5ze0pzsvpaafapwv02v9p2wt">21</key></foreign-keys><ref-type name="Generic">13</ref-type><contributors><authors><author>U.S. Environmental Protection Agency (EPA),</author></authors></contributors><titles><title>Supporting Statement for EPA Information Collection Request Number 2002.05, "Cross-Media Electronic Reporting Rule" </title></titles><dates><year>2011</year><pub-dates><date>June 22, 2011</date></pub-dates></dates><publisher>Office of Environmental Information, U.S. Environmental Protection Agency</publisher><urls></urls></record></Cite></EndNote>]). Because only an AO may complete the subscriber and electronic signature agreement, this is assumed to be managerial time. In addition, the burden estimate is assumed to include identity verification through a third-party electronic verification process, which is an available service through CDX.

Payment via Pay.gov account. EPA estimates that one manager per company will spend approximately 0.13 hours setting up a Pay.gov ID account, logging into the system, finding the

appropriate form, and filling it out. This burden does not include the time required to click 'submit' on the form and wait for payment processing (EPA, 2009).

Help Desk. CDX users are assumed to spend an average of 4 minutes contacting EPA's CDX Help Desk for technical support (EPA, [HYPERLINK \l "_ENREF_29" \o "U.S. Environmental Protection Agency (EPA), 2011 #21"]), which results in an estimate of 4 minutes of managerial time and 16 minutes of technical time per respondent.

[REF _Ref460095319 \h * MERGEFORMAT] presents the burden and costs for electronic reporting.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Burden and Cost of Electronic Reporting Requirements (First Year, per Site) (2018$)

Reporting Activity	Clerical Labor (at $34.91/hour)		Technical Labor (at $78.63/hour)		Managerial Labor (at $78.77/hour)		Total Labor Cost	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)
CDX Registration	0	$0.00	0.67	$52.68	0.17	$13.39	0.84	$66.07
Electronic Subscriber Agreement/ Electronic Signature	0	$0.00	0	$0.00	0.25	$19.69	0.25	$19.69
E-Payment (Pay.gov ID)	0	$0.00	0	$0.00	0.13	$10.24	0.13	$10.24
Help Desk	0	$0.00	0.27	$21.23	0.07	$5.51	0.34	$26.74
						Totals	**1.56**	**$122.74**

Sources: Wage rates: see [REF _Ref507588209 \h * MERGEFORMAT]; Burden estimates: EPA, 2009 and EPA, 2011.

3.2.3 Form Completion and Submission Fee

Respondents who choose to submit a SNUN are required to gather and submit information regarding the data elements identified in the applicable SNUN reporting form. The methodology and calculations used in this analysis assume that the employee responsible for collecting, filling out, and submitting the requested information has a reasonable level of familiarity with the company and knowledge of operations at the site. It is assumed that, for most entities, these tasks are similar to other employee duties that require familiarity with EPA, State, and other Federal agency requests for chemical information and do not require additional familiarization or training beyond the basic rule familiarization described above. In addition, this analysis focuses on the marginal costs of submitting information for the rule and not the total costs for the company to comply with a range of other Federal and State environmental, health, and safety regulations or accounting requirements that rely on this type of information.

Estimates of the costs of completing a Significant New Use Notice (SNUN) form are based on the costs of completing a PMN submission, since the data requirements are the same and the same form is used for both.

The PMN submission burden came from EPA's 1994 *Regulatory Impact Analysis of Amendments to Regulations for TSCA Section 5 Premanufacture Notifications,* which relied on industry estimates of the effort needed to collect and compile all data required for a PMN submission, prepare the form, submit the form and data to EPA, and maintain a file of the submission (EPA, 1994, Table III-2 and pages III-11, -12, and -13). The 1994 estimates were based on a survey conducted by the Chemical Manufacturers Association, which became the American Chemistry Council. These burdens include "the time spent reading and becoming familiar with the form, gathering the required information and preparing the report, producing sanitized responses for items claimed as confidential business information, and maintaining a file of the submission" (EPA, 1994, p. III 11-13). The burden associated with SNUN submission and preparation has been adjusted to reflect burden reductions resulting from the 2009 final PMN Electronic Reporting (ePMN) Rule that requires the electronic submission of all TSCA section 5 notices. Electronic submission of SNUN forms is expected to remove all clerical burden and reduce the recordkeeping burden associated with preparing a SNUN (EPA, 2009).[1] In addition, electronic submission is expected to generate an additional 0.18 hours of technical burden, for the completion of the User Fee Payment Identification Number and email address data elements on the electronic SNUN form.

SNUN form completion and electronic submission is estimated to require 74.20 hours of technical labor and 18.00 hours of managerial labor (EPA, 2009). [REF _Ref507589029 \h] combines the estimated reporting burden and loaded wage rates for all three labor categories to estimate the per-SNUN cost of form completion. The labor cost incurred by a SNUN submission for both large and small business submitters is $7,252.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Cost Estimate to Complete the SNUN Form

Reporting Activity	Clerical Labor (at $34.91/hour)		Technical Labor (at $78.63/hour)		Managerial Labor (at $78.77/hour)		Total Labor Cost	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)

[1] *The Economic Analysis of the Premanufacture Notification Electronic Reporting Final Rule* (EPA, 2009) reported a 0.5 hour clerical and a 0.5 hour technical burden associated with recordkeeping in addition to the burden estimates from the 1994 RIA (EPA, 1994, p. III-14). These burden estimates (the 0.5 for clerical burden and 0.5 for technical burden) are based on the recordkeeping burden for polymer exceptions and not the recordkeeping burden associated with PMN submissions. Therefore, for this analysis, the 0.5 hour for clerical labor and the 0.5 hour for technical labor were removed. It is important to note that for this analysis, clerical burden changes are not applicable because the entire clerical burden is assumed to be eliminated under the electronic reporting requirements. In summary, these estimates do not include the one hour recordkeeping burden (0.5 hour for clerical, 0.5 for technical) reported in the ePMN EA.

Form Completion	0	$0.00	74.2	$5,834	18	$1,418	**92.2**	**$7,252**

Sources: The estimate of no clerical burden is taken from the *Economic Analysis of the Premanufacture Notice Electronic Reporting Final Rule* (EPA, 2009, page 7).
Technical and managerial labor burden is from the PMN Amendments RIA (EPA, 1994, Table III-2). An additional eleven minutes (0.18 hours) of technical burden is estimated to complete the User Fee Payment Identification Number and Email Address data elements on the Electronic SNUN form (EPA, 2009 page 15).
Wage rates: see [REF _Ref507588209 \h * MERGEFORMAT].

In addition, each submitting large business must pay a $16,000 per-SNUN submission fee, and each submitting small business must pay a $2,800 per-SNUN submission fee.[2] [REF _Ref507589088 \h] adds the labor cost and submission fee to estimate the total cost of a SNUN submission, which is $23,252 for large business submitters and $10,052 for small business submitters.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Cost Estimate to Complete and Submit the SNUN Form

Reporting Population	Labor Cost	Submission Fee	Total Cost (2018$)
Large Business Submitters	$7,252	$16,000	**$23,252**
Small Business Submitters	$7,252	$2,800	**$10,052**

Sources: [REF _Ref507589029 \h * MERGEFORMAT]; EPA, 1994

3.2.4 Recordkeeping

Recordkeeping for Companies Choosing to Submit a SNUN

Companies submitting a SNUN must, under 40 CFR §721.40, keep records of the information contained in the SNUN. Some EPA reports have assumed that SNUN recordkeeping hours would be five percent of SNUN submission hours, or about five to six hours.[3] For this report, the SNUN recordkeeping hours were included in the SNUN submission hours (see Section [REF _Ref507589236 \r \h]) and the SNUN recordkeeping costs under 40 CFR §721.40 were not separately estimated.[4]

Recordkeeping for Companies that do not Submit a SNUN

If a firm that manufactures, imports, or processes a product subject to the SNUR chooses not to submit a SNUN, EPA assumes they will keep records that document compliance with SNUR conditions for

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[2] On October 17, 2018 EPA published a rule raising the fee for SNUNs to $2,800 for small businesses and $16,000 for other businesses (83 FR 52694).

[3] For example, OPPT's Information Collection Request (ICR) for *TSCA Section 5(a)(2) Significant New Use Rules for Existing Chemicals (Renewal),* October 11, 2005, estimates SNUN recordkeeping costs at 5.67 hours (ICR 118.08, page 15).

[4] SNUN submission costs estimated in Section [REF _Ref507589236 \r \h] of this report were based on PMN submission costs from a 1994 report, *Regulatory Impact Analysis of Amendments to Regulations for TSC Section 5 Premanufacture Notifications* (EPA, 1994). Page III-14 of the 1994 report refers to "the normal records kept with a PMN submission which are included in the estimates for submission costs." Page III-12 identifies "maintaining a file of the submission" as part of the labor hours for the PMN reporting form. These statements imply that the 95 to 114 total hours for a PMN submission (page III-10 of EPA, 1994) included recordkeeping hours.

ED_005636_00006369-00021

avoiding a Significant New Use. Such recordkeeping is estimated to involve copying and filing relevant records, including those related to category of use. Because records for SNUNs must be maintained for five years from the date of their creation (40 CFR §721.40), EPA also assumes these records would be maintained for a similar amount of time. For firms that choose to not submit a SNUN, costs for compliance with the recordkeeping requirements are estimated to be five percent of the reporting burden for reporting information for a specific section of the SNUN form and are performed by clerical staff (EPA, 2012a, page 14). EPA used the per-activity burden for reporting, human exposure, category of use and releases to the environment presented in the *Information Collection Request (ICR) for TSCA Section 5(a)(2) Significant New Use Rules for Existing Chemicals (Renewal)* (EPA, 2012a, page 12). Any clerical burden associated with the original burden estimates for these activities was removed to reflect the burden reduction associated with electronic submissions (EPA, 2009).

The total recordkeeping burden for a company that does not submit a SNUN is estimated to be 0.15 hours and $5.24 and is derived in [REF _Ref507589330 \h].

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Annual Per-Chemical Costs of Recordkeeping Requirement for Companies that Choose not to Submit a SNUN

Reporting Activity	Total Burden Associated per Activity (hours)	Percent of Reporting Burden Attributed to Recordkeeping	Clerical Labor (at $34.91/hour)	
			(hours)	(2018$)
Category of use	3	5%	**0.15**	**$5.24**

Sources: [REF _Ref507588209 \h * MERGEFORMAT] and EPA, 2012a.

3.2.5 Customer Notification

Manufacturers, processors, and importers of products subject to SNURs must notify recipients of such products of the SNUR or verify that knowledge of the SNUR has been otherwise acquired by recipients, or that the recipients are unable to engage in significant new uses. Since it is not expected that all such entities will have complete knowledge of all uses of any products subject to a SNUR, and because filing a SNUN could require significantly more burden, it is assumed that manufacturers, processors, and importers will most often choose to notify their customers of SNUR regulatory activities. As this notification may be accomplished by simply annotating an SDS, EPA estimates the associated burden to be about one hour of a technical employee's time or $78.63 per manufacturer, processor, or importer per chemical (based on wage rates in [REF _Ref507588209 \h]).

3.2.6 Import Certification

In general, persons importing chemical substances must certify that they are in compliance with applicable rules and orders under TSCA or not subject to TSCA in accordance with TSCA Section 13

regulations at 19 CFR §12.118 to 12.127.[5] The statement must be on or attached to a commercial invoice or entry document belonging to the imported shipment.

Import certification is fulfilled by checking a box on an invoice or entry document and EPA assumes that it generally imposes no additional burden or cost on the importer. Any potential burden associated with submitter's familiarization with this requirement is assumed to be included in the more general SNUR familiarization burden discussed above.

3.2.7 Export Notification

Under Section 12(b) of TSCA, exporters must notify EPA if they export or intend to export a chemical subject to various TSCA sections (see the TSCA Section 12(b) regulations at 40 CFR §707.60 through 75). For TSCA 5(a)(2) (the section under which EPA promulgates significant new use rules) and certain other TSCA sections, this is a one-time notification requirement[6] per destination country for each exporter of a chemical substance. After receiving a notification from a firm, EPA notifies the importing country (40 CFR §707.70).

To calculate the burden associated with making a single export notification, EPA first estimated the average annual number of export notifications made by an exporter. EPA then derived the annual and per notification burden associated with preparing and submitting an export notification.

EPA estimated the average burden associated with making a single notification but did not estimate either the total number of exporters of a SNUR chemical or the number of notifications per SNUR chemical. This is because the SNUR applies to a variety of unrelated uses, manufacturers, and processors, making it impractical within the resources available for this report to assess the potential number of exporters and importing countries.

Most underlying data in this section come from the 2017 TSCA Section 12(b) ICR, ICR No.: 0795.15 OMB Control Number 2070-0030 [*Information Collection Request for] Notification of Chemical Exports - TSCA Section 12(b) Supporting Statement for Request for OMB Review under the Paperwork Reduction Act* (EPA, 2017d).

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[5] The exact statements are as follows: For imports of chemical substances subject to TSCA, "I certify that all chemical substances in this shipment comply with all applicable rules or orders under TSCA and that I am not offering a chemical substance for entry in violation of TSCA or any applicable rule or order under TSCA." For imports of chemical substances not subject to TSCA (e.g., pesticides), "I certify that all chemicals in this shipment are not subject to TSCA." (40 CFR §707.20)

[6] On November 14, 2006, EPA revised the export notification requirement for chemicals subject to TSCA §5(a)(2), 5(b), 5(e)(1) and 5(e)(2) from an annual to a one-time requirement per destination country for each exporter (November 14, 2006, 71 FR 66234).

ED_005636_00006369-00023

Estimated Number of Annual Export Notifications per Exporter

EPA's 2017 TSCA Section 12(b) ICR estimated that the average exporter *making notifications* would make 13 notifications per year.[7] This includes notifications resulting from SNURs and notifications resulting from other TSCA activities. A notification is typically no more than one page per chemical/country combination, and one notification mailing often includes multiple chemicals and/or destination countries.[8]

The percent of notifications resulting from SNURs in general is unknown, and it is also unknown how many notifications may result from this rulemaking, as not all manufacturers may choose to export a chemical, or they may make several notifications for a single chemical.

Exporter Costs

The 2017 TSCA Section 12(b) ICR (EPA, 2017d, page 9, Summary Table), estimated the annual export notification cost for an exporter under the one-time export notification requirement. These costs include the cost to the exporter of compiling a list of their products that are subject to TSCA Section 12(b) requirements, writing or revising an export notification letter to EPA, checking the outgoing shipments, and sending the notification letters with the associated shipping costs.

The per-notification cost was calculated based on the average burden per firm. Exporters who make a larger number of notifications per year may benefit from economies of scale and have lower costs per notification; conversely firms making fewer notifications may have a higher cost per notification.

Estimated Submission (Mailing) Costs. Regulated companies will incur mailing costs for export notifications delivered to EPA. Notifications are assumed shipped via the U.S. Postal Service (USPS) as first-class registered mail with a return receipt. Prices are 2018 rates (USPS, 2018). The estimated per-shipment and annual mailing costs incurred by individual submitters are detailed in [REF _Ref507582713 \h * MERGEFORMAT].

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[7] EPA calculated the average number of export notifications per exporter in the 2017 TSCA Section 12(b) ICR (EPA, 2017d) by dividing the estimated number of submitted notifications (3,090) by the estimated number of exporters (240).

[8] Based on review by an EPA economist of notifications received under TSCA Sections 4, 5 and 6 over approximately three weeks in early 2010.

ED_005636_00006369-00024

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Derivation of Total Mailing Cost for 13 Export Notification Notices

Postal Service	Cost (2018$)
Registered mail, *regular, with $0 declared value*	$11.90
Return receipt, *requested at time of mailing (receive hardcopy by mail)*	$2.75
Postage, *regular First Class, up to 1 ounce*	$0.50
Cost per Export Notice - Subtotal	**$15.15**
Total Mailing Cost for 13 Notices	**$196.95**

Sources: Mailing costs are 2018 rates (USPS, 2018). The mailing method comes from the *Economic Analysis of the Proposed Change to TSCA Section 12(b) Export Notification Requirements*, November 2005 (EPA, 2005), as clarified in a later SNUR economic analysis (EPA, 2007, Table 8).

Compile and Maintain the List of Products. Since TSCA §12(b) information collection activity has been in place for twenty years, most respondents will have already developed a list of their products subject to TSCA §12(b) export notification. Respondents need only check for new regulations promulgated and any new products exported by the company. Updating the list is estimated to take an average of one hour of technical time, which may also include some proportion of legal time (EPA, 2017d). The total burden can vary from two hours per year up to two hours per month, depending on the number of products exported by the company and the number of their products subject to TSCA §12(b) (EPA, 2017d).

The number of submitters per year who report under TSCA §12(b) has varied over time, rising from around 160 in 1991 to over 460 in 2000, and declining since. In the TSCA §12(b) ICR, EPA estimated that there would be approximately 240 submitters per year in near-future years (EPA, 2017d). Of these 240 submitters, EPA estimated that 160 companies were near the lower burden estimate of two hours per year, and 80 companies were near the upper estimate of 24 hours per year (EPA. 2017d). Compiling the list for all respondents was therefore estimated to take 2,240 hours (2 hours x 160 firms plus 24 hours x 80 firms), or an average of about 9.3 hours of technical time per firm per year for 13 notifications per year (EPA, 2017d).

Write or Revise Export Notification. Companies that export chemicals subject to TSCA §12(b) reporting must prepare an export notification to send to EPA when export shipments are made. Time for initial preparation of the export notice may vary depending on whether the company has prior experience with this requirement. This step is estimated to take an average of one hour of technical time (which may also include some proportion of legal time) per firm per year for 13 notifications per year (EPA, 2017d).

Check Orders and Send Notifications. Companies that export chemicals subject to TSCA §12(b) reporting must check outgoing shipments against the list of their products described above. A form letter notifying EPA and providing the required data must be printed and mailed within the required time period. This process is estimated to take an average one half hour of clerical time per export notification or 6.5 hours for 13 notifications (EPA, 2012b).

Total Burden and Cost per Notification. The burdens and associated costs for each notification activity are provided in [REF _Ref507582842 \h]. EPA estimates that the burden associated with making one notification is approximately 1.29 hours and $94.90.

ED_005636_00006369-00025

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: TSCA 12(b) Export Notification Cost per Notification

Activity	Technical Labor (at $78.63/hour)		Clerical Labor (at $34.91/hour)		Total	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)
Compile list	9.3	$731.26	0	$0.00	9.3	$731.26
Write letter	1	$78.63	0	$0.00	1	$78.63
Check order and send notice	0	$0.00	6.5	$226.92	6.5	$226.92
Mailing cost[1]	--	--	--	--	--	$196.95
Total per average facility[2]	10.3	$809.89	6.5	$226.92	16.8	$1,233.75
Total per Notification	**0.79**	**$62.30**	**0.5**	**$17.46**	**1.29**	**$94.90**

Sources: [REF _Ref507588209 \h * MERGEFORMAT] and EPA, 2012b.

Asbestos, as defined in this SNUR, is already subject to TSCA section rules that trigger the export notification provisions of TSCA section 12(b).[9] However, EPA will not require export notification for articles containing asbestos. **Therefore, this rule will not result in export notification costs under TSCA section 12(b).**

3.2.8 Article Importation and Processing

The SNUR contains a provision to eliminate the exemption for the importation or processing of articles containing asbestos subject to the rule. This will require importers and processors of these articles containing asbestos to notify EPA at least 90 days before importing or processing them. In addition, the rule may also affect firms that do not currently import or process articles containing asbestos, but who may be interested in importing or processing these articles in the future or who may be interested in ensuring that the articles they import or process are in compliance with the requirements of the SNUR. Although there are no specific requirements in the rule for these companies, they may choose to undertake some activities in order to assure themselves that they are not undertaking a new use. Importers have varying levels of knowledge about the chemical content of the articles they import, yet under TSCA the definition of "manufacture" means to "import…, produce or manufacture"[10] and importers are responsible parties under the SNUR. In order to understand and monitor their liability, companies might undertake a range of activities to ensure that the articles they import do not violate existing regulations.

Affected Entities

SNUR reporting requirements for persons who may process articles containing the chemical substance subject to the SNUR are described in 40 CFR §721.5; however, the reporting requirements for processors (including processors of articles containing the subject chemical) are specifically limited. As described in 40 CFR §721.5(c), a processor is not required to submit a SNUN if he can document that (1) he does not

[9] Asbestos is subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b).

[10] TSCA section 3(9).

ED_005636_00006369-00026

know the specific chemical identity of the chemical substance being processed; and (2) that he is processing the chemical substance without knowledge that the substance is subject to a SNUR. This analysis focuses on the standard business practices that a processor would already undertake that would serve to document compliance with the rule.

Potential Compliance Activities (Article Importers)

Given the existing regulatory limitations on certain chemicals both internationally and within the United States, certain regulated industries have begun to develop industry-wide processes and other resources to support companies that are interested in understanding and managing their supply chains. Because the rule would not prescribe the steps that an importer must take to identify a chemical subject to a SNUR in articles, there are a variety of specific actions that a company could take to identify specific substances in its articles. Importers are expected to take actions that are commensurate with the level of risk each company perceives, and the resources it has available.

There is currently no single widely accepted standard procedure to identify regulated chemicals in a supply chain; however, there are a number of organizations that help provide information on the content of articles, organize declarations from suppliers, or certify suppliers based on materials or processes used. Importers (or processors) subject to SNURs may refer to these sources for assistance in their own strategy to identify a chemical subject to a SNUR in articles.

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), has developed a *Standard Guide for Assessment of Materials and Products for Declarable Substances* ("ASTM F2577") which provides guidance for the decision process to assess materials and products for declarable substances. Based on ASTM F2577, the following list includes activities that an importer could perform to identify any restricted chemicals in imported articles. This list is intended to capture the general types of activities that might be performed.

1) **Understand applicable requirements (per firm cost).** The importer would need to read and understand the SNUR, within the context of the company's products. This burden is as derived in Section [REF _Ref253093676 \r \h] of this report.
2) **Identify the type of imported articles that potentially contain the restricted substance (per firm cost).** This determination may be done based on an understanding of the uses of the restricted substance and the application of any *a priori* knowledge of the material and its manufacture to assess the probability that each regulated substance may be present. This step is estimated to take between 2 hours (for companies with simple supply chains) and 24 hours (for companies with complex supply chains) of technical staff time.
3) **Identify all suppliers involved (per firm cost).** The importer may choose to identify all suppliers from whom the articles identified in the previous step are imported, and as necessary, make aware of the importer's potential notice obligations respecting the regulated chemical substance. This activity is estimated to take approximately 7 hours of technical staff time and 17 hours of clerical staff time.
4) **Collect data from suppliers (per article cost).** Importers may choose to obtain verification from suppliers identified in step 3 that the regulated chemical substance is not found in the article. This may be accomplished through, for example, agreements with suppliers, declarations through databases or surveys, or by using a third-party certification system. This step is estimated to take

ED_005636_00006369-00027

between 0.08 and 8 hours of technical staff time, depending on data collection method chosen, number of articles, number of suppliers, etc.

5) **Chemical testing (per article cost).** Importers may perform their own laboratory testing of certain articles (or components of articles) to determine if they contain the restricted substance. Test cost prices may range from $18 to $739 per sample, with an average of $128 over the 630 tests priced.
6) **Recordkeeping (per firm cost).** The importer may choose to keep records confirming the activities completed. This burden is as derived in Section [REF _Ref508107696 \r \h] of this report.

[REF _Ref508105188 \h] contains the cost ranges associated with the above activities, using the burden hours listed above and current wage rates (see [REF _Ref507588209 \h]). The activities and burden derivations are discussed in more detail in *Understanding the Costs Associated with Eliminating Exemptions for Articles in SNURs* (EPA, 2014b).

Variation in costs associated with these activities would depend on a company's level of activity to comply with other regulations on chemicals in articles, the complexity of the supply chains; and the size of the company. Total costs per importer will further depend on the number of affected articles and the frequency of supplier change.

The European Union's *Registration, Evaluation, Authorization and Restriction of Chemicals* (REACH) regulations prohibit the manufacture, placing on the market and use of certain asbestos fibers[11] and of articles and mixtures containing these fibres. (Exceptions to REACH's restrictions apply to diaphragms containing chrysotile for electrolysis installations, and articles containing asbestos fibres which were already installed and/or in service before January 2005 (ECHA, 2018). Additionally, all OECD (Organization for Economic Co-operation and Development) countries, except for Mexico and the United States, have placed bans on asbestos (ASEA, 2018; Canada, 2018).[12]

Firms that have previously selected suppliers that have agreed to uphold certain standards, or who have otherwise sufficiently demonstrated that they are not supplying asbestos-containing products, would not likely incur any additional costs associated with these activities. Essentially, the product's certification would allow importers or processors of articles to learn whether an article does or does not contain asbestos or whether suppliers have agreed to uphold certain production standards. There are labeling systems for products in which independent entities ensure that the production of products does not utilize specific chemicals. For example, the European Union has developed a voluntary labeling system, called the EU Ecolabel. Producers, importers and retailers can voluntarily apply for the EU Ecolabel (EC, 2017). Labeled products signal to consumers that the product in question has a reduced environmental impact

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[11] REACH restrictions apply to the following types of asbestos fibres: Crocidolite (CAS No 12001-28-4), Amosite (CAS No 12172-73-5), Anthophyllite (CAS No 77536-67-5), Actinolite (CAS No 77536-66-4), Tremolite (CAS No 77536-68-6), and Chrysotile (CAS No 12001-29-5 and 32207-32-0).

[12] Canada has recently finalized regulations prohibiting the import, sale and use of asbestos and the manufacture, import, sale and use of products containing asbestos in Canada, with a limited number of exclusions. Additional regulations prohibit the export of all forms of asbestos with a limited number of exceptions. These regulations came into force on December 30, 2018 (Canada, 2018).

ED_005636_00006369-00028

throughout the product's life cycle, such as the manufacturing stage and/or during the final product disposal. The criteria are specifically designed to focus on the stage of the life cycle where a product has the most environmental impact (EC, 2017).

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Range of Costs Associated with an Importer's Identification of Chemicals Subject to a SNUR

Activity	Cost (2018$)	Notes
Per Rule Costs		
Rule familiarization	$65	Discussed in Section [REF _Ref253093676 \r \h] of this document
Identify the type of imported articles that potentially contain the restricted substance	$157 to $1,887	Actual costs may vary based on number of articles imported and the complexity of the article itself (number of components)
Identify all suppliers involved	$1,144	Actual costs may vary depending on the number of articles imported, number of suppliers, and frequency of supplier changes
Recordkeeping	$5.24	Actual costs may vary depending on recordkeeping system already in place. This cost would particularly be associated with companies that have no previous experience complying with chemical restriction rules; companies that already have methods in place to identify chemicals in articles likely already have recordkeeping systems in place
Per Article-Related Costs		
Collect data from suppliers	$6.29 to $629 per article reviewed. $0 if no data collected.	Actual costs only apply to those companies that choose to collect data from suppliers. They will vary depending on the specific data collection method chosen. Total costs depend on considerations including the number of articles imported, number of suppliers, and frequency of supplier changes.
Chemical testing	$130 per article tested. $0 if no testing.	Actual costs only apply to those companies that choose to collect data from suppliers. They will vary depending on the specific chemical being tested for; the complexity of the article and sample preparation required; and the exact fees of the laboratory chosen for the analysis. Total costs per company will depend on considerations including the number of articles tested, which may be affected by the number of suppliers and risk associated with each, and frequency of supplier changes.

Source: [REF _Ref507588209 \h * MERGEFORMAT] and EPA, 2014b

Firms with less experience with other regulations that are planning to import articles that could potentially contain asbestos may incur a larger burden should they choose to conduct some or all of the activities listed above to ensure compliance. These firms may choose to reach out to a wide variety of upstream firms to gather information on the chemical content of articles for documentation. Firms may also choose to conduct additional research on their suppliers to ensure that they are purchasing from reputable manufacturers and chemical suppliers who will provide necessary technical support, as well as regulatory standards (AFIRM, 2011). Furthermore, a company could choose to have articles tested. If a company chooses to conduct testing they may also need to conduct additional research to ensure the laboratory is accredited, reliable and follows Good Laboratory Practices (GLP) (AFIRM, 2011). For those companies choosing to undertake actions to assess the composition of the articles they import, EPA expects that in

all likelihood, these importers would take actions that are commensurate with the level of risk (of a chemical to be a part of an article) each company perceives, and the resources it has available.

Potential Compliance Activities (Processors of Articles)

Under 40 CFR §721.5(a)(2), manufacturers, importers, or processors of subject chemical substances who distribute the substance in commerce must notify the recipient, in writing, of the applicability of SNUR requirements, or document that the recipient has such knowledge or will not undertake any significant new use described in the rule. Therefore, the article processor, as the recipient of any subject chemical substance, should receive written notification from the supplier, and would keep this documentation as part of their standard business practice.

Should a processor need to demonstrate compliance with the SNUR, it is expected that processors would use notification from the supplier or other shipping or labeling documents (such as Material Safety Data Sheets (MSDS), etc.) received with the article in the ordinary course of business.

To the extent that processors desire extra certainty that the articles they process are not subject to a SNUR, they may undertake the steps to identify regulated chemicals outlined above for importers.

3.3 Summary of Per Submission Costs, by Option

The number of firms affected by not making submissions to EPA is not known; therefore, costs are not aggregated across the affected entities. The following table summarizes the costs to comply with the rule, as described in more detail in section [REF _Ref242523921 \r \h] above.

ED_005636_00006369-00030

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Compliance Options and Associated Costs Incurred by a Firm Due to the SNUR

	Option[1]	Costs	Quantified Costs per Chemical (2018$)[2]
1.	Electronic submission of a Significant New Use Notice (SNUN), indicating to EPA that the firm would like to manufacture, import, or process the chemical for a Significant New Use as defined in the SNUR.	Costs of submitting a SNUN, including rule familiarization, CDX registration (for companies that are first-time submitters), form completion, user fee, and any test costs.[3]	$64.52 rule familiarization cost; $23,252 SNUN submission and recordkeeping cost for large businesses (including $16,000 fee) and $10,052 for small businesses (including $2,800 fee). EPA usually receives well under ten SNUNs per year[4]. First time submitters would incur $123 for CDX registration and associated activities. Companies manufacturing, importing, or processing a chemical currently used in commerce in the United States will incur a cost of $78.63 for notifying consumers of SNUR regulatory activities.
2.	Manufacture, import, or process in a way that avoids a Significant New Use.	Cost of the profit foregone as a result of not engaging in the commercial activity originally planned (opportunity costs), and recordkeeping.	Opportunity costs are not quantified. Other costs including rule familiarization ($64.52), recordkeeping ($5.24), and customer notification ($78.63) may apply. Costs associated with article importation may include activities such as article identification ($157 to $1,887), supplier identification ($1,144), recordkeeping ($5.24), collecting data from suppliers ($6.29 to $629 per article), and testing ($130 per article tested).

Notes:

[1] Firms may be subject to both options at once, since submission of a SNUN results in profits foregone as a result of not manufacturing, importing, or processing the chemical.

*[2] Quantified costs are attributable to the SNUR only if a firm would not otherwise follow the specified practices. Costs are detailed in Section [REF _Ref242523921 \r \h * MERGEFORMAT]. SNURs typically trigger export notification requirements at an estimated cost of $95 per notification. However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for products containing asbestos. Thus, there is no additional cost of export notification for this rule.*

[3] EPA does not require the development of test data for submission of a SNUN, although a firm may submit test data already in its possession and/or describe any other available data. Because EPA does not require the development of test data, EPA assumes that no firms will incur testing costs as a result of the SNUR.

*[4] See Section [REF _Ref507583440 \r \h * MERGEFORMAT] for more details.*

3.4 Likelihood of SNUN Submission

This analysis assumes that very few entities are expected to submit a SNUN. EPA has, over the years, promulgated SNURs that cover a total of more than 1,000 chemicals. In response, the Agency receives only a handful of SNUNs per year. For example, the number of SNUNs received was 4 in Federal fiscal year (FY) 2005, 8 in FY2006, 6 in FY2007, 8 in FY2008, 7 in FY2009, 2 in FY2010, 10 in FY2011, 10 in FY2012, 11 in FY2013, 19 in FY2014 and 9 in FY2015.[13] Of those SNUNs, only a fraction resulted from existing chemical SNURs promulgated under Section 5(a)(2) (EPA, 2012a).

[13] In-person count of SNUNs conducted by Kimberly Wilson of Abt Associates Inc, on April 8, 2010 at EPA's Confidential Business Information Center (CBIC) and updated values for FY2010 and FY2011 provided by Lynne Blake-Hedges of U.S. EPA on September 1, 2011. Updated values for FY2012 through FY2015 provided by Stephanie Suazo of U.S. EPA on May 18, 2016.

3.5 Potential for Subsequent Regulatory Actions

The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the SNUN is being reviewed).

Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions.

ED_005636_00006369-00032

4. Agency Costs

4.1 Review and Process SNUN Submissions

EPA's cost to review and process SNUN submissions is assumed to be represented by its costs for a larger category of similar TSCA section 5 notices that includes SNUNs. On October 17, 2018, EPA promulgated new user fees for actions under TSCA sections 4, 5, and 6 (83 FR52694). In developing the proposed fees, EPA estimated its total annual costs for processing, reviewing, and making determinations under TSCA section 5 between fiscal years 2019 and 2021. EPA estimated its direct and indirect costs for reviewing PMNs, SNUNs, and Microbial Commercial Activity Notices (MCANs) to be $18,934,659 per year during this period, and assumed that an average of 462 PMNs, SNUNs, and MCANs will be submitted per year.[14] This yields an average Agency cost of approximately $41,000 apiece for reviewing and processing PMNs, SNUNs and MCANs.[15] Thus, processing and reviewing any SNUNs submitted due to this SNUR is also expected to cost EPA approximately $41,000.

4.2 Export Notification Cost

Under TSCA section 12(b), exporters must notify EPA if they intend to export chemicals subject to SNURs, as described in Section [REF _Ref507585649 \r \h * MERGEFORMAT]. As described in that section, asbestos, as defined in this SNUR, is already subject to TSCA rules that trigger the export notification provisions of TSCA section 12(b). However, EPA will not require export notification for articles containing asbestos. Therefore, this rule will not result in additional export notification costs under TSCA section 12(b).

The Agency burden and cost due to TSCA §12(b) export notification result from three tasks. In the first task, EPA receives export notifications from companies that intend to export one of the chemicals subject to TSCA §12(b) (EPA, 2017d). In the second task, EPA staff prepares separate notification letters that are subsequently reviewed and delivered to importing countries, their embassies, or representatives, and to the importing country's U.S. embassies (EPA, 2017d). (See [REF _Ref507582713 \h * MERGEFORMAT] for the cost of mailing one notification). The third task is comprised of EPA staff responses to public inquiries and other TSCA 12(b) activities. The work of responding to non-routine requests for information and clarification from industry and importing countries, and of handling other tasks associated with the TSCA §12(b) program, was estimated to require roughly 400 hours per year (EPA, 2017d).

Because it is unknown how many, if any, notifications EPA will receive or send as a result of the current rulemaking, the costs to the Agency are presented per activity. The estimated burden for the first two Agency activities is provided in [REF _Ref507585698 \h * MERGEFORMAT]. Agency wage rates are derived in Appendix A.

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[14] Table 9 - Annual Section 5 PMN/SNUN/MCAN Cost Estimates. *EO 12866 Documentation; Draft Submitted to OMB – Technical Background Document (RIN 2070-AK27; Proposed Rule.* EPA-HQ-OPPT-2016-0401-0020. https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0401-0020.

[15] This $41,000 review cost is lower than the overall average cost of $55,200 for TSCA section 5 activities that EPA calculated for the 2018 proposed fees rule because the $55,200 value includes costs for activities (such as issuing SNURs following a PMN review and reviewing Notices of Commencement) that are not relevant to SNUNs.

ED_005636_00006369-00033

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: TSCA 12(b) Export Notification Cost: Agency Burden per Activity (2018$)

Agency Activity	EPA Labor (at $84.26/hour)		Mailing Cost	Total Agency Cost per Activity
	burden (hours)[1]	Cost (2018$)		
Process an incoming notification from an exporting company	0.1	$8.43	$0.00	$8.43
Prepare and mail a notification to an importing country	0.5	$42.13	$15.15	$57.28

Notes:
[1] The burden associated with an Agency activity is the burden for the Agency to process one incoming notification, or to prepare and mail an outgoing notification.
Sources: Appendix A of this report shows the derivation of Agency labor costs. Mailing costs are from [REF _Ref507582713 \h * MERGEFORMAT] of this report. Other burden estimates are from *ICR No.: 0795.14 [Information Collection Request for] Notification of Chemical Exports - TSCA Section 12(b) Supporting Statement for Request for OMB Review under the Paperwork Reduction Act* (EPA, 2017d).

ED_005636_00006369-00034

5. Benefits

Asbestos was listed as a known human carcinogen in the National Toxicology Program's First Annual Report on Carcinogens in 1980 (NTP, 2016). In 1988, EPA assessed the health hazards and effects caused by exposure to asbestos under the Integrated Risk Information System (IRIS) program and determined that asbestos exposure can lead to lung cancer and mesotheliomas (tumors arising from the thin membranes that line internal organs) (EPA, 1988). Many authorities have established that there is causal association between asbestos and lung cancer and mesotheliomas (NTP, 2016; ATSDR, 2001; IARC, 2012). EPA also noted in the Scope of the Risk Evaluation for Asbestos that there is a causal association between exposure to asbestos and cancer of the larynx and cancer of the ovary (IARC, 2012). There is also suggestive evidence of a positive association between asbestos and cancer of the pharynx (IARC, 2012; NRC, 2006), stomach (ATSDR, 2001; IARC, 2012), and colorectum (NTP, 2016; ATSDR, 2001; IARC, 2012; NRC, 2006; NRC, 1983; EPA, 1980). All types of asbestos fibers have been reported to cause mesothelioma (IARC, 2012).

Increases in lung cancer mortality have been reported in both workers and residents exposed to various asbestos fiber types as well as fiber mixtures (IARC, 2012). There is evidence in in-vitro, animal, and human studies that asbestos is genotoxic, meaning asbestos can damage an organism's genetic material (ATSDR, 2001). There is also evidence that asbestos exposure is associated with adverse respiratory system effects, such as asbestosis and immunotoxicity (ATSDR, 2001; EPA, 2017a).

While the SNUR would not address the risk from ongoing uses, a notification required by the SNUR would initiate EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. The SNUR may also help to limit future exposure to the chemical because a company may choose to modify planned uses in such a way that does not trigger a SNUR, as opposed to submitting a SNUN.

ED_005636_00006369-00035

6. Additional Analyses

Several statutes and executive orders (EOs) pertain to the SNUR. This chapter presents statements discussing paperwork reduction, unfunded mandates, regulatory planning and review, tribal governments, children's health, and environmental justice, among others.

6.1 Regulatory Flexibility Act

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*), the Agency hereby certifies that promulgation of this SNUR would not have a significant adverse economic impact on a substantial number of small entities. The rationale supporting this conclusion is as follows. The requirement to submit a SNUN applies to any person (including small or large entities) who intends to engage in any activity described in the rule as a significant new use. Where a use is new, by definition no small or large entities presently engage in such activities. Although some small entities may decide to manufacture or process a substance for the new use after the SNUR is promulgated, EPA receives very few SNUNs, and few of those are submitted by small entities. In response to the promulgation of SNURs covering over 1,000 chemical substances, the Agency receives only a handful of SNUNs per year. For example, the number of SNUNs was four in Federal fiscal year 2005, eight in FY2006, six in FY2007, eight in FY2008, seven in FY2009, two in 2010, and ten in 2011 (EPA, 2012a), for an average of 6 per year from all SNURs. Of those SNURS, only a fraction resulted from existing chemical SNURs promulgated under Section 5(a)(2) (EPA, 2012a), and only a portion were submitted by small entities. EPA has no reason to believe that this SNUR will alter the pattern of SNUN submissions that EPA has historically seen. In addition, the estimated reporting cost for submission of a SNUN is minimal regardless of the size of the firm, at about $23,250 for large firms, including SNUN recordkeeping and reporting costs. The Agency currently offers some relief to certain small businesses by reducing the SNUN submission fee from $16,000 to $2,800. This lower fee reduces the cost of submitting a SNUN to about $10,050 for smaller firms. During the six-year period from 2005 to 2010, only three submitters self-identified as small in their SNUN submission[16] (EPA, 2012a). EPA believes the cost of submitting a SNUN is relatively small compared the cost of developing and marketing a chemical new to a firm and that the requirement to submit a SNUN generally does not have a significant economic impact.

EPA believes that the potential economic impact of complying with a SNUR is not expected to be significant or adversely affect a substantial number of small entities.

6.2 Unfunded Mandates Reform Act (UMRA)

This action contains no Federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA, Public Law 104-4), 2 U.S.C. 1531-1538 for State, local, or tribal governments or the private sector. Based on EPA's experience with similar information collection rules, state, local, and tribal governments have not been affected by this reporting requirement, and EPA does not have any reason to believe that any state, local, or tribal government will be affected by this rulemaking.

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[16] As described in Section [REF _Ref184488 \r \h], the three "small" submitters were identified by review of actual SNUN submissions from the years 2005-2010.

ED_005636_00006369-00036

6.3 Paperwork Reduction Act (PRA)

According to the Paperwork Reduction Act (PRA), 44 USC 3501 et seq., an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information that requires Office of Management and Budget (OMB) approval under the PRA, unless it has been approved by OMB and displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in title 40 of the CFR, after appearing in the *Federal Register*, are listed in 40 CFR, part 9, and included on the related collection instrument, or form, if applicable. The information collection requirements related to this action have already been approved by OMB pursuant to the PRA under OMB control number 2070-0038 (EPA ICR No. 1188) and 2070-0030 (EPA ICR No. 0795).

If an entity were to submit a SNUN to the Agency, the annual burden is estimated to average 96.9 hours per response: 0.82 hours for rule familiarization (Section [REF _Ref300654011 \r \h * MERGEFORMAT]), 1.56 hours for CDX registration, CDX electronic signature, and pay.gov account setup (Section [REF _Ref300654049 \r \h * MERGEFORMAT]), 92.2 hours for form completion, submission and recordkeeping under CFR §721.40 (Sections [REF _Ref300654067 \r \h * MERGEFORMAT]), and 1 hour for consumer notifications (Section [REF _Ref508742917 \r \h][REF _Ref306877276 \r \h * MERGEFORMAT]) . The burdens for rule familiarization, CDX registration, CDX electronic signature, pay.gov account setup form completion, submission, and recordkeeping consumer notifications are approved under EPA ICR No. 1188 (OMB control number 2070-0038). Burden for export notification is approved under EPA ICR No. 0795 (OMB control number 2070-0030). The burden for export notification is estimated to be 1.29 hours per notification (Section [REF _Ref508742847 \r \h * MERGEFORMAT]). However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for articles containing asbestos. Therefore, there is no additional cost for export notification for this rule.

6.4 Executive Order 13132 – Federalism

Executive Order 13132, entitled *Federalism* (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." Policies that have federalism implications are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government" (64 FR 43255, August 10, 1999).

This action will not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999), because it will not have substantial direct effect on States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

6.5 Executive Order 12898 – Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* (59 FR 7629, February 16, 1994), establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

ED_005636_00006369-00037

This action will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). This action does not affect the level of protection provided to human health or the environment. The information collected under this rule would assist EPA and others in determining the potential hazards and risks associated with asbestos. Although not directly impacting environmental justice-related concerns, this information will enable the Agency to better protect human health and the environment, including in low-income and minority communities.

6.6 Executive Order 13045 – Children's Health

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997), requires EPA to identify and assess environmental health and safety risks that may disproportionately affect children. This type of analysis is required for rules that will have an impact of $100 million or more only. The impact of this SNUR will be less than $100 million and therefore no analysis of such impacts on children is required.

6.7 Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments

As required by Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000), EPA has determined that this rule does not have tribal implications because it will not have any effect on tribal governments, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in the Order.

6.8 Executive Order 13211 – Energy Supply, Distribution, or Use

This rule is not subject to Executive Order 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001), because it is not a significant regulatory action under Executive Order 12866 and is not expected to affect energy supply, distribution, or use.

6.9 Executive Order 13563 – Improving Regulation and Regulatory Review

Executive Order 13563, *Improving Regulation and Regulatory Review* (76 FR 3821, January 21, 2011), requires EPA to base regulations on the best available science, allow for public participation and the open exchange of ideas, promote predictability and reduce uncertainty, identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends, consider both the costs and benefits qualitatively and quantitatively and ensure regulations are accessible, consistent, written in plain language, and easy to understand.

The rule establishes reporting and recordkeeping requirements that apply to manufacturers (including importers) and processors of certain chemicals. Consistent with EO 13563, this document qualitatively and quantitatively describes both the costs and benefits of the rule as well as the underlying data used in the analyses. EPA chose the best available data to analyze the costs and benefits described in this document and the best analytic approaches given the available data and other constraints.

6.10 National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

The rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

6.11 Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

Under Executive Order 13771 (82 FR 9339, February 3, 2017), for each new significant regulatory action that imposes costs, EPA is to also issue two "deregulatory" actions. This action is not expected to be an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

ED_005636_00006369-00039

APPENDIX A - Wage Rate Calculations

This appendix describes the derivation of the fully loaded wage rates and inflation factors used in calculating costs of labor, materials, and other inputs. All cost estimates are presented in 2018 dollars.

The fully loaded unit labor cost for managerial, professional/technical, and clerical labor in the regulated industry and for EPA staff is estimated by adding fringe benefits and overhead costs to the hourly wage or annual salary for each category following the method described in *Wage Rates for Economic Analysis of the Toxics Release Inventory Program* (EPA, 2002b). This appendix describes the method employed to estimate the fully loaded unit labor costs for each labor category and presents the results of the analysis.

A.1 Derivation of Industry Unit Wage Rates

Wages and fringe benefit data for managerial, professional/technical[17], and clerical labor are from the BLS Employer Costs for Employee Compensation (ECEC) historical data for September 2018 (BLS, 2018).

The costs of fringe benefits such as paid leave and insurance, specific to each labor category, are taken from the same BLS report (BLS, 2018). Fringe benefits as a percentage of wages are calculated separately for each labor category. For example, the wage rate for professional/technical labor in 2018 was $46.60, and the average fringe benefit was $24.11. Therefore, fringe benefits as a percentage of wages were $24.11/$46.60 or approximately 51.74 percent (see Exhibit A-1).

An additional loading factor of 17 percent is applied to wages to account for overhead. This approach is used for consistency with Office of Pollution Prevention and Toxics (OPPT) economic analyses for major rulemaking such as *Wage Rates for Economic Analyses of the Toxics Release Inventory Program* (EPA, 2002). This overhead loading factor is added to the benefits loading factor, and the total is then applied to the base wage to derive the fully loaded wage. For example, fully loaded wage for professional/technical labor in 2018 was $46.60 × (1+ 0.5174 + 0.17) = $78.63.

Fully loaded costs for managerial, and clerical labor are calculated in a similar manner, as shown in Exhibit A-1.

[17] Past economic analyses have used the term "technical" labor. Here the category is called "professional/technical" labor, to make clear how it relates to BLS categories. In 2004, BLS changed from the Occupational Classification System, OCS, to the Standard Occupational Classification system, SOC. In the process, the "Professional specialty and technical" category became the "Professional and related" category. However, the coverage of the old and new occupational groups is approximately the same. See the BLS article, "Comparing Current and Former Industry and Occupation ECEC Series" (Weinstein and Loewenstein, 2004).

ED_005636_00006369-00040

Exhibit A-1 Derivation of Loaded Industry Wage Rates (2018$)

Labor Category	Data Source for Wage Information	Date	Wage (a)	Fringe Benefit (b)	Fringe as % wage (c)=(b)/(a)	Overhead as % wage[1] (d)	Fringe + overhead factor (e)=(c)+(d)+1	Loaded Wages (f)=(a)x(e)
Managerial	BLS ECEC, Private industry workers in manufacturing industries, "Management, business, and financial occupations"[2]	Sept 2018	$47.81	$22.83	47.75%	17%	1.65	$78.77
Professional/ Technical	BLS ECEC, Private industry workers in manufacturing industries, "Professional and related occupations"[2]	Sept 2018	$46.60	$24.11	51.74%	17%	1.69	$78.63
Clerical	BLS ECEC, Private industry workers in manufacturing industries, "Office and administrative support occupations"[2]	Sept 2018	$21.05	$10.28	48.84%	17%	1.66	$34.91

Notes:
[1] An overhead rate of 17% was used based on assumptions in Rice (2002) and U.S. EPA (2002).
Sources:
[2] *Employer Costs for Employee Compensation Supplementary Tables National Compensation Survey, September 2018, US Bureau of Labor Statistics, (BLS, 2018).*

A.2 Derivation of Agency Unit Wage Rates

Unit wage rates for EPA staff are calculated based on annual Federal salaries for the Washington-Baltimore area published by the Office of Personnel Management (OPM) and effective January 2018 (OPM, 2018). The average salary for one full-time equivalent (FTE) technical/professional staff member is estimated as the salary for a GS-13 Step 5 employee, which is $52.66 hourly without fringe benefits and overhead costs. In order to derive the fully loaded salary, EPA multiplied the annual salary by an assumed loading factor of 1.6 to reflect Federal fringe benefits and overhead, which results in a fully loaded wage rate of $84.26 (see Exhibit A-2).

The Agency loading factor of 1.6 is from an EPA guide entitled *Instructions for Preparing Information Collection Requests (ICRs)* (EPA, 1992, page 30, footnote 9). The 60 percent assumption was labeled "the benefits multiplication factor" in the EPA guide but has been used in many EPA OPPT ICRs to reflect both fringe benefits and overhead for Federal staff. For example, it was used in a document supporting EPA ICR No. 1139.06 (EPA, 2000), with the following explanation:

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The annual costs per FTE are derived by multiplying the annual pay rate by 1.6 (the benefits multiplication factor). The multiplication factor used is recommended in EPA's Office of Policy, Planning, and Evaluation's *Instructions for Preparing Information Collection Requests (ICRs)* (June 1, 1992). An EPA internal phone call between Carol Rawie (OPPT/EETD/RIB) and Carl Koch (OPPE/RMD/IMB) on May 3, 1994, indicated that the 1.6 factor included not only benefits but also overhead.

Fully loaded costs for Agency labor are shown in Exhibit A-2.

Exhibit A-2: Derivation of Loaded Agency Wage Rates (2018$)

Labor Category	Data Source for Wage Information	Date	Wage ($ per hour) (a)	Fringe Benefit (b)	Fringes as % wage (c)=(b)/(a)	Overhead as % wage (d)	Fringe + overhead factor (e)=(c)+(d)+1	Loaded Wages ($ per hour) (f)=(a)x(e)
EPA technical staff FTE	OPM Washington-Baltimore-Northern Virginia, DC-MD-PA-VA-WV, area, GS-13 Step 5 pay rates	Jan 2018	$52.66	Included in 60% overhead	N/A	60% [a]	1.6	$84.26

Notes:
[a] The 60% fringe-and-overhead rate is from an EPA guide, *Instructions for Preparing Information Collection Requests (ICRs)* (EPA, 1992, page 30, footnote 9).
Source: OPM, 2018

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APPENDIX B – References

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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 2/13/2019 6:27:11 PM
To: Ortiz, Julia [Ortiz.Julia@epa.gov]
CC: Mottley, Tanya [Mottley.Tanya@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Scarano, Louis [Scarano.Louis@epa.gov]
Subject: Merkley/Bonamici Letter on Talc
Attachments: Congressional Inquiry Response - Merkley - Talc & Asbestos 20190213.dox.docx; Merkley EPA letter (003).pdf

Importance: High

Julia- Please find attached our proposed response to the attached incoming. This version has OGC and NPCD concurrence. RAD has also reviewed. Once text is approved an identical letter can be duplicated for Congresswoman Bonamici.

Regards,

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

Congress of the United States

Washington, DC 20510

December 19, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

Ms. Nancy Beck
Deputy Assistant Administrator
Office of Chemical Safety and Pollution Prevention
U.S Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code: 7101M
Washington, DC 20460

Dear Acting Administrator Wheeler and Deputy Assistant Administrator Beck:

We write to express our deep concern about recent reporting from Reuters detailing the presence of asbestos in talcum powder products used in a variety of consumer goods, including baby powders commonly used on infants. Although baby powder is subject to regulation under the Federal Food, Drug, and Cosmetic Act, other talc products sold to consumers would be within the purview of the Toxic Substances Control Act (TSCA) and thus the responsibility of EPA. Ongoing efforts to reduce the health risks of asbestos exposure would be woefully incomplete if those efforts did not address TSCA-regulated talc products contaminated with asbestos.

Research shows that asbestos exposure is responsible for more than 15,000 deaths per year, causing mesothelioma; lung, ovarian, and laryngeal cancers; and respiratory diseases such as asbestosis. Asbestos is a known carcinogen, and one for which there is no controlled use or safe level of exposure.

Fifty-five countries have already banned asbestos. Unfortunately, the United States still permits the use of asbestos, joining such countries as China, India, and Russia, the latter of which remains by far the largest exporter of asbestos. Without a ban, the United States also imports millions of dollars' worth of asbestos-contaminated consumer goods every year. Independent testing as recently as 2018 found asbestos in children's toys, crayons, and cosmetics.

Because of serious health concerns, as well as the disturbing details in the recent Reuters report, please respond to the following questions:

1. What policies and guidance does EPA have in place or in development to reduce the presence of talcum powder or any other asbestos mixtures in household consumer goods?

2. Asbestos is a known carcinogen. What steps is the EPA taking to educate and protect pregnant women, infants, and other vulnerable populations and to help them minimize exposure to asbestos?

3. The Frank R. Lautenberg Chemical Safety for the 21st Century Act, signed into law in 2016, amended and updated TSCA and explicitly addressed previous limitations on EPA authority that prevented the agency from regulating asbestos.

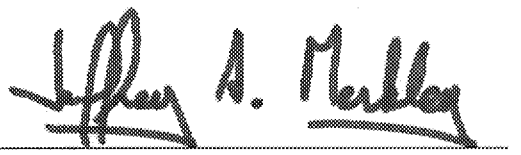
    a. Since that law was enacted, what populations has EPA identified as disproportionately at risk either because of greater exposure to asbestos or greater susceptibility to injury from asbestos?
    b. How has the identification of these populations affected EPA's decision to regulate or not to regulate asbestos?

4. EPA has proposed a significant new use rule (SNUR) under TSCA to prevent the introduction of new, potentially unsafe asbestos-containing products into commerce.

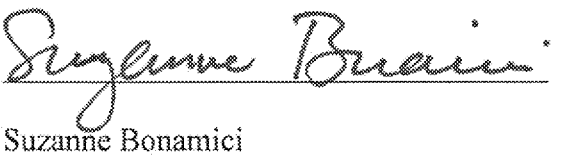
    a. When finalized, will the asbestos SNUR assure that EPA is notified of, and has the ability to restrict, all new consumer products contaminated with asbestos?
    b. If the SNUR will not accomplish this objective, please explain why.

As public servants, it is incumbent on us to ensure the health and safety of all Americans, especially those who are most vulnerable and most likely to be harmed by the presence of undisclosed asbestos. We look forward to receiving your responses to our concerns.

Respectfully,



Jeffrey A. Merkley
United States Senator



Suzanne Bonamici
United States Representative

Request for Non-Significance Determination

Office: OCSPP/OPPT
Title: Asbestos; Significant New Use Rule
SAN: 6677
RIN: 2070-AK45
Stage: Final Rule
Spring 2019 Proposed Reg Agenda Priority: Substantive, not significant.
Spring 2019 Proposed Reg Agenda EO 13771 Designation: Other; EO 13771 status not yet determined.

Description of the Action: Under the Toxic Substances Control Act (TSCA), EPA is finalizing a significant new use rule (SNUR) for asbestos. The Asbestos Hazard Emergency Response Act (AHERA) (TSCA Title II) defines asbestos as the asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite. The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required significant new use notice (SNUN) provides EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

A Significant New Use Rule (SNUR) involves already defined requirements, both in terms of what EPA must do to designate a "new use" for a particular chemical substance, and what the regulated entity must do in response to such a designation. Those requirements are not changed by an action for an individual chemical, such as this action. As a result, OMB determined in 1995 that SNURs do not generally meet the "significant regulatory action" criteria in section 3(f) of EO 12866 unless the SNUR involves unusual circumstances (e.g., existing chemical with impacts on existing stocks). There are no such unusual circumstances with this particular SNUR.

EPA's authority for this action is 15 U.S.C. 2604(a).

Background: EPA issued the proposed Asbestos SNUR on June 11, 2018, which opened a 60-day public comment period that closed on August 10, 2018. The Agency received nearly 5,900 public comments; however, the majority of comments were based on a misunderstanding of the scope and intent of the rule. Overall, the Agency received approximately 30 germane comments, half of which are substantive. Of the substantive comments, most suggested broadening the scope of the SNUR. In response to public comments, the Agency is revising the final rule to provide clarifications and ensure all discontinued uses of asbestos are subject to the rulemaking.

Based on public comments received, EPA is clarifying the following issues in the final rule:

- The distinction between a "new use" under the existing partial ban and a "significant new use rule"
- The Agency's review process of Significant New Use Notices
- Whether and how mining for asbestos is subject to the SNUR
- Whether and how recycling of legacy asbestos-containing material is subject to the SNUR

After consideration of the public comments, in addition to the 14 significant new uses identified in the proposed rule, in the final rule EPA is broadening the scope of regulated significant new uses of asbestos (including as part of an article) to include:

- Cement products
- Friction Materials (with some exception)
- Woven products
- Any other use of asbestos that is neither ongoing nor already prohibited under TSCA

Two issues raised in public comment that the Agency is not addressing in this final SNUR are 1) to require 12(b) export notification for all asbestos-containing articles; and 2) to require a significant new use notice for *any* asbestos mining in the United States. The Agency views including these two issues as actions to go beyond the intended focus of the SNUR. EPA is currently evaluating options for how these issues might be addressed in the future. For the first issue (export notification for articles), the Agency believes this would impact ongoing uses of asbestos, not just uses that have been discontinued as identified in the SNUR. EPA believes that this issue would be more appropriately addressed during consideration of any potential risk management actions following completion of EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination..

For the second issue (a notice for *any* asbestos mining beyond mining for the significant new uses), EPA believes if addressed that further opportunity for public comment would be useful prior to a final action.

Rationale: In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The risk evaluation focuses on the conditions of use of asbestos: the circumstances under which

asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by EPA prior to commencing.

Costs: In the event that a SNUN is submitted, costs (includes the most recent TSCA user fees) are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters. In addition, for persons exporting a substance that is the subject of a SNUR, a one-time notice to EPA must be provided for the first export or intended export to a particular country, which is estimated to be approximately $95 per notification. However, asbestos is already subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20), and the Agency is not requiring export notifications for articles containing asbestos as articles are generally excluded from the TSCA section 12(b) export notification requirements. Therefore, EPA assumes no additional costs under TSCA section 12(b) for this rule.

Timing: EPA plans to publish the final asbestos significant new use rule in the *Federal Register* on or before April 30, 2019.

Asbestos Significant New Use Rule (SNUR)

Action Being Taken

- EPA is finalizing a SNUR under section 5(a)(2) of the Toxic Substances Control Act (TSCA) for discontinued asbestos uses (no longer ongoing and not already prohibited).
- Persons subject to the asbestos SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use.
- Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

Scope of Action

- The Asbestos Hazard Emergency Response Act (i.e., TSCA Title II) defines asbestos as the asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite. *See* 15 U.S.C. 2642(3). The asbestos SNUR uses this definition of asbestos.
- The following discontinued (but not otherwise banned) uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Background on Partial TSCA Ban

- In 1989, EPA attempted to ban most asbestos-containing products by issuing a final rule under Section 6 of TSCA. However, the ban was partially vacated and remanded to EPA in 1991 by the Fifth Circuit Court of Appeals. As a result, the remaining partial 1989 asbestos ban prohibits five asbestos-containing products no longer in use at the time of the ban (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989.

Related Asbestos Action

- EPA designated asbestos as one of the first 10 chemical substances to undergo chemical risk evaluation under TSCA section 6(b)(2)(A) (81 FR 91927, December 19, 2016). The TSCA risk evaluation focuses on the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States (i.e., the conditions of use). The SNUR complements the TSCA section 6 risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (and therefore could resume at any time) must be reviewed and approved by EPA prior to recommencing.

Public Comments

- EPA issued the proposal on June 11, 2018, opening a 60-day public comment period that closed on August 10, 2018. In the proposal, EPA requested public comment on information regarding any ongoing uses not identified by the Agency as well as additional uses not identified as no longer ongoing. The Agency did not receive any comments that provided additional information regarding the ongoing uses or discontinued uses of asbestos.
- The Agency received nearly 5,900 public comments, the majority of which were anonymous. However, the Agency only received approximately 30 germane comments, half of which are substantive. Many of the other commenters mistakenly associated the term "new use" to mean that the Agency proposed to allow new uses of asbestos that were otherwise prohibited.
- EPA did not receive adverse comment from industry. One industry commenter did ask that EPA clarify that the SNUR would not regulate the disposal of asbestos-containing materials. EPA will clarify in the final rule that disposal of asbestos-containing materials is not subject to the SNUR.
- Of the substantive comments received, most suggested broadening the scope of the SNUR to cover all uses of asbestos that are no longer ongoing.
- Other comments received suggested that EPA:
    - Clarify the Agency's review process of Significant New Use Notices
    - Make mining for asbestos subject to the SNUR
    - Clarify whether recycling of legacy asbestos-containing material is subject to the SNUR
    - Apply the export notification requirements under TSCA section 12(b) to all the convered uses (articles).

Response to Public Comments

- The Agency agrees with commenters to broaden the scope of the rule to ensure any discontinued (but not banned) use of asbestos be subject to the rulemaking. Specifically, EPA is adding the following asbestos use categories to the existing 14 significant new uses of asbestos (including as part of an article) that were identified in the proposed rule:
    - Cement products
    - Friction Materials (with certain exception)
    - Woven products
    - Packings
    - Any other use of asbestos that is neither ongoing nor already prohibited under TSCA
- EPA disagrees that it should require export notification for articles under TSCA 12(b) as the provision would be triggered for both ongoing and discontinued uses of asbestos articles. EPA will not receive export notification for uses identified in the SNUR as they are no longer being manufactured, imported, or processed in the United States, and therefore, not exported. For ongoing uses, EPA believes the consideration of triggering 12(b) export notification for these uses would be more appropriately addressed during consideration of any potential risk management actions following completion of EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination.

- EPA agrees with commenters that mining for the significant new uses identified in the rule is subject to the SNUR because EPA considers mining to be production under the TSCA definition of manufacturing. Therefore, the Agency will indicate in the preamble that manufacturing by mining for a significant new use identified in the rule requires a SNUN.
- EPA disagrees that it should require a significant new use notice for *any* asbestos mining (or to include mining for ongoing asbestos uses) in the United States because an action to address ongoing uses of a chemical substance goes beyond the scope of a significant new use rule, which is to address uses that are no longer ongoing.

Rule Costs:
In the unlikely event that a SNUN is submitted, costs (including the most recent TSCA user fees) are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters.

Timing:
EPA plans to publish the final asbestos significant new use rule in the *Federal Register* on or before April 30, 2019.

Asbestos Significant New Use Rule (SNUR)

Action Being Taken

- EPA is finalizing a SNUR under section 5(a)(2) of the Toxic Substances Control Act (TSCA) for discontinued asbestos uses (no longer ongoing and not already prohibited).
- Persons subject to the asbestos SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use.
- Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

Scope of Action

- The Asbestos Hazard Emergency Response Act (i.e., TSCA Title II) defines asbestos as the asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite. *See* 15 U.S.C. 2642(3). The asbestos SNUR uses this definition of asbestos.
- The following discontinued (but not otherwise banned) uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Background on Partial TSCA Ban

- In 1989, EPA attempted to ban most asbestos-containing products by issuing a final rule under Section 6 of TSCA. However, the ban was partially vacated and remanded to EPA in 1991 by the Fifth Circuit Court of Appeals. As a result, the remaining partial 1989 asbestos ban prohibits five asbestos-containing products no longer in use at the time of the ban (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989.

Related Asbestos Action

- EPA designated asbestos as one of the first 10 chemical substances to undergo chemical risk evaluation under TSCA section 6(b)(2)(A) (81 FR 91927, December 19, 2016). The TSCA risk evaluation focuses on the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States (i.e., the conditions of use). The SNUR complements the TSCA section 6 risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (and therefore could resume at any time) must be reviewed and approved by EPA prior to recommencing.

Public Comments

- EPA issued the proposal on June 11, 2018, opening a 60-day public comment period that closed on August 10, 2018. In the proposal, EPA requested public comment on information regarding any ongoing uses not identified by the Agency as well as additional uses not identified as no longer ongoing. The Agency did not receive any comments that provided additional information regarding the ongoing uses or discontinued uses of asbestos.
- The Agency received nearly 5,900 public comments, the majority of which were anonymous. However, the Agency only received approximately 30 germane comments, half of which are substantive. Many of the other commenters mistakenly associated the term "new use" to mean that the Agency proposed to allow new uses of asbestos that were otherwise prohibited.
- EPA did not receive adverse comment from industry. One industry commenter did ask that EPA clarify that the SNUR would not regulate the disposal of asbestos-containing materials. EPA will clarify in the final rule that disposal of asbestos-containing materials is not subject to the SNUR.
- Of the substantive comments received, most suggested broadening the scope of the SNUR to cover all uses of asbestos that are no longer ongoing.
- Other comments received suggested that EPA:
    - Clarify the Agency's review process of Significant New Use Notices
    - Make mining for asbestos subject to the SNUR
    - Clarify whether recycling of legacy asbestos-containing material is subject to the SNUR
    - Apply the export notification requirements under TSCA section 12(b) to all the convered uses (articles).

Response to Public Comments

- The Agency agrees with commenters and is finalizing the rule to ensure any discontinued (but not banned) use of asbestos be subject to the rulemaking. Specifically, EPA is broadening the SNUR to add the following use categories to the existing 14 significant new uses of asbestos (including as part of an article) that were identified in the proposed rule:
    - Cement products
    - Friction Materials (with certain exception)
    - Woven products
    - Packings
    - Any other use of asbestos that is neither ongoing nor already prohibited under TSCA
- EPA disagrees that it should require export notification for articles under TSCA 12(b) as this would impact both ongoing uses of asbestos articles and discontinued ones identified in the SNUR. EPA believes this issue would be more appropriately addressed during consideration of any potential risk management actions following completion of EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination.
- EPA also disagrees that is should require a significant new use notice for *any* asbestos mining in the United States. EPA does agree with commenters that mining for significant

new uses identified in the rule is subject to the SNUR because EPA considers mining as production under the TSCA definition of manufacturing. Therefore, the Agency will indicate in the preamble that manufacturing by mining for a significant new use identified in the rule requires a SNUN.

Rule Costs:
In the unlikely event that a SNUN is submitted, costs (includes the most recent TSCA user fees) are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters.

Timing:
EPA plans to publish the final asbestos significant new use rule in the *Federal Register* on or before April 30, 2019.

Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions
Rotterdam Convention
Ninth Meeting of the Conference of Parties
Geneva, Switzerland
April 29 – May 10, 2019

Agenda Item 5(b): **Matters related to the implementation of the Convention: Listing of chemicals in Annex III to the Convention (chrysotile asbestos)**

Relevant Documents: **UNEP/FAO/RC/COP.9/10** Inclusion of chrysotile asbestos in Annex III to the Rotterdam Convention
UNEP/FAO/RC/COP.9/10/Add.1 Inclusion of chrysotile asbestos in Annex III to the Rotterdam Convention: draft decision guidance document
UNEP/FAO/RC/COP.5/26, annex IV

U.S. Objectives:

- Support the listing of chrysotile asbestos in Annex III by consensus.

Issues:

The Conference of the Parties is expected to consider a decision to list chrysotile asbestos (CAS No. 12001-29-5) under the industrial chemical category in Annex III to the Rotterdam Convention, with an entry into force date for all parties on September 16, 2019, and to approve the associated draft decision guidance document set out in the annex to document UNEP/FAO/RC/COP.9/10/Add.1.

If consensus is reached to list, the draft decision prepared at COP 5 (UNEP/FAO/RC/COP.5/26, annex IV) regarding follow-up action by the Chemical Review Committee on sharing information regarding alternatives and risk management measures would also be considered by the COP for adoption.

U.S. Position:

The United States supports the adoption of the decision as proposed. The USG agrees that all the requirements for listing in Annex III have been met and supports the proposed date for entry into force of September 16, 2019, and the approval of the draft decision guidance document. The United States also could support the adoption of the decision prepared at COP 5 calling for submission and sharing of information regarding alternatives and risk management measures for chrysotile asbestos.

The United States' preference has always been to list chrysotile asbestos, although reaching consensus to list chrysotile asbestos has been an issue since COP 3. At earlier COPs, the U.S. delegation abstained from publicly taking the floor in support of a listing at the request of Canada. However, at COP7 Canada changed its position from blocking consensus to not expressing a view, and the United States did intervene to support listing. The United States also intervened to support listing at COP 8 [Did the delegation intervene?]. It is not yet clear whether the other delegations that blocked consensus at COP8 (i.e., the Russian Federation, Zimbabwe, Kyrgyzstan, Kazakhstan, Cuba, and India [list of countries blocking consensus at COP7 - was this also the case at COP8?]) will allow this chemical to move forward to listing.

The U.S. delegation should remain firm in its position that all listing decisions should be made by consensus and may draw on its additional points on consensus, as appropriate. That being said, it is likely that repetitive interventions for each and every chemical where consensus may not be reached would be unwelcomed in the plenary and would perhaps only serve to dilute our strong message and a dismissal of our views. The delegation should affirmatively use its corridor conversations and JUSSCANNZ partners to reinforce the consensus obligation where possible and, once on the ground, decide how best the delegation should make its invention(s) on consensus based on the flow and tenor of the meeting and where the intervention(s) would be most effective.

Talking points (if needed):

- (*If listing looks probable*) The United States supports adding chrysotile asbestos to Annex III of the Convention. We appreciate the efforts of those who are willing to support listing today and we are pleased that consensus has been reached. Consensus decision-making is an important aspect of multilateral environmental agreements since it is a measure of the commitment of each Party to the outcome.

- *(If listing looks unlikely or consensus cannot be reached)* The United States is disappointed that yet again consensus is unable to be reached. As we have noted in the past, we believe that the consensus obligation of this Convention is very important. We look forward to continuing discussions this week with hopes for improvements in the CRC process, the work of the Secretariat, and in our collective diplomatic efforts to engage all Parties in meaningful technical and policy discussions.

Background:

The crocidolite form of asbestos was carried over from the voluntary PIC procedure and included in Annex III of the Convention text. This listing did not include the chrysotile form of asbestos.

Chile and the European Community (EC) proposed listing [Language from COP8 position paper – did the countries propose listing or did the committee review the notifications of final regulatory action that the countries submitted, and subsequently recommend listing?] five additional forms

ED_005636_00006458-00002

of asbestos, including chrysotile, at the third Interim Chemical Review Committee (IRCR3) in 2002. By ICRC4 in 2003, Canada was already unhappy with the direction of the Committee but the DGD was completed and the listing recommendation sent forward. Canada requested a deferral on the decision on chrysotile.

In 2004, a special meeting was convened immediately preceding the first Conference of the Parties (COP1) to consider the inclusion of chrysotile asbestos and other chemicals in the interim procedure, but to no avail. Canada and others maintained that serpentine (chrysotile) asbestos is inherently less toxic than the amphibole forms of asbestos which had already been listed in Annex III. They also argued that chrysotile is hazardous only if the fibers are inhaled. In their stated view, if asbestos fibers are enclosed or tightly bound in a product, for example in asbestos siding or asbestos floor tiles, there are no significant health risks because the asbestos fibers would not be present in the air that people breathe. The United States, on the other hand, believes that there is insufficient information to support regulations which differentiate between chrysotile and other forms of asbestos. The United States continues to regulate serpentine (chrysotile) asbestos and the amphibole forms of asbestos with equal stringency.

At CRC2, in 2006, several experts demanded a vote to move the draft DGD forward. The vote was taken and the required two-thirds majority of the Committee supported forwarding the draft DGD to the COP.

Consensus to list, however, was determined not to be possible at COP3 due to opposition by Canada, Russia, Ukraine, and Kyrgyzstan (primarily). COP4 was again unable to reach consensus. Kazakhstan, Kyrgyzstan, Ukraine, Vietnam, Russia and Zimbabwe all opposed listing chrysotile asbestos. Canada also opposed the listing but was largely silent during the floor debate. COP5 failed to reach consensus. Canada had withdrawn their objections to listing at COP6; however, COP6 failed to reach consensus based on objections from others, notably Russia supported by Zimbabwe, Kyrgyzstan, Kazakhstan and India. At COP7 Russia opposed its listing, as did Zimbabwe, Kyrgyzstan, Kazakhstan, India, Cuba, Pakistan, and Belarus (a non-Party). The same materials prepared at CO4 were reviewed by COP5, COP6, COP7, and COP8 and will be presented to COP9.

The 1993 U.S. EPA IRIS assessment of asbestos classified these chemicals as human carcinogens based on the observation of increased mortality and incidence of lung cancer, mesotheliomas and gastrointestinal cancer in occupationally exposed workers, consistent across investigators and study populations. Animal studies by inhalation in two strains of rats showed similar findings for lung cancer and mesotheliomas. Animal evidence for carcinogenicity via ingestion is limited and epidemiologic data in this regard are inadequate. The IRIS assessment also found that there is some evidence which suggests that the different types of asbestos fibers vary in carcinogenic potency relative to one another and site specificity. It appears, for example, that the risk of mesothelioma is greater with exposure to crocidolite than with amosite or chrysotile exposure alone. This evidence is limited by the lack of information on fiber exposure by mineral type. Other data indicates that differences in fiber size distribution and other process differences may contribute at least as much to the observed variation in risk as does the fiber type itself.

In November 2016, U.S. EPA announced asbestos, to include chrysotile asbestos, as one of ten chemicals to undergo risk evaluation by the end of 2019. If unreasonable risks are identified, U.S. EPA must take final risk management action within two years, as required by the Toxic Substances Control Act (TSCA), as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act. Asbestos has not been mined in the United States since 2002, but the United States continues to import some asbestos-containing products (worth $4.63 million in 2015) from multiple countries (Belgium, Brazil, Canada, China, El Salvador, Germany, Italy, Japan, Israel, Mexico, Norway, Peru, Spain, Switzerland, Taiwan, United Kingdom) and import raw chrysotile asbestos (750 340 metric tons from Russia and Brazil in 2018 86) for use in diaphragms for the chlor-alkali process.

Commented [A1]: Consider deleting unless this can be confirmed.

Commented [A2]: USGS only mentions Brazil—stating "predominately from Brazil"

In August 2018, U.S. EPA proposed a significant new use rule (SNUR) for certain uses of asbestos (including asbestos-containing goods) that would require manufacturers and importers to receive U.S. EPA approval before restarting or resuming manufacturing and importing or processing of asbestos. This review process would require U.S. EPA to evaluate the intended use of asbestos and, when necessary, take action to prohibit or limit the use. This proposed SNUR broadens U.S. EPA's 1989 restrictions on asbestos products. U.S. EPA is proposing to ensure that the manufacture, import, or processing for the currently unregulated new uses of asbestos identified in the rule are prohibited unless reviewed and approved by U.S. EPA. In the absence of this proposed rule, the importing or processing of asbestos (including as part of an article) for the significant new uses proposed in this rule may begin at any time, without prior notice to U.S. EPA.

Drafted: EPA/OCSPP/OPPT Laura Nazef

Cleared:

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 2/8/2019 8:31:07 PM
To: Clark, Sharon [Clark.Sharon@epa.gov]
CC: Scheifele, Hans [Scheifele.Hans@epa.gov]; Pierce, Alison [Pierce.Alison@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Coleman, Todd [coleman.todd@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]
Subject: Asbestos SNUR Meeting Request for AA
Attachments: OPPT MTG REQUEST FORM asbestos SNUR.PDF

Good afternoon,

Please find the meeting request to brief Alex on outstanding issues with the SNUR, as requested by Jeff. This is a quick turnaround request to stay on the current schedule with finalizing the asbestos SNUR. Briefing materials will be provided asap.

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

American Water Works Association

Dedicated to the World's Most Important Resource™

Government Affairs Office
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T 202.628.8303
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March 21, 2019

Robert Courtnage
National Program Chemicals Division (Mail Code 7404T)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460–0001

RE: Asbestos; Significant New Use Rule, Docket No. EPA–HQ–OPPT–2018–0159

Mr. Courtnage:

The question of whether asbestos cement pipe is still in use in the United States arose in the above referenced docket. The American Water Works Association has contacted fellow associations with relevant expertise, water supply product certification agencies, water systems with historic AC pipe installations, and subject matter experts within our membership regarding the potential for continued importation or use of AC pipe in the U.S. We found the following:

1. AWWA Standards – All AWWA standards for AC pipe and AC pipe installation have been withdrawn. Many if not all state Safe Drinking Water Act primacy agencies, professional civil engineers, and water utilities reference AWWA standards in designing community water system water distribution systems as well as procuring pipe and pipe installation services. Please note that AWWA maintains standards for concrete pressure pipe, which is distinctly different from AC pipe, and uses Portland cement in the concrete and mortar, but no asbestos.

2. NSF 61 – Nationwide, state SDWA primacy agencies (except for Hawaii) require that products that come in contact with drinking water, including distribution system piping, adhere to NSF 61. Listings of certified pipe products are available on-line from NSF International and UL; neither contains AC pipe products. UL and NSF are the largest standard certification organizations in the water sector; their staff confirmed this assessment for products certified by their organization.

3. U.S. pipe producers are not importing AC pipe – Manufacture of AC pipe in the U.S. is not allowed. Manufacturers in AWWA's membership, as well as members of associations for concrete and iron pipe products indicate they are focused on producing their own products for sale and are not aware of importation of a competing product line made of asbestos cement.

4. Distributors provide products that are specified – AWWA's members include the major distributors of water pipe product lines. Distributors contacted did not recall maintaining AC pipe products since before the initial ban on asbestos products in the U.S. They also commented that in addition to the regulatory and health concerns associated with AC pipe, there were products with better performance characteristics available.

5. Utilities are replacing existing AC pipe with alternative materials – Utilities report that AC pipe was installed for a period of time and that as that pipe reaches the end of its useful life, utilities are replacing it with modern pipe. This can be done in keeping with applicable requirements under the Clean Air Act, Occupational Safety and Health Administration standards, and Comprehensive Environmental Response, Compensation and Liability Act.

6. Contractors responsible for installation must assure that pipe products received for installation are those specified – As noted above, water systems are not specifying the installation of AC pipe. Consequently, in addition to maintaining compliance with proper personal protective and disposal practices for installed AC pipe encountered in the field, contractors monitor received shipments of pipe to assure that newly installed pipe meets specifications for the installation at hand.

If you have any questions regarding this correspondence or if AWWA can be of assistance in some other way, please contact me or Steve Via at (202) 326-6130 or svia@awwa.org.

Best regards,

G. Tracy Mehan, III
Executive Director – Government Affairs

cc: Alexandria Dunn, EPA/OPPT
Jennifer McLain, EPA/OW/OGWDW

Who is AWWA

The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our membership includes more than 4,000 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000-plus total membership represents the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 2/6/2019 8:49:02 PM
To: Symmes, Brian [Symmes.Brian@epa.gov]
CC: Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]
Subject: FW: Agenda/ Brief Outline for Asbestos SNUR Meeting with Jeff
Attachments: Asbestos SNUR Meeting Agenda OPPT IO 20190207.docx

Thanks Brian. See attached. Either sharepoint or attached file is fine.

-Robert

From: Courtnage, Robert
Sent: Wednesday, February 06, 2019 3:45 PM
To: Mottley, Tanya <Mottley.Tanya@epa.gov>
Cc: Carmichael, Lea <carmichael.lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>
Subject: RE: Agenda/ Brief Outline for Asbestos SNUR Meeting with Jeff

Okay, will send to Brian and copy you.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Mottley, Tanya
Sent: Wednesday, February 06, 2019 3:41 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Carmichael, Lea <carmichael.lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>
Subject: Re: Agenda/ Brief Outline for Asbestos SNUR Meeting with Jeff

I'm in meetings until 4:30 PM. If review is needed before then, please see if Brian can review it now. Thanks.

Tanya

Sent from my iPhone

On Feb 6, 2019, at 3:39 PM, Courtnage, Robert <Courtnage.Robert@EPA.GOV> wrote:

> Tanya-
>
> We put together a paper to help guide the SNUR discussion tomorrow. We plan to get into more of the nuances/details verbally during the meeting tomorrow and decide what the options should be--and whether they need to be raised to the OCSPP IO before proceeding.
>
> https://usepa.sharepoint.com/sites/OCSPP/OPPT/npcd/FOB/asbestos/Shared%20Documents/SNUR/Final%20SNUR/Asbestos%20SNUR%20Meeting%20Agenda%20OPPT%20IO%2020190207.docx?web=1

-Robert

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General with NPCD Managers
April 25, 2019

Decision/Action Items

- None

Update/Discussion Items

Priority Chemicals –

- **Manufacturers Request – DINP/DIDP**
  - **04/11/19** – OPPT sent letter to ACC stating that two requests were facially incomplete
  - OGC advises that ACC may submit, but representatives of manufacturers must certify; new requests certified by manufacturers soon

Lead –

- **CDC BLRV Notice**
  - CDC updating BLRV from 5 µg/dL to 3.5 µg/dL for children ages 1-5 years based on recent data from National Health and Nutrition Examination Survey (NHANES)
  - CDC requesting comment regarding the implications of this update for state and local health departments, health care providers, and clinical laboratories; will seek public comment to understand barriers or challenges related to implementation of the updated BLRV
  - OP is working with OMB to schedule a meeting with CDC to discuss CDC's revised notice and their responses to the interagency comments received; OPPT's role in this meeting?
- **Lead Hazard Standards**
  - **04/15/19** – Pre-interagency review briefing with OMB; rule package transmitted to OMB
  - **04/17/19** – Draft responses to OMB questions sent to OCSPP IO for review
  - **04/18/19** – Interagency review intro briefing
  - **06/17/19** – OMB review ends
- **HUD Lead Hazard Control Grant Programs and EPA RRP/Abatement Certifications**
  - HUD requested blanket enforcement discretion (by OECA) so its grantees that perform RRP-regulated "interim controls" will not have to obtain RRP certification; OECA does not believe that enforcement discretion warranted
  - HUD preparing paper to explain position and requested meeting at OD level with OPPT and OECA; OECA staff in discussions with HUD on whether meeting is necessary
- **OIG Discussion Document on RRP Evaluation**
  - Recommendations made for OCSPP & OECA
    - "EPA does not have an effective strategy to implement and enforce the lead-based paint rule"
    - OCSPP should update NPM guidance & establish annual commitment goals
  - **04/09/19** – OECA/OPPT met with OIG to provide comments on factual accuracy and discuss draft recommendations; draft report for review/written comments expected in 1-2 months

Formaldehyde –

- **Rules**
  - NPRM Technical Amendments
    - At OCSPP IO for review
  - ~~Rule Guidance Materials~~
    - ~~Working on posting to HCHO website list of HTS codes with Disclaimer~~
  - Proposed HUD Rule – Streamlining and Aligning Formaldehyde Emission Control Standards for Certain Wood Products in Manufactured Home Construction with Title VI of the Toxic Substance Control Act
    - Public comment period closed 04/22; NPCD reviewed and has no comments
- ~~Enforcement Issue~~

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- NPCD working with OECA and OGC on an enforcement case involving Turner Construction who imported cabinets fabricated from panels that are neither TSCA Title VI or CARB ATCM Phase II certified. The cabinets were allegedly fabricated using E1 certified panels. OPPT is requesting additional information from the panel manufacturer to determine formaldehyde emissions levels and to confirm certification to the E1 standards. This information will assist OECA in making enforcement-related decisions.

2.

- **HCHO Rule Section 13 Import Certification**
  - OECA engaged in oversight of importer submissions to ACE; some compliance issues found (OECA following up with NPCD assistance)
- **Public Workshop on Laminated Products/Petition Process**
  - Working on schedule for fall public meeting (drafting agenda, FRN)
  - AHFA asked to meet with NPCD (Erik) on 05/16 to discuss status
- **TPC Recertification**
  - TPC transition period ended 03/22/19; out of 36 previously EPA-recognized TPCs, 8 did not submit the required scope of accreditation documents
  - Agency needs to discuss and agree on process for conducting hearings if requested by TPCs due to potential revocation of EPA recognition

PCBs –

- **R3 PCB in Fill Dirt**
  - Jurisdictional filing extended to 05/20
  - NPCD leading small workgroup to work through the issues with OGC, OLEM and Regions on options for settlement proposal (options in 4-6 weeks) for consideration by political leadership

Asbestos –

- **Final SNUR**
  - ~~Signed 4/17; in with OFR for publication~~Published in Federal Register on 4/25. Press largely positive and accurate; ADAO and other advocates however criticized the rule as insufficient, not being an asbestos ban.
- **Technical Assistance on House Ban Bill**
  - HEC minority staff requested TA on draft bill (Merkley) to ban all asbestos and require EPA to assess legacy uses
  - Held a call 04/11 and requested follow-up TA in writing; draft with IO for review as of 04/23
  - Similar TA request for identical Senate companion bill

PBTs –

- **General Updates**
  - **04/18/19** – Pre-interagency review briefing with OMB
  - **04/19/19** – Rule package sent to OP for transmittal to OMB for interagency review
  - **04/22/19** – Interagency review intro briefing
    - NASA not happy about Deca ban, lack of risk assessment, and expedited review
    - Several agencies request separating single final rule per chemical (5 rules), as directed by OMB
    - 60-day review will begin sometime this week (waiting for OBS to get the rule)

Mercury –

- **Mercury Inventory Reporting Rule**
  - Mercury Electronic Reporting (MER) webinar PowerPoint and comms package re: overview of rule and reporting requirements at OCSPP IO; targeting late May for overview (NPCD) and live demo of application (IMD/CGI) webinars
  - DOJ/EPA litigation reply brief submitted on 04/17

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Division Director/Deputy Travel/Leave Schedule

- Tanya Mottley: CDO: 05/03, 05/17; AL: 05/06
- Brian Symmes: CDO: 4/26, 5/10

Division Presentation/Participation in Upcoming Conferences/Meetings

- May 28-29, 2019 – (Eva Cappuccilli) Lead Paint Alliance Regional Workshop for Governments / Abidjan, Ivory Coast
- June 12-13, 2019 – (Shayna Sellars) Lead Paint Alliance Regional Workshop for Governments / Panama City, Panama

Workgroup Member List

Asbestos; Significant New Use Rule
(Final Rule)

OAR:	Korbin Smith
OECA:	Jessica Goldstein Geraldine Gardner Mark Seltzer
OGC:	Steve Anderson
OP:	Sharon Cooperstein
ORD:	Steve Watkins
OW:	Colleen Flaherty Kathryn Gallagher Ashley Harper
OCSPP:	Lea Carmichael Robert Courtnage Tyler Lloyd Andrea Pfahles-Hutchens Louis "Gino" Scarano Bill Silagi Peter Smith

OCSPP Communications Plan
Publication of Final Rule – Asbestos; Significant New Use Rule
INTERNAL DELIBERATIVE DRAFT

Summary (Includes background and topline messages)

- EPA is finalizing a significant new use rule (SNUR) for asbestos. This action will prevent discontinued uses of asbestos (that are not already prohibited under the partial 1989 Toxic Substances Control Act (TSCA) ban) from restarting without EPA evaluating those uses for safety and taking any necessary regulatory action.
- This final SNUR does not provide any means by which prohibited uses under the partial 1989 TSCA ban can return to the marketplace. On the contrary, the action ensures that otherwise unregulated uses of asbestos undergo EPA evaluation.
- Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use.
- Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.
- This SNUR compliments the TSCA section 6 risk evaluation for asbestos by ensuring that any discontinued use of asbestos not already prohibited (and that can otherwise absent the SNUR resume at any time) be reviewed by EPA for safety and any necessary regulatory action taken.

Background:

EPA is finalizing a significant new use rule for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The risk evaluation focuses on the conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by EPA prior to commencing.

In order to identify ongoing uses of asbestos in the United States to define the scope of the risk evaluation, EPA conducted extensive research, convened stakeholder meetings, and requested and considered public comment. EPA will conduct the risk evaluation for asbestos based on the conditions of use, which have been identified through scoping and refined during problem formulation as the following: imported raw bulk chrysotile asbestos for the fabrication of diaphragms for use in chlorine and sodium hydroxide production, sheet gaskets for use in titanium dioxide chemical production, brake blocks for use in oil drilling, aftermarket automotive brakes/linings and other vehicle friction products, and other gaskets. These ongoing uses are not considered significant new uses and would not require a significant new use notification submission to the Agency.

Regardless of the outcome of the risk evaluation pursuant to TSCA section 6(b)(4)(A), EPA is concerned about the potential for adverse health effects of asbestos based on established sound scientific data indicating that asbestos is a known carcinogen. Since its peak usage, the national consumption of asbestos has declined approximately 99 percent, and asbestos has not been mined or otherwise produced in the United States since 2002. EPA believes any significant new use of asbestos (including as part of an article) could increase the duration and magnitude of human and environmental exposure to the substance, reverse the declining trend of national import volumes of the substance, and reintroduce exposure scenarios that have become obsolete over the past several decades. It is imperative that EPA be notified of any intended significant new use of asbestos (including as part of an article) and be provided the opportunity to evaluate such intended new use.

Spokespeople

- OCSPP – notify interested parties, update website

Contents

- Communications rollout plan
- Communications resources
- Communications and management contacts

Attachments

- **Web content on:**
  - Asbestos [HYPERLINK "https://www.epa.gov/asbestos"]
  - Risk Evaluation for Asbestos [HYPERLINK "https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-evaluation-asbestos-0"]

Communications Rollout Plan

DATE	TASK	WHO	DONE
PRE-RELEASE			
Week before FRN publication	Draft communications plan, list serve + web materials to OPPT/OCSPP	Alison Pierce/ ~~Julia Ortiz,~~ OPPT IO	
	Draft communications plan + web materials to OPA	Linda Strauss, OCSPP IO	
	Final HQ approved comms plan, list serve + web materials	OPA	

Communications Resources

- **Desk Statement**
- **OPPT Listserv**
- **Asbestos website -** [HYPERLINK "https://www.epa.gov/asbestos"]

Communications and Management Contacts

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OCSPP	
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Key Audiences & Stakeholders

- Industry
- Government Agencies
- Environmental Groups
- Non-Governmental Organizations

The final rule will be of interest to multiple stakeholders including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the

general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.

The EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive agency research of ongoing uses of asbestos and considering the availability of safer and affordable alternatives, the EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).

The tribal, state, and local government reactions are expected to be generally positive to neutral as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive or indifferent to the final rule if the purpose and impact of the rule is clearly communicated and understood. If the intent of the rule is again misunderstood to be bringing back banned uses of asbestos, then we expect reaction will be negative. Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, the EPA expects interest in agency actions related to asbestos to continue. ~~The final rule will be of interest to multiple stakeholders, including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.~~

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~~EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive Agency research of ongoing uses of asbestos and considering the availability of safer and affordable alternatives, EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).~~

~~The tribal, state, and local government reactions are expected to be generally positive as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive of the final rule. Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, EPA expects interest in Agency actions related to asbestos to continue.~~

Desk statement

Under the Toxic Substances Control Act (TSCA), EPA is finalizing a significant new use rule (SNUR) for asbestos. This action prevents any discontinued use of asbestos that is not already prohibited under the partial 1989 TSCA ban from restarting without EPA evaluating that use for safety and taking any necessary regulatory action. This final SNUR does not allow prohibited uses under the partial 1989 TSCA ban to return to the marketplace. On the contrary, the action ensures that the otherwise unregulated discontinued uses that are not covered by the partial 1989 asbestos ban undergo EPA evaluation for risk before any use can re-commence.

The following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. That notification would then trigger an EPA evaluation of that use for safety and any necessary regulatory action.

Listserv

Title: EPA Issues Final Rule to Require Review of Unregulated Asbestos Uses

EPA today issued a final significant new use rule (SNUR) in the Federal Register that requires any person who intends to manufacture (including import) or process discontinued (but not already banned) uses of asbestos (including as part of an article) to notify EPA at least 90 days before commencing that action. In accordance with the final SNUR, manufacturing (including importing) or processing for the intended significant new use would be prohibited until EPA conducts a review of the notice, makes an appropriate determination on the notice, and takes such actions as are required in association with that determination.

The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for asbestos uses that are neither ongoing nor already prohibited under TSCA. The following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

To view the final rule, or for additional information, please visit: [URL]

Economic Analysis for the Significant New Use Rule for Asbestos

DRAFT

March 5, 2019

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Chemistry, Economics and Sustainable Strategies Division
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Washington, DC 20460

Contributors

Analytical and draft preparation support was provided by Abt Associates Inc. under EPA Contract No. EP-W-16-009.

Notice

This is not an official guidance document and should not be relied upon to determine applicable regulatory requirements. This document was prepared to provide economic information for the rulemaking process, and to meet various administrative and legislative requirements. Due to the nature of the information available to EPA, the document contains various assumptions that may not reflect the regulatory determinations that an individual firm would make were it to apply the rule's requirements to its specific circumstances. Persons seeking information on regulatory requirements as they would apply to specific facilities should consult the final rule.

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Table of Contents

[TOC \o "1-3" \h \z \u]

Executive Summary

This report estimates the costs of a Significant New Use Rule (SNUR) being finalized by the U.S. Environmental Protection Agency (EPA) for asbestos. The term "asbestos," as defined in TSCA Title II (§202(7): 15 U.S.C. §2642) means asbestiform varieties of chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite, or actinolite. EPA is promulgating a SNUR under the Toxic Substances Control Act (TSCA) section 5(a)(2). The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency has found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to this SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products, extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions), high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks uses in oilfield drawworks); any other building material, and any other use of asbestos not identified in § 763.165 the manufacture, importation or processing of which had been initiated prior to August 25, 1989 (other than chrysotile asbestos diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets). For this rule, the general SNUR article exemption will not apply for persons who import or process asbestos for a significant new use identified above.

The SNUR requires manufacturers (including importers) or processors of asbestos to notify EPA at least 90 days prior to the occurrence of any significant new use. A firm intending to engage in these activities is required to submit a Significant New Use Notice (SNUN), incurring an estimated submission cost of $10,052 for small businesses and $23,252 for other businesses, as well as potentially other minor costs such as consumer notification costs. These costs are listed in Table ES-1. The required notification initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period.

In addition to any firms that may make a SNUN submission, the SNUR may also affect firms that do not make a submission. By avoiding a significant new use, a firm can avoid submission and testing costs but may incur other compliance costs. The firm may also incur "hidden" costs; for example, it could forego profitable opportunities to use the chemical in an application that would be a significant new use, or limit production volume to avoid a significant new use.

Costs are estimated at the firm level and reflect the burden of a SNUR on the firms that make a submission. The hidden costs to the firms that do not make a submission are not quantified. EPA's experience to date is that, in response to the promulgation of SNURs covering over 1,000 chemical substances, EPA receives fewer than ten SNUNs per year. The number of firms affected by not making submissions to EPA is not known; therefore, costs are not aggregated across the affected entities.

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Table ES-[SEQ Table_ES- * ARABIC]: Compliance Options and Associated Costs Incurred by a Firm Due to the SNUR

	Option	Costs [1]	Average Quantified Costs per Chemical (2018$)
1.	Electronic submission of a Significant New Use Notice (SNUN), indicating to EPA that the firm would like to manufacture, import, or process the chemical for a Significant New Use as defined in the SNUR.	Costs of submitting a SNUN, including rule familiarization, CDX registration (for companies that are first-time submitters), form completion, user fee, and any test costs.	$65 rule familiarization cost; $23,252 SNUN submission and recordkeeping cost for large businesses (including $16,000 fee) and $10,052 for small businesses (including $2,800 fee[2]). First time submitters would incur $123 for CDX registration and associated activities. Companies manufacturing, importing, or processing a chemical currently used in commerce in the United States will incur a cost of $79 for notifying consumers of SNUR regulatory activities.
2.	Manufacture, import, or process in a way that avoids a Significant New Use.	Cost of the profit foregone as a result of not engaging in the commercial activity originally planned (opportunity costs), and recordkeeping.	Opportunity costs are not quantified. Other costs including rule familiarization ($65), recordkeeping ($5), and customer notification ($79) may apply. Costs associated with article importation may include activities such as article identification ($157 to $1,887), supplier identification ($1,144), recordkeeping ($5), collecting data from suppliers ($6 to $629 per article), and testing ($130 per article tested).

Notes:

[1] SNURs typically trigger export notification requirements at an estimated cost of $95 per notification. However, asbestos is already subject to export notification, and this rulemaking does not require export notification for products containing asbestos. Therefore there is no additional cost for export notification for this rule.

[2] On October 17, 2018 EPA published a rule raising the fee for SNUNs to $2,800 for small businesses and $16,000 for other businesses (83 FR 52694).

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1. Introduction

EPA is concerned that commencement of the manufacture (including import) or processing for significant new uses of asbestos could significantly increase the magnitude and duration of exposure to asbestos and that such an increase should not occur without an opportunity for EPA to review any intended significant new use before such use could occur. The SNUR requires manufacturers (including importers) or processors of asbestos, including as part of an article, to notify EPA at least 90 days prior to the occurrence of any significant new use. A firm intending to engage in these activities is required to submit a Significant New Use Notice (SNUN). The required notification initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. For this rule, the general SNUR article exemption at 40 CFR 721.45(f) does not apply.

1.1 Statutory Authority

Section 5(a)(2) of the Toxic Substances Control Act (TSCA) (15 U.S.C. 2604(a)(2)) authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors, including those listed in TSCA section 5(a)(2):

- The projected volume of manufacturing and processing of the chemical substance;
- The extent to which a use changes the type or form of exposure of human beings or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of human beings or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1)(B) requires persons to submit a SNUN to EPA at least 90 days before manufacturing (including importing) or processing the chemical substance for that use (15 U.S.C. 2604(a)(1)(B)).

1.2 Significant New Uses under the SNUR

The general SNUR provisions are found at 40 CFR Part 721, Subpart A. EPA may promulgate a SNUR for a substance when potential use could result in significant changes in human exposure or environmental release levels and/or concern exists about the substance's health or environmental effects (40 CFR §721.170).

The significant new use of asbestos (including as part of an article) as defined under this SNUR is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency has found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to this SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products, extruded sealant tape and other tape;

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filler for acetylene cylinders; friction materials (with certain exceptions), high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks), any other building material, and any other use of asbestos not identified in § 763.165 the manufacture, importation or processing of which had been initiated prior to August 25, 1989 (other than chrysotile asbestos diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets and packing).

1.3 Summary of Methodology

This analysis quantifies, to the extent possible, the costs to society of the rule by identifying the costs to industry associated with performing the required reporting and recordkeeping, and the costs to EPA for administering the rule. Industry costs consist of rule familiarization; registration with the Central Data Exchange (CDX) electronic reporting tool; collection, compilation, and submission of required information for significant new uses of the subject chemical; and recordkeeping. Agency costs include reviewing and processing the data received as a result of the rule. Data sources for this analysis include burden estimates derived from previous information collection requests and economic analyses for related rules, compensation data acquired from government publications, and supplementary market research.

In addition to costs, this report qualitatively discusses the benefits of the rule based on the value of the information it will provide. The benefits analysis was undertaken to address the requirements of Executive Order 12866.

Note that all dollar amounts in this analysis are reported in 2018 dollars.

1.4 Organization of This Report

The remainder of this report presents EPA's economic analysis in support of the final rule. A description of asbestos market information is provided in Chapter [REF _Ref507586716 \r \h]. Chapter [REF _Ref507586727 \r \h] contains estimates of the industry costs to comply with the rule, and Chapter [REF _Ref259449206 \r \h] shows estimates of the government costs associated with the administration of the rule. Chapter [REF _Ref469436320 \r \h] addresses the benefits of the rule. Several additional impact analyses are presented in Chapter [REF _Ref242608476 \r \h], including: small entity impact analysis, as mandated by the Regulatory Flexibility Act (RFA); a burden hour analysis that responds to the requirements of the Paperwork Reduction Act (PRA); an analysis of unfunded mandates that pertains to the Unfunded Mandates Reform Act (UMRA); an analysis of environmental justice implications that addresses the requirements of Executive Order 12898; and an analysis of children's health pertinent to Executive Order 13045.

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2. Regulated Substance: Uses and Manufacturers

Asbestos is a mineral fiber that occurs naturally in rock and soil. Asbestos is a "generic commercial designation for a group of naturally occurring mineral silicate fibers of the serpentine and amphibole series" (IARC, 2012). The Chemical Abstract Service (CAS) definition of asbestos is "a grayish, non-combustible fibrous material. It consists primarily of impure magnesium silicate minerals."

TSCA Title II (added to TSCA in 1986), Section 202 defines asbestos as the "*asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite*." EPA uses this definition of asbestos for the SNUR. The most common form of asbestos used in the United States is chrysotile, which is found in serpentine rock formations (chrysotile content average 5%, with a maximum 50%) (WHO, 2014). Chrysotile was the predominant type of asbestos used in the United States and is currently the only type of raw asbestos imported.

2.1 Chemical Uses

To determine the current uses of asbestos, EPA conducted extensive research and outreach. This included EPA's review of published literature and online databases including EPA's Chemical Data Reporting program (CDR), Safety Data Sheets (SDSs), the United States Geological Survey's Mineral Commodities Summaries and Minerals Yearbook, the U.S. International Trade Commission's Dataweb, the U.S. Customs and Border Protection's Automated Commercial Environment (ACE) System, and commercial trade databases. EPA also reviewed the company websites of potential manufacturers, importers, distributors, retailers, or other users of asbestos. EPA received comments on the *Scope of the Risk Evaluation for Asbestos* (EPA, 2017a), the *Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos* (EPA 2017c) and the *Problem Formulation of the Risk Evaluation for Asbestos* (EPA 2018) that were used to help determine the current conditions of use. In addition, prior to the June 2017 publication of the scope document, EPA convened meetings with companies, industry groups, chemical users, and other stakeholders to aid in identifying conditions of use and verifying conditions of use identified by EPA. And EPA sought and received public comment on the proposed Asbestos SNUR. This process is described in more detail in the preamble for the notice of proposed rulemaking for this SNUR (83 FR 26922, June 11, 2018). Furthermore, EPA is separately conducting a risk evaluation of asbestos under its conditions of use, pursuant to TSCA section 6(b)(4)(A), as described in the preamble for this SNUR rulemaking.

2.1.1 Historical Uses

Asbestos has not been mined or otherwise produced in the United States since 2002 (Flanagan, 2016).

In developing the *Scope of the Risk Evaluation for Asbestos* (EPA 2017a), EPA identified uses including pre-existing materials currently in place within buildings (e.g., insulation materials, flooring, etc.) and also within pre-existing non-building equipment. Many asbestos products fall into this category. These materials were installed in the past, and EPA's *Scope of the Risk Evaluation for Asbestos* indicated that there was no evidence at that time to suggest that manufacturing, processing, or distribution for such activities was intended, known, or reasonably foreseen. The Scope document concluded that legacy asbestos-containing products include:

- Asbestos arc chutes
- Asbestos pipeline wrap
- Asbestos separators in fuel cells and batteries
- Asbestos-cement flat sheet
- Asbestos-cement shingles
- Asbestos-reinforced plastics
- Beater-add gaskets
- Corrugated asbestos-cement sheet
- Extruded sealant tape
- Filler for acetylene cylinders
- High-grade electrical paper
- Millboard
- Missile liner
- Roofing felt
- Vinyl-asbestos floor tile

EPA received no public comments on the scope document for asbestos providing information to indicate these uses are ongoing. However, upon further investigation during problem formulation, EPA determined that seven asbestos product categories (asbestos packings, asbestos protective clothing, automatic transmission friction components, clutch facings, asbestos-cement flat sheet, asbestos-cement shingles, and corrugated asbestos-cement sheet) that were listed as legacy uses in the Scope document fell under broader categories that EPA had identified (other gaskets and packing, woven products, automotive friction materials, and asbestos cement products).

EPA found limited evidence of asbestos-containing products currently used in the United States. EPA believes that imports of certain asbestos products listed by harmonized tariff schedule (HTS) code in government and commercial trade databases are likely misreported and are not current uses. EPA contacted several suspected users of asbestos-containing products to determine that those particular products are no longer imported or used in the United States.

Because EPA's research indicates that cement products, woven products (other than brake blocks uses in oilfield drawworks) and packings are not in fact ongoing uses, this significant new use rule includes them as significant new uses.

EPA requested public comment on the proposed SNUR for information regarding any ongoing uses not identified by the Agency as well as additional uses not identified as no longer ongoing. The Agency did not receive any comments providing additional information regarding the ongoing uses or discontinued uses of asbestos.

The manufacture, processing, and distribution for a number of additional uses of asbestos were banned under TSCA in 1989 as part of the *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions; Final Rule* (40 CFR Part 763) (also known as Asbestos Ban and Phase-out Rule (Remanded), 1989). The uses of asbestos covered by the ban include:

- Corrugated paper

- Rollboard
- Commercial paper
- Specialty paper
- Flooring felt
- Commercial uses of asbestos not identified in 40 CFR § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989

In addition to the asbestos product categories that EPA identified in the proposed SNUR where manufacturing (including importing) and processing for the use is no longer ongoing, the Agency has determined that the product category "friction materials" is also a significant new use of asbestos. While this product category was in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products* for the 1989 Asbestos Ban and Phaseout final rule, it was not included in the proposed SNUR because the broad category definition could be viewed as contradictory to uses not subject to the rule – brake blocks in particular. However, in response to public comments, the Agency is including friction materials (except for specifically identified ongoing uses) within the significant new use for asbestos, in order to encompass all uses that the Agency has determined to be neither ongoing in the United States nor already prohibited under TSCA. With the addition of the exception for certain friction products that are ongoing uses (i.e., oil field brake blocks), the Agency believes it is appropriate to include the product category of "friction materials" in the scope of this SNUR and doing so will not create confusion or potentially overlapping definitions.

2.1.2 Ongoing Uses

EPA is separately conducting a risk evaluation of asbestos under its conditions of use, pursuant to TSCA section 6(b)(4)(A). Through scoping and subsequent research for the asbestos risk evaluation, EPA identified several conditions of use of asbestos to include in the risk evaluation, and since publication of the proposed Asbestos SNUR (83 FR 26922, June 11, 2018) and problem formulation document in June 2018 (EPA, 2018), the Agency has further refined the conditions of use of asbestos. The conditions of use of asbestos include imported raw bulk chrysotile asbestos for the fabrication of diaphragms for use in chlorine and sodium hydroxide production and several imported chrysotile asbestos-containing materials, including sheet gaskets for use in titanium dioxide chemical production, brake blocks for use in oil drilling, aftermarket automotive brakes/linings and other vehicle friction products, and other gaskets.

All asbestos used in the United States is imported. According to the U.S. Geological Survey (USGS), the only form of asbestos currently imported into the United States is chrysotile, all of which originated from Brazil in 2018 [ADDIN EN.CITE
<EndNote><Cite><Author>USGS</Author><Year>2017</Year><RecNum>155</RecNum><IDText>3827270</IDText><DisplayText>(USGS, 2017)</DisplayText><record><rec-number>155</rec-number><foreign-keys><key app="EN" db-id="5ftese5szxf0ane9r5dxp0z6ztred9t525pt" timestamp="1494271811">155</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>USGS,</author></authors></contributors><titles><title>Mineral Commodity Summaries 2017</title></titles><dates><year>2017</year></dates><pub-location>Washington, DC</pub-location><publisher>U.S. Department of the Interior</publisher><label>3827270</label><urls><related-urls><url>https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf</url></related-urls></urls><language>English</language><modified-date>U.S. Geological Survey</modified-

date></record></Cite></EndNote>]. USGS estimates that in 2018, the United States imported approximately 750 metric tons (1,653,467 pounds) of raw asbestos, all of which was used by the chlor-alkali industry (USGS, 2019). In 2017, the United States imported 332 metric tons (731,935 pounds) of raw asbestos [ADDIN EN.CITE <EndNote><Cite><Author>USGS</Author><Year>2017</Year><RecNum>155</RecNum><IDText>3827270</IDText><DisplayText>(USGS, 2017)</DisplayText><record><rec-number>155</rec-number><foreign-keys><key app="EN" db-id="5ftese5szxf0ane9r5dxp0z6ztred9t525pt" timestamp="1494271811">155</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>USGS,</author></authors></contributors><titles><title>Mineral Commodity Summaries 2017</title></titles><dates><year>2017</year></dates><pub-location>Washington, DC</pub-location><publisher>U.S. Department of the Interior</publisher><label>3827270</label><urls><related-urls><url>https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf</url></related-urls></urls><language>English</language><modified-date>U.S. Geological Survey</modified-date></record></Cite></EndNote>].

Using data from the 2016 Chemical Data Reporting (CDR) rule, EPA identified industrial processing or use activities, industrial function categories and commercial, and consumer use product categories (EPA, 2016a). Two companies, both from the chlor-alkali industry, reported importing asbestos; however, the amounts cannot be publicly disclosed due to company claims of confidential business information (CBI).

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: 2016 CDR Use Data for Asbestos (CAS No. 1332-21-4)

Site	2015 Total Production Volume	Category of Industrial Use	Industrial Sectors	Type of Process or Use
OLIN CORPORATION	Withheld	Fillers	All other basic inorganic chemical manufacturing	Processing—incorporation into formulation, mixture, or reaction product
AXIALL CORPORATION	Withheld	Used as diaphragm material in Caustic/Chlorine electrolytic cells	All other basic inorganic chemical manufacturing	Use—non-incorporative activities

Source: EPA, 2016a

2.2 Potentially Affected Companies

The SNUR will require manufacturers, importers, and processors to notify EPA at least 90 days before commencing the manufacture, import, or processing of asbestos (including as part of an article) for any significant new use. The significant new uses are: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products, extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions), high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks), packings; any other building material, and any other use of asbestos not identified in § 763.165 the manufacture, importation or processing of which had been initiated prior to August 25, 1989 (other than chrysotile asbestos diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets). The significant new uses are detailed in [REF _Ref513035377 \h *

MERGEFORMAT]. EPA has not identified any firm manufacturing, importing, or processing asbestos (including as part of an article) for the uses listed above. The SNUR may affect firms that currently do not manufacture, import, or process asbestos, but who may be interested in manufacturing, importing, or processing asbestos for a new use in the future. The following list of North American Industrial Classification System (NAICS) codes describes potentially affected entities:

- Construction (NAICS code 23)
- Manufacturing (NAICS codes 31 – 33)
- Wholesale Trade (NAICS code 42)
- Transportation (NAICS code 48)

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Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Product Categories of Significant New Uses of Asbestos

Product Category	Description of the Product Category
Adhesives, Sealants, and Roof and Non-Roof Coatings	The automobile industry historically used asbestos in a wide variety of adhesive, sealant, and coating applications. The aerospace industry used asbestos in extremely specialized applications such as firewall sealants and epoxy adhesives. Non-roof coatings were used to prevent corrosion (e.g. as vehicle undercoatings and underground pipe coatings). Roof coatings were used to repair and patch roofs, seal around projections such as chimneys and vent pipes, and bond horizontal and vertical surfaces.
Arc Chutes	Ceramic arc chutes containing asbestos were used to guide electric arcs in motor starter units in electric generating plants.
Beater-Add Gaskets	Asbestos fibers were incorporated within various elastomeric binders and other fillers to form the beater-add paper. These products were used extensively for internal combustion applications and for the sealing component of spiral wound gaskets. Gaskets were used to seal one compartment of a device from another in non-dynamic applications such as engine and exhaust manifolds.
Cement Products	Includes asbestos cement product categories in the 1989 RIA: Asbestos-Cement Pipe and Fittings, Asbestos-Cement Flat Sheet, Corrugated Asbestos-Cement Sheet, and Asbestos-Cement Shingles.
Extruded Sealant Tape and Other Tape	Sealant tape was made from a semi-liquid mixture of butyl rubber and asbestos. On exposure to air, the sealant solidified forming a rubber tape about an inch wide and an eighth of an inch thick. The tape acted as a gasket for sealing building windows, automotive windshields, and mobile home windows. It was also used in the manufacture of parts for the aerospace industry and in the manufacture of insulated glass.
Filler for Acetylene Cylinders	Asbestos was used to produce a sponge-like filler, which held the liquefied acetylene gas (acetone) in suspension in the steel cylinder and puled the acetone up through the tank as the gas was released through the oxyacetylene torch. The torch was used to weld or cut metal and sometimes used as an illuminant gas. The filler also acted as an insulator that offered fire protection in case the oxidation of the acetylene became uncontrollable.
Friction Materials (except those identified as ongoing conditions of use)	Friction materials were used as braking and gear-changing (clutch) components in a variety of industrial and commercial machinery. Applications included agricultural equipment such as combines, mining and oil-well-drilling equipment, construction equipment such as cranes and hoists, heavy equipment used in various manufacturing industries (e. g., machine tools and presses), military equipment, marine engine transmissions, elevators, chain saws, and consumer appliances such as lawn mowers, washing machines, and vacuum cleaners.
High-Grade Electrical Paper	The major use of asbestos electrical paper was insulation for high temperature, low voltage applications such as in motors, generators, transformers, switch gears, and other heavy electrical apparatuses.
Millboard	Asbestos millboard was essentially a heavy cardboard product that was used for gasketing, insulation, fireproofing, and resistance against corrosion and rot. Millboard was used in many industrial applications to include linings in boilers, kilns, and foundries; insulation in glass tank crowns, melters, refiners, and sidewalls in the glass industry; linings for troughs and covers in the aluminum, marine, and aircraft industries; and thermal protection in circuit breakers in the electrical industry. In addition, thin millboard was inserted between metal to produce gaskets. Commercial applications for millboard included fireproof linings for safes, dry-cleaning machines, and incinerators.
Missile Liner	A missile liner was an asbestos and rubber compound used to insulate the outer casing of the rocket from the intense heat generated in the rocket motor while the rocket fuel was burned. Rockets and rocket boosters were used to propel a number of objects including military weapons and the space shuttle.

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Packings	Packings were dynamic or mechanical (static packings are gaskets) and used to seal fluids in devices where motion was necessary. The design of a packing was to control the amount of leakage of fluid at shafts, rods or valve systems and other functional parts or equipment requiring containment of liquids or gases. Packings were used in rotary, centrifugal, and reciprocating pumps, valves, expansion joints, soot blowers, and many other types of mechanical equipment.
Pipeline Wrap	Pipeline wrap was an asbestos felt product primarily used by the oil and gas industry for coating its pipelines. Asbestos pipeline wrap was also used in the coal tar enamel method of coating pipes, some above-ground applications (such as for special piping in cooling towers), and was also used by the chemical industry for underground hot water and steam piping.
Reinforced Plastics	Asbestos-reinforced plastics were used for electro-mechanical parts in the automotive and appliance industries and as high-performance plastics for the aerospace industry. Asbestos-reinforced plastic was typically a mixture of some type of plastic resin (usually phenolic or epoxy), a general filler (often chalk or limestone), and raw asbestos fiber.
Roofing Felt	Asbestos roofing felt was single or multi-layered grade and used for built-up roofing. Asbestos was used in roofing felts because of its dimensional stability and resistance to rot, fire, and heat.
Separators in Fuel Cells and Batteries	In very specialized aerospace applications, asbestos functioned as an insulator and separator between the negative and positive terminals of a fuel cell/battery.
Vinyl-Asbestos Floor Tile	Vinyl-asbestos floor tile was used in commercial, residential, and institutional buildings in heavy traffic areas such as supermarkets, department stores, commercial plants, kitchens, and “pivot points” -- entry ways and areas around elevators
Woven Products	Includes Protective Clothing and Asbestos Textiles from the 1989 RIA.
Any Other Building Materials	Examples include insulation, plasters, mastics, textured paints (e.g., simulates stucco), and block filler paints (e.g., for coating masonry).
Any Use of Asbestos not Otherwise Identified	Except those uses prohibited under § 763.165 (i.e. Corrugated Paper, Rollboard, Commercial Paper Specialty Paper, Flooring Felt and New Uses) and uses of imported chrysotile (including as part of an article) that are currently ongoing in the United States (i.e. diaphragms; sheet gaskets; oilfield brake blocks; aftermarket automotive brakes/linings; other vehicle friction products; and other gaskets and packing).

3. Industry Compliance Costs

The SNUR discussed in this report specifies that any manufacture (including import) or processing of asbestos or the importation or processing of an article for a designated significant new use will require reporting under Section 5(a)(1)(A) of TSCA. Therefore, a firm intending to manufacture, import, and/or process asbestos for these applications must submit a SNUN. Alternatively, a firm can decide not to manufacture, import, and/or process this chemical or to manufacture, import, and/or process this chemical in such a way that it is not considered a significant new use. The firm, therefore, has two options:

- ***Option 1: Submit a SNUN.*** A SNUN indicates to EPA that the firm would like to manufacture, import, and/or process the chemical or import or process an article for a significant new use, which, in this case, means any use of asbestos identified in [REF _Ref513035377 \h * MERGEFORMAT]. The firm must submit the SNUN to EPA at least 90 days before it plans to commence the manufacture, import, and/or processing of the significant new use of the substance; the SNUN initiates EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing asbestos (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. If EPA allows the manufacture, import, and/or processing of asbestos for a significant new use, then the costs associated with this option are the costs of submitting the SNUN (including paying a user fee).

- ***Option 2: Comply with SNUR limits (not manufacture, import, and/or process a new use of the chemical).*** A firm can avoid engaging in a Significant New Use and submitting a SNUN by not manufacturing (including importing) and/or processing asbestos (including as part of an article) in a manner such that it would be considered a significant new use. That is, if the firm does not manufacture (including import) or process asbestos (including as part of an article) for a significant new use identified in [REF _Ref513035377 \h * MERGEFORMAT], it would not be subject to the SNUR. While this option avoids the costs of submitting a SNUN, it may entail the "hidden" cost of the foregone profit as a result of not engaging in the commercial activity originally planned, and may involve substituting another, more costly, substance. If the firm elects to produce the chemical for research and development (R&D) purposes only (an exemption for R&D purposes is provided in 40 CFR §721.47), it may incur costs associated with R&D recordkeeping. The firm may also pursue this option temporarily by complying with SNUR restrictions while also pursuing Option 1. Due to the uncertainty related to this option, and EPA's expectation that affected entities will select Option 1, the costs of Option 2 are not fully quantified in this report.

The remainder of this chapter estimates the quantified portion of costs associated with the SNUR for asbestos. Section [REF _Ref507586806 \r \h] summarizes the wage rates used in this chapter. Section [REF _Ref242523921 \r \h] provides the unit industry compliance costs, including the costs of rule familiarization, registration with the Central Data Exchange (CDX) electronic reporting tool, completing the SNUN form, submission fee, and import certification. Total costs under each option are presented in Section [REF _Ref508200019 \r \h]. Sections [REF _Ref507586920 \r \h] and [REF _Ref507586922 \r

\h] discuss probability of SNUN submission and promulgation of subsequent regulatory actions related to this SNUR, respectively.

3.1 Wage Rates

The rule involves activities that may require efforts by employees in three labor classifications: managerial, technical, and clerical. Costs for each activity are calculated by estimating the labor hours required in each labor category and multiplying those burdens by the wage rate for each labor category. This section presents the estimated wage rate in each labor category.

Loaded wage rates for each labor category are derived by combining data on wages and fringe benefits with estimates of overhead rates following the methodology described in *Wage Rates for Economic Analysis of the TRI Program* (EPA, 2002). Wage and fringe benefit data for managerial, professional/technical, and clerical labor are calculated using the September 2018 quarterly estimates from the Employer Costs for Employee Compensation (ECEC) Supplemental Tables available on the Bureau of Labor Statistics (BLS) website (BLS, 2018). The loaded wage rate for managerial labor is $78.77; technical labor is $78.63; and clerical labor is $34.91. [REF _Ref243206842 \h * MERGEFORMAT] presents the basic data used to calculate the loaded wage rates for all three categories of labor, and Appendix A provides more detailed information on the estimation of these wage rates.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Loaded Industry Wage Rates, 2018$

Labor Category	Base Wages[a]	Fringe Benefits[a] + Overhead Factor[b]	Loaded Wages
Managerial	$47.81	1.65	**$78.77**
Professional/Technical	$46.60	1.69	**$78.63**
Clerical	$21.05	1.66	**$34.91**

Notes:
[a] Wage rates and fringe benefits are calculated using the September 2018 estimates from BLS, 2018.
[b] An overhead rate of 17% of base wages is used here, based on methodology and assumptions in EPA, 2002.

3.2 Unit Industry Compliance Costs

This section estimates the "unit industry compliance costs," which are the costs to the individual site that would report under the rule.

3.2.1 Rule Familiarization

The rule requires manufacturers (including importers) and processors of asbestos and certain articles containing asbestos to become familiar with the SNUR and its various requirements. Rule familiarization is estimated to require 0.55 hours of technical labor and 0.27 hours of managerial labor, as described in the *Economic Analysis of the Premanufacture Notification Electronic Reporting Final Rule* (EPA, 2009), which measures the costs of mandatory electronic reporting of SNUNs and other TSCA Section 5 notices. As shown in [REF _Ref253102828 \h * MERGEFORMAT], the labor cost associated with rule familiarization is $64.52.

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Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Cost Estimate to Familiarize with the Rule (2018$) (per Site)

Reporting Activity	Clerical Labor (at $34.91/hour)		Technical Labor (at $78.63/hour)		Managerial Labor (at $78.77/hour)		Total Labor Cost	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)
Rule Familiarization	0	$0.00	0.55	$43.25	0.27	$21.27	**0.82**	**$64.52**

Sources: Wage rates: [REF _Ref507588209 \h * MERGEFORMAT]; Burden estimates: EPA, 2009.

3.2.2 Electronic Reporting

The rule requires submitters to register with EPA's Central Data Exchange (CDX) and use the Chemical Information Submission System (CISS) to prepare and submit a data file. CDX is EPA's electronic system for environmental data exchange to the Agency. CDX also provides the capability for submitters to access their data through the use of web services. EPA developed CISS for use in submitting data for TSCA electronically to the Agency. CISS, a web-based reporting tool, provides user-friendly navigation, works with CDX to secure online communication, creates a completed Portable Document Format (PDF) for review prior to submission, and enables data, reports, and other information to be submitted easily.

EPA estimates that affected facilities will incur burden and cost due to the electronic reporting requirements of the rule. This includes costs to complete a subscriber agreement and register with CDX. Understanding the electronic reporting requirements is expected to be part of rule familiarization discussed in Section [REF _Ref468050440 \r \h] and is not included again in this section.

Some company users who have already registered with CDX to meet other EPA electronic reporting requirements, for example to submit Premanufacture Notices (PMNs), will not need to register again as a result of this rule. Therefore, these activities are only required of first-time submitters of any Section 5 notice. These activities are estimated to require the following burdens, based on the estimates presented in the *Supporting Statement for EPA Information Collection Request Number 2002.05, "Cross-Media Electronic Reporting Rule"* (EPA, 2011).

When registering with CDX, users are assigned to one of two roles in the CDX system, an Authorized Official or a Support Registrant.

> **Authorized Official (AO)**: The AO is the person legally responsible for the submission. The AO is typically a senior official for the respondent. The AO is the only user who can start a new form or reopen a completed form to begin the amendment process and is the only user who can electronically sign and submit a form. AOs can also assign Support Registrants to edit and complete forms on his or her behalf. AOs must submit a subscriber agreement to EPA and register with CDX.
>
> **Support Registrants**: A Support Registrant is a person designated by an AO to submit supporting documents on his or her behalf. Support Registrants can edit a submission that is created by the AO. Support Registrants are only allowed to edit the submissions to which the AO has granted him or her access. Support Registrants do not have any access rights to create or submit a form. Once the AO creates a form, they will provide the Support Registrant with a

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passphrase to access the submission and complete all sections of the form. Once the Support Registrant has finished completing the form, the AO will access the document, review it, and then submit it. Support Registrants must register with CDX but do not need to submit a subscriber agreement to EPA.

This analysis uses a simplifying assumption that an average of five employees at each respondent firm will register with CDX: one manager (who will serve as AO) and four technical staff members (who will serve as Support Registrants).

Respondents will incur electronic reporting costs to register with CDX, submit a subscriber agreement, set up payment, and contact EPA's CDX Help Desk for assistance if necessary.

CDX Registration. CDX users will need to register with CDX. This involves selecting a user name and password, providing contact information, and identifying the facility and the registrant's role (e.g., AO or Support Registrant) at the facility. This is estimated to take an average of 10 minutes per user (EPA, [HYPERLINK \l "_ENREF_29" \o "U.S. Environmental Protection Agency (EPA), 2011 #21"]). Because there are assumed to be one manager and four technical staff registering, this results in an estimate that each respondent (business) will spend 10 minutes of managerial time and 40 minutes of technical time to register with CDX.

Subscriber Agreement/Electronic Signature Agreement. An AO must complete a subscriber agreement in order to establish their identity and their relationship to the entity for which they will submit electronic documents, as well as to document a unique correlation with the device that will be used to create their electronic signature. While users can comply with the subscriber agreement provisions in CDX either by submitting a paper subscriber agreement with a wet-ink signature or by submitting an electronic signature agreement, this analysis assumes that all AOs will submit electronic signature agreements. Preparing, submitting, and filing a subscriber agreement and an electronic signature agreement is estimated to require an average of 15 minutes of time per registrant (EPA, [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Author>U.S. Environmental Protection Agency (EPA)</Author><Year>2011</Year><RecNum>21</RecNum><DisplayText>2011b</DisplayText><record><rec-number>21</rec-number><foreign-keys><key app="EN" db-id="dzwvz5wwgt5s5ze0pzsvpaafapwv02v9p2wt">21</key></foreign-keys><ref-type name="Generic">13</ref-type><contributors><authors><author>U.S. Environmental Protection Agency (EPA),</author></authors></contributors><titles><title>Supporting Statement for EPA Information Collection Request Number 2002.05, "Cross-Media Electronic Reporting Rule" </title></titles><dates><year>2011</year><pub-dates><date>June 22, 2011</date></pub-dates></dates><publisher>Office of Environmental Information, U.S. Environmental Protection Agency</publisher><urls></urls></record></Cite></EndNote>]). Because only an AO may complete the subscriber and electronic signature agreement, this is assumed to be managerial time. In addition, the burden estimate is assumed to include identity verification through a third-party electronic verification process, which is an available service through CDX.

Payment via Pay.gov account. EPA estimates that one manager per company will spend approximately 0.13 hours setting up a Pay.gov ID account, logging into the system, finding the

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appropriate form, and filling it out. This burden does not include the time required to click 'submit' on the form and wait for payment processing (EPA, 2009).

Help Desk. CDX users are assumed to spend an average of 4 minutes contacting EPA's CDX Help Desk for technical support (EPA, [HYPERLINK \l "_ENREF_29" \o "U.S. Environmental Protection Agency (EPA), 2011 #21"]), which results in an estimate of 4 minutes of managerial time and 16 minutes of technical time per respondent.

[REF _Ref460095319 \h * MERGEFORMAT] presents the burden and costs for electronic reporting.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Burden and Cost of Electronic Reporting Requirements (First Year, per Site) (2018$)

Reporting Activity	Clerical Labor (at $34.91/hour)		Technical Labor (at $78.63/hour)		Managerial Labor (at $78.77/hour)		Total Labor Cost	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)
CDX Registration	0	$0.00	0.67	$52.68	0.17	$13.39	0.84	$66.07
Electronic Subscriber Agreement/ Electronic Signature	0	$0.00	0	$0.00	0.25	$19.69	0.25	$19.69
E-Payment (Pay.gov ID)	0	$0.00	0	$0.00	0.13	$10.24	0.13	$10.24
Help Desk	0	$0.00	0.27	$21.23	0.07	$5.51	0.34	$26.74
						Totals	**1.56**	**$122.74**

Sources: Wage rates: see [REF _Ref507588209 \h * MERGEFORMAT]; Burden estimates: EPA, 2009 and EPA, 2011.

3.2.3 Form Completion and Submission Fee

Respondents who choose to submit a SNUN are required to gather and submit information regarding the data elements identified in the applicable SNUN reporting form. The methodology and calculations used in this analysis assume that the employee responsible for collecting, filling out, and submitting the requested information has a reasonable level of familiarity with the company and knowledge of operations at the site. It is assumed that, for most entities, these tasks are similar to other employee duties that require familiarity with EPA, State, and other Federal agency requests for chemical information and do not require additional familiarization or training beyond the basic rule familiarization described above. In addition, this analysis focuses on the marginal costs of submitting information for the rule and not the total costs for the company to comply with a range of other Federal and State environmental, health, and safety regulations or accounting requirements that rely on this type of information.

Estimates of the costs of completing a Significant New Use Notice (SNUN) form are based on the costs of completing a PMN submission, since the data requirements are the same and the same form is used for both.

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The PMN submission burden came from EPA's 1994 *Regulatory Impact Analysis of Amendments to Regulations for TSCA Section 5 Premanufacture Notifications,* which relied on industry estimates of the effort needed to collect and compile all data required for a PMN submission, prepare the form, submit the form and data to EPA, and maintain a file of the submission (EPA, 1994, Table III-2 and pages III-11, -12, and -13). The 1994 estimates were based on a survey conducted by the Chemical Manufacturers Association, which became the American Chemistry Council. These burdens include "the time spent reading and becoming familiar with the form, gathering the required information and preparing the report, producing sanitized responses for items claimed as confidential business information, and maintaining a file of the submission" (EPA, 1994, p. III 11-13). The burden associated with SNUN submission and preparation has been adjusted to reflect burden reductions resulting from the 2009 final PMN Electronic Reporting (ePMN) Rule that requires the electronic submission of all TSCA section 5 notices. Electronic submission of SNUN forms is expected to remove all clerical burden and reduce the recordkeeping burden associated with preparing a SNUN (EPA, 2009).[1] In addition, electronic submission is expected to generate an additional 0.18 hours of technical burden, for the completion of the User Fee Payment Identification Number and email address data elements on the electronic SNUN form.

SNUN form completion and electronic submission is estimated to require 74.20 hours of technical labor and 18.00 hours of managerial labor (EPA, 2009). [REF _Ref507589029 \h] combines the estimated reporting burden and loaded wage rates for all three labor categories to estimate the per-SNUN cost of form completion. The labor cost incurred by a SNUN submission for both large and small business submitters is $7,252.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Cost Estimate to Complete the SNUN Form

Reporting Activity	Clerical Labor (at $34.91/hour)		Technical Labor (at $78.63/hour)		Managerial Labor (at $78.77/hour)		Total Labor Cost	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)

[1] *The Economic Analysis of the Premanufacture Notification Electronic Reporting Final Rule* (EPA, 2009) reported a 0.5 hour clerical and a 0.5 hour technical burden associated with recordkeeping in addition to the burden estimates from the 1994 RIA (EPA, 1994, p. III-14). These burden estimates (the 0.5 for clerical burden and 0.5 for technical burden) are based on the recordkeeping burden for polymer exceptions and not the recordkeeping burden associated with PMN submissions. Therefore, for this analysis, the 0.5 hour for clerical labor and the 0.5 hour for technical labor were removed. It is important to note that for this analysis, clerical burden changes are not applicable because the entire clerical burden is assumed to be eliminated under the electronic reporting requirements. In summary, these estimates do not include the one hour recordkeeping burden (0.5 hour for clerical, 0.5 for technical) reported in the ePMN EA.

Form Completion	0	$0.00	74.2	$5,834	18	$1,418	**92.2**	**$7,252**

Sources: The estimate of no clerical burden is taken from the *Economic Analysis of the Premanufacture Notice Electronic Reporting Final Rule* (EPA, 2009, page 7).
Technical and managerial labor burden is from the PMN Amendments RIA (EPA, 1994, Table III-2). An additional eleven minutes (0.18 hours) of technical burden is estimated to complete the User Fee Payment Identification Number and Email Address data elements on the Electronic SNUN form (EPA, 2009 page 15).
Wage rates: see [REF _Ref507588209 \h * MERGEFORMAT].

In addition, each submitting large business must pay a $16,000 per-SNUN submission fee, and each submitting small business must pay a $2,800 per-SNUN submission fee.[2] [REF _Ref507589088 \h] adds the labor cost and submission fee to estimate the total cost of a SNUN submission, which is $23,252 for large business submitters and $10,052 for small business submitters.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Industry Cost Estimate to Complete and Submit the SNUN Form

Reporting Population	Labor Cost	Submission Fee	Total Cost (2018$)
Large Business Submitters	$7,252	$16,000	**$23,252**
Small Business Submitters	$7,252	$2,800	**$10,052**

Sources: [REF _Ref507589029 \h * MERGEFORMAT]; EPA, 1994

3.2.4 Recordkeeping

Recordkeeping for Companies Choosing to Submit a SNUN

Companies submitting a SNUN must, under 40 CFR §721.40, keep records of the information contained in the SNUN. Some EPA reports have assumed that SNUN recordkeeping hours would be five percent of SNUN submission hours, or about five to six hours.[3] For this report, the SNUN recordkeeping hours were included in the SNUN submission hours (see Section [REF _Ref507589236 \r \h]) and the SNUN recordkeeping costs under 40 CFR §721.40 were not separately estimated.[4]

Recordkeeping for Companies that do not Submit a SNUN

If a firm that manufactures, imports, or processes a product subject to the SNUR chooses not to submit a SNUN, EPA assumes they will keep records that document compliance with SNUR conditions for

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[2] On October 17, 2018 EPA published a rule raising the fee for SNUNs to $2,800 for small businesses and $16,000 for other businesses (83 FR 52694).

[3] For example, OPPT's Information Collection Request (ICR) for *TSCA Section 5(a)(2) Significant New Use Rules for Existing Chemicals (Renewal),* October 11, 2005, estimates SNUN recordkeeping costs at 5.67 hours (ICR 118.08, page 15).

[4] SNUN submission costs estimated in Section [REF _Ref507589236 \r \h] of this report were based on PMN submission costs from a 1994 report, *Regulatory Impact Analysis of Amendments to Regulations for TSC Section 5 Premanufacture Notifications* (EPA, 1994). Page III-14 of the 1994 report refers to "the normal records kept with a PMN submission which are included in the estimates for submission costs." Page III-12 identifies "maintaining a file of the submission" as part of the labor hours for the PMN reporting form. These statements imply that the 95 to 114 total hours for a PMN submission (page III-10 of EPA, 1994) included recordkeeping hours.

ED_005636_00006628-00021

avoiding a Significant New Use. Such recordkeeping is estimated to involve copying and filing relevant records, including those related to category of use. Because records for SNUNs must be maintained for five years from the date of their creation (40 CFR §721.40), EPA also assumes these records would be maintained for a similar amount of time. For firms that choose to not submit a SNUN, costs for compliance with the recordkeeping requirements are estimated to be five percent of the reporting burden for reporting information for a specific section of the SNUN form and are performed by clerical staff (EPA, 2012a, page 14). EPA used the per-activity burden for reporting, human exposure, category of use and releases to the environment presented in the *Information Collection Request (ICR) for TSCA Section 5(a)(2) Significant New Use Rules for Existing Chemicals (Renewal)* (EPA, 2012a, page 12). Any clerical burden associated with the original burden estimates for these activities was removed to reflect the burden reduction associated with electronic submissions (EPA, 2009).

The total recordkeeping burden for a company that does not submit a SNUN is estimated to be 0.15 hours and $5.24 and is derived in [REF _Ref507589330 \h].

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Annual Per-Chemical Costs of Recordkeeping Requirement for Companies that Choose not to Submit a SNUN

Reporting Activity	Total Burden Associated per Activity (hours)	Percent of Reporting Burden Attributed to Recordkeeping	Clerical Labor (at $34.91/hour)	
			(hours)	(2018$)
Category of use	3	5%	**0.15**	**$5.24**

Sources: [REF _Ref507588209 \h * MERGEFORMAT] and EPA, 2012a.

3.2.5 Customer Notification

Manufacturers, processors, and importers of products subject to SNURs must notify recipients of such products of the SNUR or verify that knowledge of the SNUR has been otherwise acquired by recipients, or that the recipients are unable to engage in significant new uses. Since it is not expected that all such entities will have complete knowledge of all uses of any products subject to a SNUR, and because filing a SNUN could require significantly more burden, it is assumed that manufacturers, processors, and importers will most often choose to notify their customers of SNUR regulatory activities. As this notification may be accomplished by simply annotating an SDS, EPA estimates the associated burden to be about one hour of a technical employee's time or $78.63 per manufacturer, processor, or importer per chemical (based on wage rates in [REF _Ref507588209 \h]).

3.2.6 Import Certification

In general, persons importing chemical substances must certify that they are in compliance with applicable rules and orders under TSCA or not subject to TSCA in accordance with TSCA Section 13

ED_005636_00006628-00022

regulations at 19 CFR §12.118 to 12.127.[5] The statement must be on or attached to a commercial invoice or entry document belonging to the imported shipment.

Import certification is fulfilled by checking a box on an invoice or entry document and EPA assumes that it generally imposes no additional burden or cost on the importer. Any potential burden associated with submitter's familiarization with this requirement is assumed to be included in the more general SNUR familiarization burden discussed above.

3.2.7 Export Notification

Under Section 12(b) of TSCA, exporters must notify EPA if they export or intend to export a chemical subject to various TSCA sections (see the TSCA Section 12(b) regulations at 40 CFR §707.60 through 75). For TSCA 5(a)(2) (the section under which EPA promulgates significant new use rules) and certain other TSCA sections, this is a one-time notification requirement[6] per destination country for each exporter of a chemical substance. After receiving a notification from a firm, EPA notifies the importing country (40 CFR §707.70).

To calculate the burden associated with making a single export notification, EPA first estimated the average annual number of export notifications made by an exporter. EPA then derived the annual and per notification burden associated with preparing and submitting an export notification.

EPA estimated the average burden associated with making a single notification but did not estimate either the total number of exporters of a SNUR chemical or the number of notifications per SNUR chemical. This is because the SNUR applies to a variety of unrelated uses, manufacturers, and processors, making it impractical within the resources available for this report to assess the potential number of exporters and importing countries.

Most underlying data in this section come from the 2017 TSCA Section 12(b) ICR, ICR No.: 0795.15 OMB Control Number 2070-0030 [*Information Collection Request for] Notification of Chemical Exports - TSCA Section 12(b) Supporting Statement for Request for OMB Review under the Paperwork Reduction Act* (EPA, 2017d).

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[5] The exact statements are as follows: For imports of chemical substances subject to TSCA, "I certify that all chemical substances in this shipment comply with all applicable rules or orders under TSCA and that I am not offering a chemical substance for entry in violation of TSCA or any applicable rule or order under TSCA." For imports of chemical substances not subject to TSCA (e.g., pesticides), "I certify that all chemicals in this shipment are not subject to TSCA." (40 CFR §707.20)

[6] On November 14, 2006, EPA revised the export notification requirement for chemicals subject to TSCA §5(a)(2), 5(b), 5(e)(1) and 5(e)(2) from an annual to a one-time requirement per destination country for each exporter (November 14, 2006, 71 FR 66234).

ED_005636_00006628-00023

Estimated Number of Annual Export Notifications per Exporter

EPA's 2017 TSCA Section 12(b) ICR estimated that the average exporter *making notifications* would make 13 notifications per year.[7] This includes notifications resulting from SNURs and notifications resulting from other TSCA activities. A notification is typically no more than one page per chemical/country combination, and one notification mailing often includes multiple chemicals and/or destination countries.[8]

The percent of notifications resulting from SNURs in general is unknown, and it is also unknown how many notifications may result from this rulemaking, as not all manufacturers may choose to export a chemical, or they may make several notifications for a single chemical.

Exporter Costs

The 2017 TSCA Section 12(b) ICR (EPA, 2017d, page 9, Summary Table), estimated the annual export notification cost for an exporter under the one-time export notification requirement. These costs include the cost to the exporter of compiling a list of their products that are subject to TSCA Section 12(b) requirements, writing or revising an export notification letter to EPA, checking the outgoing shipments, and sending the notification letters with the associated shipping costs.

The per-notification cost was calculated based on the average burden per firm. Exporters who make a larger number of notifications per year may benefit from economies of scale and have lower costs per notification; conversely firms making fewer notifications may have a higher cost per notification.

Estimated Submission (Mailing) Costs. Regulated companies will incur mailing costs for export notifications delivered to EPA. Notifications are assumed shipped via the U.S. Postal Service (USPS) as first-class registered mail with a return receipt. Prices are 2018 rates (USPS, 2018). The estimated per-shipment and annual mailing costs incurred by individual submitters are detailed in [REF _Ref507582713 \h * MERGEFORMAT].

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[7] EPA calculated the average number of export notifications per exporter in the 2017 TSCA Section 12(b) ICR (EPA, 2017d) by dividing the estimated number of submitted notifications (3,090) by the estimated number of exporters (240).

[8] Based on review by an EPA economist of notifications received under TSCA Sections 4, 5 and 6 over approximately three weeks in early 2010.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Derivation of Total Mailing Cost for 13 Export Notification Notices

Postal Service	Cost (2018$)
Registered mail, *regular, with $0 declared value*	$11.90
Return receipt, *requested at time of mailing (receive hardcopy by mail)*	$2.75
Postage, *regular First Class, up to 1 ounce*	$0.50
Cost per Export Notice - Subtotal	**$15.15**
Total Mailing Cost for 13 Notices	**$196.95**

Sources: Mailing costs are 2018 rates (USPS, 2018). The mailing method comes from the *Economic Analysis of the Proposed Change to TSCA Section 12(b) Export Notification Requirements*, November 2005 (EPA, 2005), as clarified in a later SNUR economic analysis (EPA, 2007, Table 8).

Compile and Maintain the List of Products. Since TSCA §12(b) information collection activity has been in place for twenty years, most respondents will have already developed a list of their products subject to TSCA §12(b) export notification. Respondents need only check for new regulations promulgated and any new products exported by the company. Updating the list is estimated to take an average of one hour of technical time, which may also include some proportion of legal time (EPA, 2017d). The total burden can vary from two hours per year up to two hours per month, depending on the number of products exported by the company and the number of their products subject to TSCA §12(b) (EPA, 2017d).

The number of submitters per year who report under TSCA §12(b) has varied over time, rising from around 160 in 1991 to over 460 in 2000, and declining since. In the TSCA §12(b) ICR, EPA estimated that there would be approximately 240 submitters per year in near-future years (EPA, 2017d). Of these 240 submitters, EPA estimated that 160 companies were near the lower burden estimate of two hours per year, and 80 companies were near the upper estimate of 24 hours per year (EPA. 2017d). Compiling the list for all respondents was therefore estimated to take 2,240 hours (2 hours x 160 firms plus 24 hours x 80 firms), or an average of about 9.3 hours of technical time per firm per year for 13 notifications per year (EPA, 2017d).

Write or Revise Export Notification. Companies that export chemicals subject to TSCA §12(b) reporting must prepare an export notification to send to EPA when export shipments are made. Time for initial preparation of the export notice may vary depending on whether the company has prior experience with this requirement. This step is estimated to take an average of one hour of technical time (which may also include some proportion of legal time) per firm per year for 13 notifications per year (EPA, 2017d).

Check Orders and Send Notifications. Companies that export chemicals subject to TSCA §12(b) reporting must check outgoing shipments against the list of their products described above. A form letter notifying EPA and providing the required data must be printed and mailed within the required time period. This process is estimated to take an average one half hour of clerical time per export notification or 6.5 hours for 13 notifications (EPA, 2012b).

Total Burden and Cost per Notification. The burdens and associated costs for each notification activity are provided in [REF _Ref507582842 \h]. EPA estimates that the burden associated with making one notification is approximately 1.29 hours and $94.90.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: TSCA 12(b) Export Notification Cost per Notification

Activity	Technical Labor (at $78.63/hour)		Clerical Labor (at $34.91/hour)		Total	
	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)	Burden (hours)	Cost (2018$)
Compile list	9.3	$731.26	0	$0.00	9.3	$731.26
Write letter	1	$78.63	0	$0.00	1	$78.63
Check order and send notice	0	$0.00	6.5	$226.92	6.5	$226.92
Mailing cost[1]	--	--	--	--	--	$196.95
Total per average facility[2]	10.3	$809.89	6.5	$226.92	16.8	$1,233.75
Total per Notification	**0.79**	**$62.30**	**0.5**	**$17.46**	**1.29**	**$94.90**

Sources: [REF _Ref507588209 \h * MERGEFORMAT] and EPA, 2012b.

Asbestos, as defined in this SNUR, is already subject to TSCA section rules that trigger the export notification provisions of TSCA section 12(b).[9] However, EPA will not require export notification for articles containing asbestos. **Therefore, this rule will not result in export notification costs under TSCA section 12(b).**

3.2.8 Article Importation and Processing

The SNUR contains a provision to eliminate the exemption for the importation or processing of articles containing asbestos subject to the rule. This will require importers and processors of these articles containing asbestos to notify EPA at least 90 days before importing or processing them. In addition, the rule may also affect firms that do not currently import or process articles containing asbestos, but who may be interested in importing or processing these articles in the future or who may be interested in ensuring that the articles they import or process are in compliance with the requirements of the SNUR. Although there are no specific requirements in the rule for these companies, they may choose to undertake some activities in order to assure themselves that they are not undertaking a new use. Importers have varying levels of knowledge about the chemical content of the articles they import, yet under TSCA the definition of "manufacture" means to "import…, produce or manufacture"[10] and importers are responsible parties under the SNUR. In order to understand and monitor their liability, companies might undertake a range of activities to ensure that the articles they import do not violate existing regulations.

Affected Entities

SNUR reporting requirements for persons who may process articles containing the chemical substance subject to the SNUR are described in 40 CFR §721.5; however, the reporting requirements for processors (including processors of articles containing the subject chemical) are specifically limited. As described in 40 CFR §721.5(c), a processor is not required to submit a SNUN if he can document that (1) he does not

[9] Asbestos is subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b).

[10] TSCA section 3(9).

ED_005636_00006628-00026

know the specific chemical identity of the chemical substance being processed; and (2) that he is processing the chemical substance without knowledge that the substance is subject to a SNUR. This analysis focuses on the standard business practices that a processor would already undertake that would serve to document compliance with the rule.

Potential Compliance Activities (Article Importers)

Given the existing regulatory limitations on certain chemicals both internationally and within the United States, certain regulated industries have begun to develop industry-wide processes and other resources to support companies that are interested in understanding and managing their supply chains. Because the rule would not prescribe the steps that an importer must take to identify a chemical subject to a SNUR in articles, there are a variety of specific actions that a company could take to identify specific substances in its articles. Importers are expected to take actions that are commensurate with the level of risk each company perceives, and the resources it has available.

There is currently no single widely accepted standard procedure to identify regulated chemicals in a supply chain; however, there are a number of organizations that help provide information on the content of articles, organize declarations from suppliers, or certify suppliers based on materials or processes used. Importers (or processors) subject to SNURs may refer to these sources for assistance in their own strategy to identify a chemical subject to a SNUR in articles.

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), has developed a *Standard Guide for Assessment of Materials and Products for Declarable Substances* ("ASTM F2577") which provides guidance for the decision process to assess materials and products for declarable substances. Based on ASTM F2577, the following list includes activities that an importer could perform to identify any restricted chemicals in imported articles. This list is intended to capture the general types of activities that might be performed.

1) **Understand applicable requirements (per firm cost).** The importer would need to read and understand the SNUR, within the context of the company's products. This burden is as derived in Section [REF _Ref253093676 \r \h] of this report.
2) **Identify the type of imported articles that potentially contain the restricted substance (per firm cost).** This determination may be done based on an understanding of the uses of the restricted substance and the application of any *a priori* knowledge of the material and its manufacture to assess the probability that each regulated substance may be present. This step is estimated to take between 2 hours (for companies with simple supply chains) and 24 hours (for companies with complex supply chains) of technical staff time.
3) **Identify all suppliers involved (per firm cost).** The importer may choose to identify all suppliers from whom the articles identified in the previous step are imported, and as necessary, make aware of the importer's potential notice obligations respecting the regulated chemical substance. This activity is estimated to take approximately 7 hours of technical staff time and 17 hours of clerical staff time.
4) **Collect data from suppliers (per article cost).** Importers may choose to obtain verification from suppliers identified in step 3 that the regulated chemical substance is not found in the article. This may be accomplished through, for example, agreements with suppliers, declarations through databases or surveys, or by using a third-party certification system. This step is estimated to take

ED_005636_00006628-00027

between 0.08 and 8 hours of technical staff time, depending on data collection method chosen, number of articles, number of suppliers, etc.

5) **Chemical testing (per article cost).** Importers may perform their own laboratory testing of certain articles (or components of articles) to determine if they contain the restricted substance. Test cost prices may range from $18 to $739 per sample, with an average of $128 over the 630 tests priced.
6) **Recordkeeping (per firm cost).** The importer may choose to keep records confirming the activities completed. This burden is as derived in Section [REF _Ref508107696 \r \h] of this report.

[REF _Ref508105188 \h] contains the cost ranges associated with the above activities, using the burden hours listed above and current wage rates (see [REF _Ref507588209 \h]). The activities and burden derivations are discussed in more detail in *Understanding the Costs Associated with Eliminating Exemptions for Articles in SNURs* (EPA, 2014b).

Variation in costs associated with these activities would depend on a company's level of activity to comply with other regulations on chemicals in articles, the complexity of the supply chains; and the size of the company. Total costs per importer will further depend on the number of affected articles and the frequency of supplier change.

The European Union's *Registration, Evaluation, Authorization and Restriction of Chemicals* (REACH) regulations prohibit the manufacture, placing on the market and use of certain asbestos fibers[11] and of articles and mixtures containing these fibres. (Exceptions to REACH's restrictions apply to diaphragms containing chrysotile for electrolysis installations, and articles containing asbestos fibres which were already installed and/or in service before January 2005 (ECHA, 2018). Additionally, all OECD (Organization for Economic Co-operation and Development) countries, except for Mexico and the United States, have placed bans on asbestos (ASEA, 2018; Canada, 2018).[12]

Firms that have previously selected suppliers that have agreed to uphold certain standards, or who have otherwise sufficiently demonstrated that they are not supplying asbestos-containing products, would not likely incur any additional costs associated with these activities. Essentially, the product's certification would allow importers or processors of articles to learn whether an article does or does not contain asbestos or whether suppliers have agreed to uphold certain production standards. There are labeling systems for products in which independent entities ensure that the production of products does not utilize specific chemicals. For example, the European Union has developed a voluntary labeling system, called the EU Ecolabel. Producers, importers and retailers can voluntarily apply for the EU Ecolabel (EC, 2017). Labeled products signal to consumers that the product in question has a reduced environmental impact

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[11] REACH restrictions apply to the following types of asbestos fibres: Crocidolite (CAS No 12001-28-4), Amosite (CAS No 12172-73-5), Anthophyllite (CAS No 77536-67-5), Actinolite (CAS No 77536-66-4), Tremolite (CAS No 77536-68-6), and Chrysotile (CAS No 12001-29-5 and 32207-32-0).

[12] Canada has recently finalized regulations prohibiting the import, sale and use of asbestos and the manufacture, import, sale and use of products containing asbestos in Canada, with a limited number of exclusions. Additional regulations prohibit the export of all forms of asbestos with a limited number of exceptions. These regulations came into force on December 30, 2018 (Canada, 2018).

ED_005636_00006628-00028

throughout the product's life cycle, such as the manufacturing stage and/or during the final product disposal. The criteria are specifically designed to focus on the stage of the life cycle where a product has the most environmental impact (EC, 2017).

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Range of Costs Associated with an Importer's Identification of Chemicals Subject to a SNUR

Activity	Cost (2018$)	Notes
Per Rule Costs		
Rule familiarization	$65	Discussed in Section [REF _Ref253093676 \r \h] of this document
Identify the type of imported articles that potentially contain the restricted substance	$157 to $1,887	Actual costs may vary based on number of articles imported and the complexity of the article itself (number of components)
Identify all suppliers involved	$1,144	Actual costs may vary depending on the number of articles imported, number of suppliers, and frequency of supplier changes
Recordkeeping	$5.24	Actual costs may vary depending on recordkeeping system already in place. This cost would particularly be associated with companies that have no previous experience complying with chemical restriction rules; companies that already have methods in place to identify chemicals in articles likely already have recordkeeping systems in place
Per Article-Related Costs		
Collect data from suppliers	$6.29 to $629 per article reviewed. $0 if no data collected.	Actual costs only apply to those companies that choose to collect data from suppliers. They will vary depending on the specific data collection method chosen. Total costs depend on considerations including the number of articles imported, number of suppliers, and frequency of supplier changes.
Chemical testing	$130 per article tested. $0 if no testing.	Actual costs only apply to those companies that choose to collect data from suppliers. They will vary depending on the specific chemical being tested for; the complexity of the article and sample preparation required; and the exact fees of the laboratory chosen for the analysis. Total costs per company will depend on considerations including the number of articles tested, which may be affected by the number of suppliers and risk associated with each, and frequency of supplier changes.

Source: [REF _Ref507588209 \h * MERGEFORMAT] and EPA, 2014b

Firms with less experience with other regulations that are planning to import articles that could potentially contain asbestos may incur a larger burden should they choose to conduct some or all of the activities listed above to ensure compliance. These firms may choose to reach out to a wide variety of upstream firms to gather information on the chemical content of articles for documentation. Firms may also choose to conduct additional research on their suppliers to ensure that they are purchasing from reputable manufacturers and chemical suppliers who will provide necessary technical support, as well as regulatory standards (AFIRM, 2011). Furthermore, a company could choose to have articles tested. If a company chooses to conduct testing they may also need to conduct additional research to ensure the laboratory is accredited, reliable and follows Good Laboratory Practices (GLP) (AFIRM, 2011). For those companies choosing to undertake actions to assess the composition of the articles they import, EPA expects that in

all likelihood, these importers would take actions that are commensurate with the level of risk (of a chemical to be a part of an article) each company perceives, and the resources it has available.

Potential Compliance Activities (Processors of Articles)

Under 40 CFR §721.5(a)(2), manufacturers, importers, or processors of subject chemical substances who distribute the substance in commerce must notify the recipient, in writing, of the applicability of SNUR requirements, or document that the recipient has such knowledge or will not undertake any significant new use described in the rule. Therefore, the article processor, as the recipient of any subject chemical substance, should receive written notification from the supplier, and would keep this documentation as part of their standard business practice.

Should a processor need to demonstrate compliance with the SNUR, it is expected that processors would use notification from the supplier or other shipping or labeling documents (such as Material Safety Data Sheets (MSDS), etc.) received with the article in the ordinary course of business.

To the extent that processors desire extra certainty that the articles they process are not subject to a SNUR, they may undertake the steps to identify regulated chemicals outlined above for importers.

3.3 Summary of Per Submission Costs, by Option

The number of firms affected by not making submissions to EPA is not known; therefore, costs are not aggregated across the affected entities. The following table summarizes the costs to comply with the rule, as described in more detail in section [REF _Ref242523921 \r \h] above.

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Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: Compliance Options and Associated Costs Incurred by a Firm Due to the SNUR

	Option[1]	Costs	Quantified Costs per Chemical (2018$)[2]
1.	Electronic submission of a Significant New Use Notice (SNUN), indicating to EPA that the firm would like to manufacture, import, or process the chemical for a Significant New Use as defined in the SNUR.	Costs of submitting a SNUN, including rule familiarization, CDX registration (for companies that are first-time submitters), form completion, user fee, and any test costs.[3]	$64.52 rule familiarization cost; $23,252 SNUN submission and recordkeeping cost for large businesses (including $16,000 fee) and $10,052 for small businesses (including $2,800 fee). EPA usually receives well under ten SNUNs per year[4]. First time submitters would incur $123 for CDX registration and associated activities. Companies manufacturing, importing, or processing a chemical currently used in commerce in the United States will incur a cost of $78.63 for notifying consumers of SNUR regulatory activities.
2.	Manufacture, import, or process in a way that avoids a Significant New Use.	Cost of the profit foregone as a result of not engaging in the commercial activity originally planned (opportunity costs), and recordkeeping.	Opportunity costs are not quantified. Other costs including rule familiarization ($64.52), recordkeeping ($5.24), and customer notification ($78.63) may apply. Costs associated with article importation may include activities such as article identification ($157 to $1,887), supplier identification ($1,144), recordkeeping ($5.24), collecting data from suppliers ($6.29 to $629 per article), and testing ($130 per article tested).

Notes:

[1] Firms may be subject to both options at once, since submission of a SNUN results in profits foregone as a result of not manufacturing, importing, or processing the chemical.

*[2] Quantified costs are attributable to the SNUR only if a firm would not otherwise follow the specified practices. Costs are detailed in Section [REF _Ref242523921 \r \h * MERGEFORMAT]. SNURs typically trigger export notification requirements at an estimated cost of $95 per notification. However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for products containing asbestos. Thus, there is no additional cost of export notification for this rule.*

[3] EPA does not require the development of test data for submission of a SNUN, although a firm may submit test data already in its possession and/or describe any other available data. Because EPA does not require the development of test data, EPA assumes that no firms will incur testing costs as a result of the SNUR.

*[4] See Section [REF _Ref507583440 \r \h * MERGEFORMAT] for more details.*

3.4 Likelihood of SNUN Submission

This analysis assumes that very few entities are expected to submit a SNUN. EPA has, over the years, promulgated SNURs that cover a total of more than 1,000 chemicals. In response, the Agency receives only a handful of SNUNs per year. For example, the number of SNUNs received was 4 in Federal fiscal year (FY) 2005, 8 in FY2006, 6 in FY2007, 8 in FY2008, 7 in FY2009, 2 in FY2010, 10 in FY2011, 10 in FY2012, 11 in FY2013, 19 in FY2014 and 9 in FY2015.[13] Of those SNUNs, only a fraction resulted from existing chemical SNURs promulgated under Section 5(a)(2) (EPA, 2012a).

[13] In-person count of SNUNs conducted by Kimberly Wilson of Abt Associates Inc, on April 8, 2010 at EPA's Confidential Business Information Center (CBIC) and updated values for FY2010 and FY2011 provided by Lynne Blake-Hedges of U.S. EPA on September 1, 2011. Updated values for FY2012 through FY2015 provided by Stephanie Suazo of U.S. EPA on May 18, 2016.

3.5 Potential for Subsequent Regulatory Actions

The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the SNUN is being reviewed).

Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions.

ED_005636_00006628-00032

4. Agency Costs

4.1 Review and Process SNUN Submissions

EPA's cost to review and process SNUN submissions is assumed to be represented by its costs for a larger category of similar TSCA section 5 notices that includes SNUNs. On October 17, 2018, EPA promulgated new user fees for actions under TSCA sections 4, 5, and 6 (83 FR52694). In developing the proposed fees, EPA estimated its total annual costs for processing, reviewing, and making determinations under TSCA section 5 between fiscal years 2019 and 2021. EPA estimated its direct and indirect costs for reviewing PMNs, SNUNs, and Microbial Commercial Activity Notices (MCANs) to be $18,934,659 per year during this period, and assumed that an average of 462 PMNs, SNUNs, and MCANs will be submitted per year.[14] This yields an average Agency cost of approximately $41,000 apiece for reviewing and processing PMNs, SNUNs and MCANs.[15] Thus, processing and reviewing any SNUNs submitted due to this SNUR is also expected to cost EPA approximately $41,000.

4.2 Export Notification Cost

Under TSCA section 12(b), exporters must notify EPA if they intend to export chemicals subject to SNURs, as described in Section [REF _Ref507585649 \r \h * MERGEFORMAT]. As described in that section, asbestos, as defined in this SNUR, is already subject to TSCA rules that trigger the export notification provisions of TSCA section 12(b). However, EPA will not require export notification for articles containing asbestos. Therefore, this rule will not result in additional export notification costs under TSCA section 12(b).

The Agency burden and cost due to TSCA §12(b) export notification result from three tasks. In the first task, EPA receives export notifications from companies that intend to export one of the chemicals subject to TSCA §12(b) (EPA, 2017d). In the second task, EPA staff prepares separate notification letters that are subsequently reviewed and delivered to importing countries, their embassies, or representatives, and to the importing country's U.S. embassies (EPA, 2017d). (See [REF _Ref507582713 \h * MERGEFORMAT] for the cost of mailing one notification). The third task is comprised of EPA staff responses to public inquiries and other TSCA 12(b) activities. The work of responding to non-routine requests for information and clarification from industry and importing countries, and of handling other tasks associated with the TSCA §12(b) program, was estimated to require roughly 400 hours per year (EPA, 2017d).

Because it is unknown how many, if any, notifications EPA will receive or send as a result of the current rulemaking, the costs to the Agency are presented per activity. The estimated burden for the first two Agency activities is provided in [REF _Ref507585698 \h * MERGEFORMAT]. Agency wage rates are derived in Appendix A.

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[14] Table 9 - Annual Section 5 PMN/SNUN/MCAN Cost Estimates. *EO 12866 Documentation; Draft Submitted to OMB – Technical Background Document (RIN 2070-AK27; Proposed Rule.* EPA-HQ-OPPT-2016-0401-0020. https://www.regulations.gov/document?D=EPA-HQ-OPPT-2016-0401-0020.

[15] This $41,000 review cost is lower than the overall average cost of $55,200 for TSCA section 5 activities that EPA calculated for the 2018 proposed fees rule because the $55,200 value includes costs for activities (such as issuing SNURs following a PMN review and reviewing Notices of Commencement) that are not relevant to SNUNs.

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Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]: TSCA 12(b) Export Notification Cost: Agency Burden per Activity (2018$)

Agency Activity	EPA Labor (at $84.26/hour)		Mailing Cost	Total Agency Cost per Activity
	burden (hours)[1]	Cost (2018$)		
Process an incoming notification from an exporting company	0.1	$8.43	$0.00	$8.43
Prepare and mail a notification to an importing country	0.5	$42.13	$15.15	$57.28

Notes:
[1] The burden associated with an Agency activity is the burden for the Agency to process one incoming notification, or to prepare and mail an outgoing notification.
Sources: Appendix A of this report shows the derivation of Agency labor costs. Mailing costs are from [REF _Ref507582713 \h * MERGEFORMAT] of this report. Other burden estimates are from *ICR No.: 0795.14 [Information Collection Request for] Notification of Chemical Exports - TSCA Section 12(b) Supporting Statement for Request for OMB Review under the Paperwork Reduction Act* (EPA, 2017d).

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5. Benefits

Asbestos was listed as a known human carcinogen in the National Toxicology Program's First Annual Report on Carcinogens in 1980 (NTP, 2016). In 1988, EPA assessed the health hazards and effects caused by exposure to asbestos under the Integrated Risk Information System (IRIS) program and determined that asbestos exposure can lead to lung cancer and mesotheliomas (tumors arising from the thin membranes that line internal organs) (EPA, 1988). Many authorities have established that there is causal association between asbestos and lung cancer and mesotheliomas (NTP, 2016; ATSDR, 2001; IARC, 2012). EPA also noted in the Scope of the Risk Evaluation for Asbestos that there is a causal association between exposure to asbestos and cancer of the larynx and cancer of the ovary (IARC, 2012). There is also suggestive evidence of a positive association between asbestos and cancer of the pharynx (IARC, 2012; NRC, 2006), stomach (ATSDR, 2001; IARC, 2012), and colorectum (NTP, 2016; ATSDR, 2001; IARC, 2012; NRC, 2006; NRC, 1983; EPA, 1980). All types of asbestos fibers have been reported to cause mesothelioma (IARC, 2012).

Increases in lung cancer mortality have been reported in both workers and residents exposed to various asbestos fiber types as well as fiber mixtures (IARC, 2012). There is evidence in in-vitro, animal, and human studies that asbestos is genotoxic, meaning asbestos can damage an organism's genetic material (ATSDR, 2001). There is also evidence that asbestos exposure is associated with adverse respiratory system effects, such as asbestosis and immunotoxicity (ATSDR, 2001; EPA, 2017a).

While the SNUR would not address the risk from ongoing uses, a notification required by the SNUR would initiate EPA's evaluation of the conditions of use associated with the intended use within the applicable review period. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination. The SNUR may also help to limit future exposure to the chemical because a company may choose to modify planned uses in such a way that does not trigger a SNUR, as opposed to submitting a SNUN.

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6. Additional Analyses

Several statutes and executive orders (EOs) pertain to the SNUR. This chapter presents statements discussing paperwork reduction, unfunded mandates, regulatory planning and review, tribal governments, children's health, and environmental justice, among others.

6.1 Regulatory Flexibility Act

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*), the Agency hereby certifies that promulgation of this SNUR would not have a significant adverse economic impact on a substantial number of small entities. The rationale supporting this conclusion is as follows. The requirement to submit a SNUN applies to any person (including small or large entities) who intends to engage in any activity described in the rule as a significant new use. Where a use is new, by definition no small or large entities presently engage in such activities. Although some small entities may decide to manufacture or process a substance for the new use after the SNUR is promulgated, EPA receives very few SNUNs, and few of those are submitted by small entities. In response to the promulgation of SNURs covering over 1,000 chemical substances, the Agency receives only a handful of SNUNs per year. For example, the number of SNUNs was four in Federal fiscal year 2005, eight in FY2006, six in FY2007, eight in FY2008, seven in FY2009, two in 2010, and ten in 2011 (EPA, 2012a), for an average of 6 per year from all SNURs. Of those SNURS, only a fraction resulted from existing chemical SNURs promulgated under Section 5(a)(2) (EPA, 2012a), and only a portion were submitted by small entities. EPA has no reason to believe that this SNUR will alter the pattern of SNUN submissions that EPA has historically seen. In addition, the estimated reporting cost for submission of a SNUN is minimal regardless of the size of the firm, at about $23,250 for large firms, including SNUN recordkeeping and reporting costs. The Agency currently offers some relief to certain small businesses by reducing the SNUN submission fee from $16,000 to $2,800. This lower fee reduces the cost of submitting a SNUN to about $10,050 for smaller firms. During the six-year period from 2005 to 2010, only three submitters self-identified as small in their SNUN submission[16] (EPA, 2012a). EPA believes the cost of submitting a SNUN is relatively small compared the cost of developing and marketing a chemical new to a firm and that the requirement to submit a SNUN generally does not have a significant economic impact.

EPA believes that the potential economic impact of complying with a SNUR is not expected to be significant or adversely affect a substantial number of small entities.

6.2 Unfunded Mandates Reform Act (UMRA)

This action contains no Federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA, Public Law 104-4), 2 U.S.C. 1531-1538 for State, local, or tribal governments or the private sector. Based on EPA's experience with similar information collection rules, state, local, and tribal governments have not been affected by this reporting requirement, and EPA does not have any reason to believe that any state, local, or tribal government will be affected by this rulemaking.

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[16] As described in Section [REF _Ref184488 \r \h], the three "small" submitters were identified by review of actual SNUN submissions from the years 2005-2010.

ED_005636_00006628-00036

6.3 Paperwork Reduction Act (PRA)

According to the Paperwork Reduction Act (PRA), 44 USC 3501 et seq., an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information that requires Office of Management and Budget (OMB) approval under the PRA, unless it has been approved by OMB and displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in title 40 of the CFR, after appearing in the *Federal Register*, are listed in 40 CFR, part 9, and included on the related collection instrument, or form, if applicable. The information collection requirements related to this action have already been approved by OMB pursuant to the PRA under OMB control number 2070-0038 (EPA ICR No. 1188) and 2070-0030 (EPA ICR No. 0795).

If an entity were to submit a SNUN to the Agency, the annual burden is estimated to average 96.9 hours per response: 0.82 hours for rule familiarization (Section [REF _Ref300654011 \r \h * MERGEFORMAT]), 1.56 hours for CDX registration, CDX electronic signature, and pay.gov account setup (Section [REF _Ref300654049 \r \h * MERGEFORMAT]), 92.2 hours for form completion, submission and recordkeeping under CFR §721.40 (Sections [REF _Ref300654067 \r \h * MERGEFORMAT]), and 1 hour for consumer notifications (Section [REF _Ref508742917 \r \h][REF _Ref306877276 \r \h * MERGEFORMAT]) . The burdens for rule familiarization, CDX registration, CDX electronic signature, pay.gov account setup form completion, submission, and recordkeeping consumer notifications are approved under EPA ICR No. 1188 (OMB control number 2070-0038). Burden for export notification is approved under EPA ICR No. 0795 (OMB control number 2070-0030). The burden for export notification is estimated to be 1.29 hours per notification (Section [REF _Ref508742847 \r \h * MERGEFORMAT]). However, asbestos is already subject to export notification, and this rulemaking is not requiring export notification for articles containing asbestos. Therefore, there is no additional cost for export notification for this rule.

6.4 Executive Order 13132 – Federalism

Executive Order 13132, entitled *Federalism* (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." Policies that have federalism implications are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government" (64 FR 43255, August 10, 1999).

This action will not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999), because it will not have substantial direct effect on States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

6.5 Executive Order 12898 – Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* (59 FR 7629, February 16, 1994), establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

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This action will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). This action does not affect the level of protection provided to human health or the environment. The information collected under this rule would assist EPA and others in determining the potential hazards and risks associated with asbestos. Although not directly impacting environmental justice-related concerns, this information will enable the Agency to better protect human health and the environment, including in low-income and minority communities.

6.6 Executive Order 13045 – Children's Health

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997), requires EPA to identify and assess environmental health and safety risks that may disproportionately affect children. This type of analysis is required for rules that will have an impact of $100 million or more only. The impact of this SNUR will be less than $100 million and therefore no analysis of such impacts on children is required.

6.7 Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments

As required by Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000), EPA has determined that this rule does not have tribal implications because it will not have any effect on tribal governments, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in the Order.

6.8 Executive Order 13211 – Energy Supply, Distribution, or Use

This rule is not subject to Executive Order 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001), because it is not a significant regulatory action under Executive Order 12866 and is not expected to affect energy supply, distribution, or use.

6.9 Executive Order 13563 – Improving Regulation and Regulatory Review

Executive Order 13563, *Improving Regulation and Regulatory Review* (76 FR 3821, January 21, 2011), requires EPA to base regulations on the best available science, allow for public participation and the open exchange of ideas, promote predictability and reduce uncertainty, identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends, consider both the costs and benefits qualitatively and quantitatively and ensure regulations are accessible, consistent, written in plain language, and easy to understand.

The rule establishes reporting and recordkeeping requirements that apply to manufacturers (including importers) and processors of certain chemicals. Consistent with EO 13563, this document qualitatively and quantitatively describes both the costs and benefits of the rule as well as the underlying data used in the analyses. EPA chose the best available data to analyze the costs and benefits described in this document and the best analytic approaches given the available data and other constraints.

6.10 National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law No. 104-113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

The rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

6.11 Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

Under Executive Order 13771 (82 FR 9339, February 3, 2017), for each new significant regulatory action that imposes costs, EPA is to also issue two "deregulatory" actions. This action is not expected to be an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

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APPENDIX A - Wage Rate Calculations

This appendix describes the derivation of the fully loaded wage rates and inflation factors used in calculating costs of labor, materials, and other inputs. All cost estimates are presented in 2018 dollars.

The fully loaded unit labor cost for managerial, professional/technical, and clerical labor in the regulated industry and for EPA staff is estimated by adding fringe benefits and overhead costs to the hourly wage or annual salary for each category following the method described in *Wage Rates for Economic Analysis of the Toxics Release Inventory Program* (EPA, 2002b). This appendix describes the method employed to estimate the fully loaded unit labor costs for each labor category and presents the results of the analysis.

A.1 Derivation of Industry Unit Wage Rates

Wages and fringe benefit data for managerial, professional/technical[17], and clerical labor are from the BLS Employer Costs for Employee Compensation (ECEC) historical data for September 2018 (BLS, 2018).

The costs of fringe benefits such as paid leave and insurance, specific to each labor category, are taken from the same BLS report (BLS, 2018). Fringe benefits as a percentage of wages are calculated separately for each labor category. For example, the wage rate for professional/technical labor in 2018 was $46.60, and the average fringe benefit was $24.11. Therefore, fringe benefits as a percentage of wages were $24.11/$46.60 or approximately 51.74 percent (see Exhibit A-1).

An additional loading factor of 17 percent is applied to wages to account for overhead. This approach is used for consistency with Office of Pollution Prevention and Toxics (OPPT) economic analyses for major rulemaking such as *Wage Rates for Economic Analyses of the Toxics Release Inventory Program* (EPA, 2002). This overhead loading factor is added to the benefits loading factor, and the total is then applied to the base wage to derive the fully loaded wage. For example, fully loaded wage for professional/technical labor in 2018 was $46.60 × (1+ 0.5174 + 0.17) = $78.63.

Fully loaded costs for managerial, and clerical labor are calculated in a similar manner, as shown in Exhibit A-1.

[17] Past economic analyses have used the term "technical" labor. Here the category is called "professional/technical" labor, to make clear how it relates to BLS categories. In 2004, BLS changed from the Occupational Classification System, OCS, to the Standard Occupational Classification system, SOC. In the process, the "Professional specialty and technical" category became the "Professional and related" category. However, the coverage of the old and new occupational groups is approximately the same. See the BLS article, "Comparing Current and Former Industry and Occupation ECEC Series" (Weinstein and Loewenstein, 2004).

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Exhibit A-1 Derivation of Loaded Industry Wage Rates (2018$)

Labor Category	Data Source for Wage Information	Date	Wage (a)	Fringe Benefit (b)	Fringe as % wage (c)=(b)/(a)	Overhead as % wage[1] (d)	Fringe + overhead factor (e)=(c)+(d)+1	Loaded Wages (f)=(a)x(e)
Managerial	BLS ECEC, Private industry workers in manufacturing industries, "Management, business, and financial occupations"[2]	Sept 2018	$47.81	$22.83	47.75%	17%	1.65	$78.77
Professional/ Technical	BLS ECEC, Private industry workers in manufacturing industries, "Professional and related occupations"[2]	Sept 2018	$46.60	$24.11	51.74%	17%	1.69	$78.63
Clerical	BLS ECEC, Private industry workers in manufacturing industries, "Office and administrative support occupations"[2]	Sept 2018	$21.05	$10.28	48.84%	17%	1.66	$34.91

Notes:
[1] An overhead rate of 17% was used based on assumptions in Rice (2002) and U.S. EPA (2002).
Sources:
[2] *Employer Costs for Employee Compensation Supplementary Tables National Compensation Survey, September 2018, US Bureau of Labor Statistics, (BLS, 2018).*

A.2 Derivation of Agency Unit Wage Rates

Unit wage rates for EPA staff are calculated based on annual Federal salaries for the Washington-Baltimore area published by the Office of Personnel Management (OPM) and effective January 2018 (OPM, 2018). The average salary for one full-time equivalent (FTE) technical/professional staff member is estimated as the salary for a GS-13 Step 5 employee, which is $52.66 hourly without fringe benefits and overhead costs. In order to derive the fully loaded salary, EPA multiplied the annual salary by an assumed loading factor of 1.6 to reflect Federal fringe benefits and overhead, which results in a fully loaded wage rate of $84.26 (see Exhibit A-2).

The Agency loading factor of 1.6 is from an EPA guide entitled *Instructions for Preparing Information Collection Requests (ICRs)* (EPA, 1992, page 30, footnote 9). The 60 percent assumption was labeled "the benefits multiplication factor" in the EPA guide but has been used in many EPA OPPT ICRs to reflect both fringe benefits and overhead for Federal staff. For example, it was used in a document supporting EPA ICR No. 1139.06 (EPA, 2000), with the following explanation:

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The annual costs per FTE are derived by multiplying the annual pay rate by 1.6 (the benefits multiplication factor). The multiplication factor used is recommended in EPA's Office of Policy, Planning, and Evaluation's *Instructions for Preparing Information Collection Requests (ICRs)* (June 1, 1992). An EPA internal phone call between Carol Rawie (OPPT/EETD/RIB) and Carl Koch (OPPE/RMD/IMB) on May 3, 1994, indicated that the 1.6 factor included not only benefits but also overhead.

Fully loaded costs for Agency labor are shown in Exhibit A-2.

Exhibit A-2: Derivation of Loaded Agency Wage Rates (2018$)

Labor Category	Data Source for Wage Information	Date	Wage ($ per hour) (a)	Fringe Benefit (b)	Fringes as % wage (c)=(b)/(a)	Overhead as % wage (d)	Fringe + overhead factor (e)=(c)+(d)+1	Loaded Wages ($ per hour) (f)=(a)x(e)
EPA technical staff FTE	OPM Washington-Baltimore-Northern Virginia, DC-MD-PA-VA-WV, area, GS-13 Step 5 pay rates	Jan 2018	$52.66	Included in 60% overhead	N/A	60% [a]	1.6	$84.26

Notes:
[a] The 60% fringe-and-overhead rate is from an EPA guide, *Instructions for Preparing Information Collection Requests (ICRs)* (EPA, 1992, page 30, footnote 9).
Source: OPM, 2018

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APPENDIX B – References

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Asbestos; Significant New Use Rule
Response to Comments
RIN 2070-AK45
Draft/Deliberative
March 7, 2019

Overview

The U.S. Environmental Protection Agency received a total of 17,912 comments related to the proposed *Asbestos; Significant New Use Rule* (SNUR) under docket identification (ID) number EPA-HQ-OPPT-2018-0159. The public comment period began on June 11, 2018 and ended August 10, 2018. Of the 17,912 public comments received, 11,732 are part of a mass mail campaign, 240 are from a second mass mail campaign, 67 are not posted due to inappropriate language, and 5,873[1] individual comments are identified by ID number, posted in the docket, and available to view on regulations.gov at [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159"]. Over 90% (5,386) of the individual comments received on the Asbestos SNUR are anonymous.

Upon careful review, EPA identified seven general themes throughout the public comments on the proposed Asbestos SNUR. The majority of the comments are not germane to the purpose and requirements of the proposed rule, as explained below. Comments are addressed in this document according to the following main topics areas:

1. Purpose of the proposed Asbestos SNUR
2. Extend the comment period
3. Ban asbestos
4. Explain EPA's review process of Significant New Use Notices (SNUNs)
5. Provide clarification: Recycling and disposal
6. Broaden the scope of the SNUR
    a. Include mining
    b. Require 12(b) export notification for articles
    c. Revise the SNUR to include every use of asbestos that is no longer ongoing
7. Economic Analysis

EPA received thousands of comments pertaining to the purpose of the proposed Asbestos SNUR as well as the request that EPA ban the use of asbestos in the United States. Due to the overwhelming number of comments on these two topics, the Agency does not cite each relevant comment by ID number in the following discussion. As for the other public comment topics of the proposed rule listed above, the Agency specifically cites 17 substantive comments, which may address multiple aspects of the proposed rule.

1. Purpose of the proposed Asbestos SNUR

Most commenters (too numerous to cite individually) expressed concern that the proposed rule would allow otherwise prohibited asbestos products to be reintroduced into U.S. commerce, which is not the case. Instead, this action will prevent any discontinued uses of asbestos (that are not already prohibited under the partial 1989 Toxic Substances Control Act (TSCA) ban) from restarting without EPA having an opportunity to evaluate each intended use for potential risks to

[1] 5,893 comments are reported in regulations.gov, but 18 of those comments have been withdrawn due to inappropriate language and are accounted for in this summary as part of the 67 not posted.

human health and the environment and take any necessary regulatory action, as appropriate. The final SNUR does not provide any means by which prohibited uses under the partial 1989 TSCA ban can return to the marketplace. On the contrary, the action ensures that otherwise unregulated uses of asbestos undergo EPA evaluation. Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The SNUR ensures that manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

This SNUR also compliments the TSCA section 6 risk evaluation for asbestos by ensuring that any discontinued use of asbestos not already prohibited (that otherwise could resume at any time) must be reviewed and approved by EPA prior to commencing. A further discussion of what a SNUR is and the relationship of this action to past and current Agency actions is provided in the following paragraphs.

Under the 1989 rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL-3476-2)*, any "new use" of asbestos – defined by that rule as uses for which the manufacture, importation or processing would be initiated *for the first time* after August 25, 1989 – are banned in the United States. However, after the court's decision in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), that 1989 rule did not ban uses of asbestos that began on or before August 25, 1989 and then were subsequently discontinued voluntarily after August 25, 1989. Recognizing the inherent confusion between what is covered as a "new use" as defined and banned by the 1989 rule and a "significant new use" at issue in the current rulemaking, the Agency attempted to make this distinction in Unit III.A. of the proposed Asbestos SNUR:

> "In 1989, EPA published a final rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions* (54 FR 29460, July 12, 1989) (FRL-3476-2), which was intended "to prohibit, at staged intervals, the future manufacture, importation, processing and distribution in commerce of asbestos in almost all products, as identified in the rule . . ." and to "reduce the unreasonable risks presented to human health by exposure to asbestos during activities involving these products." The 1989 final rule applied to the asbestos product categories identified in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products,* which was conducted in support of the rule (Ref. 20). However, the ban against most of the asbestos product categories was overturned by the Fifth Circuit Court of Appeals in 1991. In addition to the asbestos products that remain banned after the court ruling, which are identified in Table 1 below, any new use of asbestos was also banned. The prohibition on any new uses of asbestos is for uses initiated for the first time after August 25, 1989. As a point of clarification, in this proposed rulemaking, a significant new use of asbestos addresses multiple uses that were initiated prior to August 25, 1989, for which manufacturing and processing are no longer ongoing in the United States."

After the court's ruling in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), only the specific asbestos products identified in Table 1 below as reflected in the preamble of the proposed rule, and new uses of asbestos initiated for the first time after August 25, 1989, remained banned. The new SNUR keeps these prohibitions in place and would not amend them in any way; in other words, the new SNUR would not provide a means by which these prohibited uses could return to the marketplace.

Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

Product Category	**Definition (40 CFR 763.163)**
Corrugated Paper	Corrugated paper means an asbestos-containing product made of corrugated paper, which is often cemented to a flat backing, may be laminated with foils or other materials, and has a corrugated surface. Major applications of asbestos corrugated paper include: Thermal insulation for pipe coverings; block insulation; panel insulation in elevators; insulation in appliances; and insulation in low-pressure steam, hot water, and process lines.
Rollboard	Rollboard means an asbestos-containing product made of paper that is produced in a continuous sheet, is flexible, and is rolled to achieve a desired thickness. Asbestos rollboard consists of two sheets of asbestos paper laminated together. Major applications of this product include: Office partitioning; garage paneling; linings for stoves and electric switch boxes; and fire-proofing agent for security boxes, safes, and files.
Commercial Paper	Commercial paper means an asbestos-containing product that is made of paper intended for use as general insulation paper or muffler paper. Major applications of commercial papers are insulation against fire, heat transfer, and corrosion in circumstances that require a thin, but durable, barrier.
Specialty Paper	Specialty paper means an asbestos-containing product that is made of paper intended for use as filters for beverages or other fluids or as paper fill for cooling towers. Cooling tower fill consists of asbestos paper that is used as a cooling agent for liquids from industrial processes and air conditioning systems.
Flooring Felt	Flooring felt means an asbestos-containing product that is made of paper felt intended for use as an underlayer for floor coverings, or to be bonded to the underside of vinyl sheet flooring.
New Uses *	The commercial uses of asbestos not identified in § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

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In this SNUR, a significant new use of asbestos addresses multiple uses that were initiated on or before August 25, 1989 (such that the uses were not covered by the 1989 ban for uses initiated *for the first time after August 25, 1989*), for which manufacturing and processing are no longer ongoing in the United States. This SNUR is designed to complement the existing prohibitions on asbestos, not alter or displace those prohibitions.

In response to the confusion surrounding the Asbestos SNUR, EPA offers the following explanation of a significant new use rule, which, in general terms, is a notification requirement. EPA is including some of the explanation below to more clearly distinguish between "new use" and "significant new use," to clarify what the proposed SNUR discussed and avoid additional confusion.

Significant new use rules can be promulgated for existing chemicals and new chemicals. "Existing" chemical substances are chemicals that are on the TSCA Chemical Substance Inventory[2]. Any chemical substance that is not on the TSCA Chemical Substance Inventory is classified as a new chemical.

Asbestos is classified as an existing chemical, and SNURs for existing chemicals typically occur in three circumstances:

1. The chemical has been phased out or taken off the market for certain uses or has not been manufactured for a certain use before;
2. The chemical is no longer being manufactured or processed for any use; or
3. There is a potential or likely use that has not commenced.

EPA can promulgate an existing chemical SNUR to ensure that no company will be able to manufacture or process the chemical for a certain use (circumstance 1) or for any use (circumstance 2) without prior notification to EPA, and not before EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

Most asbestos products are not banned in the United States, although some uses of asbestos are prohibited. Such limited banned uses of asbestos include:

- Under TSCA – Manufacturing, importing, processing or distributing five asbestos-containing products (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989 (40 CFR Part 763, Subpart I; FRL-3269-8).
- Under the Clean Air Act (CAA) – Asbestos pipe insulation and asbestos block insulation on facility components, such as boilers and hot water tanks, if the materials are either pre-

[2] Access the TSCA Chemical Substance Inventory [HYPERLINK "https://www.epa.gov/tsca-inventory/how-access-tsca-inventory"]

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formed (molded) and friable or wet-applied and friable after drying. Spray-on application of materials containing more than 1% asbestos on buildings, structures, pipes, and conduits unless certain conditions specified under 40 CFR 61, Subpart M are met.

- Under the Consumer Product Safety Act (CPSA) – Asbestos in artificial fireplace embers and wall patching compounds (16 CFR 1500).
- Under the Food and Drug Administration (FDA) – Asbestos-containing filters in pharmaceutical manufacturing, processing and packing (21 CFR 211.72).

Although the use of asbestos has declined significantly since EPA attempted a broad ban in 1989, any otherwise prohibited uses of asbestos can resume at any time. This SNUR targets uses of asbestos that are not already prohibited under TSCA nor ongoing in the United States. In the absence of the asbestos SNUR, manufacturing, importing, or processing of asbestos (including as part of an article) for the significant new uses identified in the rule may begin at any time without prior notice to EPA.

The significant new use rule for asbestos under TSCA section 5 served to compliment the ongoing risk evaluation for asbestos under TSCA section 6. In December 2016, EPA named asbestos as one of the first ten chemical substances subject to the Agency's initial chemical risk evaluations under TSCA. EPA is currently conducting that risk evaluation, and if EPA determines there is unreasonable risk for any of the activities being evaluated, EPA is then required by statute to initiate risk management under TSCA for those activities, including restrictions on such activities. While the risk evaluation for asbestos addresses conditions of use, the SNUR addresses unregulated uses that are no longer ongoing but could legally resume at any time absent the SNUR. By ~~taking action under the~~reviewing ongoing uses in the risk evaluation and issuing the SNUR simultaneously, EPA is ensuring that both ongoing uses of asbestos and uses that are no longer ongoing – but not prohibited – and which could resume at any time, are reviewed and evaluated by the Agency. Between these two regulatory actions under the authorities of TSCA sections 5 and 6, EPA is reviewing associated risks and exposures for the conditions of use of asbestos in the United States and ensuring that the Agency has the opportunity to evaluate uses that may reoccur in the future in the event that a company wishes to pursue resuming a former use of asbestos.

Commented [BS1]: We are not taking action under risk evaluation yet.

Section 5(a)(2) of TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors. These factors include:

- The projected volume of manufacturing (including import) and processing of a chemical substance;
- The extent to which a use changes the type or form of exposure of humans or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of humans or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once a SNUR is issued to identify a significant new use, then under TSCA section 5(a)(1), a person desiring to manufacture or process for commercial purposes the chemical substance or mixtures containing it for a significant new use identified in the SNUR must notify EPA at least 90 days prior to initiating manufacture (including import) or processing for the significant new use [see 40 CFR §721.5(a)(1)]. For asbestos, EPA is lifting a general SNUR exemption for articles so that this requirement applies to asbestos as part of an article.

2. Extend the comment period

EPA received several requests to extend the comment period for the proposed Asbestos SNUR (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-2767; EPA-HQ-OPPT-2018-0159-2924; EPA-HQ-OPPT-2018-0159-5647). However, these requests were submitted on the day the comment period ended or later, which did not provide sufficient time for the Agency to respond. Moreover, the requests to extend the comment period were largely based on the incorrect assertion that asbestos is entirely banned in the United States and that this regulation would allow otherwise banned uses of asbestos to begin again. On the contrary, as explained above, the SNUR would further regulate the use of asbestos by requiring notification of intended uses of asbestos subject to the rulemaking and by providing the Agency an opportunity to evaluate each intended use for potential risks to human health and the environment and take any necessary regulatory action to address risks, as appropriate.

3. Ban asbestos

The majority of commenters (too numerous to cite individually) called for an outright ban on asbestos. As discussed in the preamble of the proposed Asbestos SNUR and in section 1 above, on July 12, 1989, EPA issued a final rule under the TSCA Section 6(a) banning most asbestos-containing products. In 1991, this regulation was partially vacated and remanded to EPA by the Fifth Circuit Court of Appeals in New Orleans following a case brought by industry representatives. As a result of the Court's decision, most of the ban on asbestos-containing products were lifted. However, the following specific asbestos-containing products that were no longer manufactured or imported at the time of the 1989 rule remain banned: flooring felt, rollboard, and corrugated, commercial, or specialty paper. In addition, the regulation continues to ban "new uses" of asbestos, which the rule defines to mean uses where the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

Under TSCA, EPA cannot immediately issue a ban as envisioned by some commenters. Rather, TSCA section 6 provides a specific process for risk evaluation and risk management that EPA must follow prior to taking any risk managment action for a chemical, such as a "ban". As part of the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act amendments, TSCA section 6(b)(4) requires EPA to establish a risk evaluation process. In performing risk evaluations for existing chemicals, EPA is directed to "determine whether a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator under the conditions of use."

In December of 2016, EPA published a list of 10 chemical substances that are the subject of the Agency's initial chemical risk evaluations as required by TSCA section 6(b)(2)(A). Asbestos was one of these chemicals. EPA subsequently published the scope of the risk evaluation to be conducted for asbestos in June 2017 as per TSCA section 6(b)(4)(D). In this scope document, EPA identified asbestos conditions of use that would be included within the scope of the asbestos risk evaluation. In June 2018, EPA issued a problem formulation document which refined the conditions of use, exposures and hazards presented in the scope of the risk evaluation for asbestos and presented refined conceptual models and analysis plans that describe how EPA expects to evaluate the risk for asbestos.

Per statute, the first ten risk evaluations must be completed within three years of initiation, with a possible extension of ~~6~~ six months. If EPA determines from the asbestos risk evaluation that the conditions of use of asbestos present an unreasonable risk of injury to health or the environment, then regulation would be pursued under TSCA section 6(a), which authorizes EPA to issue regulations requiring one or more of the following actions to the extent necessary so that the chemical substance no longer presents an unreasonable risk:

- Prohibit or otherwise restrict the manufacturing, processing, or distribution in commerce of such substances (§ 6(a)(1)).
- Prohibit or otherwise restrict manufacturing, processing, or distribution in commerce of such substances for particular uses or for uses in excess of a specified concentration (§ 6(a)(2)).
- Require minimum warning labels and instructions (§ 6(a)(3)).
- Require record keeping or testing (§ 6(a)(4)).
- Prohibit or regulate any manner or method of commercial use (§ 6(a)(5)).
- Prohibit or otherwise regulate any manner or method of disposal (§ 6(a)(6)).
- Direct manufacturers and processors to give notice of the determination to distributors and the public and replace or repurchase substances (§ 6(a)(7)).'

EPA must issue these regulations within specific timelines and in accordance with additional requirements laid out in TSCA section 6(c) (15 U.S.C. §2605).

4. Explain EPA's review process of Significant New Use Notices (SNUNs)

The Agency received several comments requesting more explanation regarding the review process of significant new use notices (SNUNs) (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-3224) and the opportunity for public comment on submitted SNUN applications, if any, as well as the Agency's significant new use determinations, if any, for asbestos (EPA-HQ-OPPT-2018-0159-4021; EPA-HQ-OPPT-2018-0159-1270; EPA-HQ-OPPT-2018-0159-5889).

In response to concerns about the review process of a significant new use notice, the Agency is including additional explanation in the final rule. Anyone who plans to manufacture, import, or process asbestos (including as part of an article) for a significant new use identified in the rule is required by Section 5 of TSCA to provide EPA with notice at least 90 days before initiating the activity. A SNUN submission follows the same process as a premanufacture notice (PMN) for

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new chemicals, as described in 40 CFR 721.25-. Upon receipt of a significant new use notice, EPA is required by TSCA Section 5(d)(2) to publish notification of the intended significant new use in the Federal Register. For transparency purposes, in addition, EPA intends to take public comment on any intended significant new use following that public notification. Under TSCA section 5(g), the Agency must also publish notice in the Federal Register of a TSCA section 5(a)(3)(C) determination that a significant new use is not likely to present an unreasonable risk of injury to health or the environment.

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In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. In addition, EPA requires that the following information be submitted with the notice: any health and environmental information in the possession or control of the submitter, parent company or affiliates, and a description of any other applicable information known to or reasonably ascertainable by the submitter (see 40 CFR 720.45 and 40 CFR 720.50 for specific requirements). EPA risk assessors consider all of this information during the EPA significant new use review process.

For asbestos, the final rule also explains that the submitter must include with the notice adequate documentation or supporting information in the submitter's possession or control that the intended use is not subject to the prohibitions identified in 40 C.F.R. part 763, subpart I. In particular, this would include documentation in the submitter's possession or control that the manufacture, importation or processing for the intended use had been initiated for the first time before August 25, 1989.

SNUNs are reported using the standard electronic PMN form, which allows manufacturers of TSCA chemical substances to use the Internet through EPA's Central Data Exchange (CDX), to submit TSCA section 5 notices to EPA (instructions available at [HYPERLINK "https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn"]). SNUNS are subject to a 90-day review process similar to that for a PMN. When submitting a SNUN, the submitter should include a cover letter that provides the Code of Federal Regulations citation of the SNUR and identifies the specific significant new use(s) for which the SNUN is being submitted. The fee for each SNUN is $16,000, except for small businesses the fee is $2,800 (see 40 CFR 700.45).

Under TSCA, once EPA receives and reviews a significant new use notice, the Agency must make one of the following determinations:

- "Not likely to present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(C)) – In cases where EPA determines that a significant new use is not likely to present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including unreasonable risk to a potentially exposed or susceptible subpopulation under the conditions of use, EPA will notify the submitter of its decision under TSCA section 5(a)(3)(C) and the submitter may commence manufacture or processing for the significant new use notwithstanding any remaining portion of the 90-day review period. EPA will publish its findings in a statement in the Federal Register pursuant to TSCA section 5(g).
- "Insufficient Information" Determinations (See TSCA section 5(a)(3)(B)(i)) – In cases where EPA determines that the available information is insufficient to allow EPA to make a

reasoned evaluation of the health and environmental effects of the significant new use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing distribution in commerce, use or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements.

- "May present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(B)(ii)(I)) – In cases where EPA determines that in the absence of sufficient information to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, the manufacture, processing, distribution in commerce, use, or disposal of the chemical may present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements. Most TSCA section 5(e) orders issued by EPA are consent orders that are negotiated with the submitter of the SNUN.
- "Exposure-based" Determinations (See TSCA section 5(a)(3)(B)(ii)(II)) – In cases where EPA determines that the chemical substance is or will be produced in substantial quantities and either enters or may reasonably be anticipated to enter the environment in substantial quantities or there is or may be significant or substantial human exposure to the substance, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk and may include testing requirements.
- "Presents an unreasonable risk" Determinations (See TSCA section 5(a)(3)(A)) – In cases where EPA determines that the significant new use presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must take action under section 5(f) to protect against the unreasonable risk. Pursuant to section 5(f), EPA may propose a rule under section 6(a) or may issue an order to prohibit or limit the manufacture, processing, or distribution in commerce of the substance.

Upon making a determination, the Agency must notify the SNUN submitter.

5. Provide Clarification: Recycling and Disposal

One commenter (EPA-HQ-OPPT-2018-0159-0437) posits, "the SNUR is silent on the use of legacy materials that may be manufactured into new products. For example, a scrapped vehicle that may contain asbestos components (e.g., brake linings) will be recycled into new materials for the production of other products, including vehicles. Another example would be products manufactured with recycled building demolition materials (e.g., metal, gypsum wallboard) and how these materials and products would be evaluated under the proposed SNUR to ensure the protection of human health and the environment."

The Agency provides the following explanation in the preamble of the final rule: EPA interprets recycling to be part of *processing* under TSCA. Therefore, recycling asbestos-containing

material for a significant new use of asbestos subject to the SNUR would require a significant new use notice.

Commented [BS3]: Just flagging this again. I will make sure to diiscuss with Jeff et al.

Another commenter (EPA-HQ-OPPT-2018-0159-4066) requested EPA "make clear that the scope of this rulemaking *does not* in any way regulate or otherwise impede the (1) the continued use of asbestos-containing products from manufacturing/processing activities that occurred *prior* to June 1, 2018 (the proposed cutoff date for determining the applicability of the SNUR to new manufacturing/processing activities); or (2) the removal from service for disposal of asbestos-containing materials, including where such disposal activities may involve the incidental 'processing' of asbestos as part of the asbestos disposal process (as such processing is not being conducted for a commercial purpose)."

The Agency does not interpret disposal of legacy materials containing asbestos to be processing for a significant new use under this rule. Additionally, the SNUR does not prohibit any ongoing uses of asbestos-containing products from manufacturing/ processing activities that were initiated prior to June 1, 2018; more specifically the conditions of use of asbestos subject to the current asbestos risk evaluation under TSCA section 6 are not subject to this SNUR.

6. Broaden the scope of the SNUR

The Agency received numerous suggestions to broaden the scope of the significant new use rule to address mining, export notification for asbestos articles, and to include additional significant new uses of asbestos. These comments are addressed by topic in the following section.

a. Include mining

Some commenters (EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886) suggested that mining be subject to the significant new use rule because it is no longer ongoing in the United States.

The Agency interprets mining to be *production* under the TSCA definition of *manufacture*. Therefore, mining asbestos for a significant new use as identified in the final rule would require a SNUN. Mining for ongoing uses of asbestos would not require a SNUN. However, the Agency may pursue a separate action under TSCA to address asbestos mining for ongoing asbestos uses in the United States.

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b. Require 12(b) export notification for articles

The Agency received several comments recommending that the export notification requirement under TSCA section 12(b) apply to exported articles that contain asbestos (EPA-HQ-OPPT-2018-0159-0469; EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886).

Raw asbestos is subject to the export notification requirement at Section 12(b) of TSCA. One of the purposes of a significant new use rule for an existing chemical is to require notification from anyone who intends to resume uses that have been identified

as no longer ongoing. Should anyone intend to resume such uses as identified in a SNUR, the Agency would review the significant new use notice submitted to the Agency, evaluate the associated risks, hazards, and exposures based on the conditions of use, make a determination on the notice under Section 5(a)(3), and take such actions as are required in association with that determination.

Based on the research conducted in support of the ongoing TSCA section 6 risk evaluation, the Agency identified uses of asbestos (including as part of an article) that are no longer ongoing. The Agency has found no evidence to suggest that asbestos is used for any of the activities subject to the SNUR, and therefore, does not believe that an export notification is required for articles containing asbestos that are neither manufactured (including imported) nor processed in the United States. The commenters have not indicated that any of the uses of asbestos (including as part of an article) subject to the SNUR are currently ongoing nor have the commenters provided a persuasive argument as to why the Agency should require export notification for articles that are not manufactured, imported, or processed in the United States. Therefore, EPA assumes that applying an export requirement for asbestos-containing products that no longer exist in the U.S. marketplace would provide no meaningful benefit because the Agency would not receive any such export notifications.

In the event that anyone would be interested in using asbestos for any of the uses subject to the SNUR, EPA would receive notification through a SNUN, which would include information about the conditions of use, including distribution. -Review of that SNUN would provide an opportunity for the Agency to require TSCA section 12(b) export notification if a discontinued use for a particular article were to be resumed.

As for the conditions of use of asbestos that are currently undergoing risk evaluation, if an unreasonable risk determination is made, the Agency will at that time evaluate what appropriate risk management options and tools should be used to address the risk, and requiring a TSCA section 12(b) export notification would be part of that evaluation.

c. Revise the SNUR to include every use of asbestos that is no longer ongoing

EPA received several comments suggesting that the SNUR be revised to include all uses of asbestos that are no longer ongoing and some suggest targeting all uses of asbestos except ongoing uses currently under consideration for the asbestos risk evaluation (EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-1271; EPA-HQ-OPPT-2018-0159-5755; EPA-HQ-OPPT-2018-0159-5886).

After further review and consideration, the Agency agrees with this comment and is revising the regulatory text to include any use of asbestos that is no longer ongoing and not currently banned under TSCA which is captured in the following category:
(xviii) Any other use of asbestos

In light of that revision, the Agency is also adding two exceptions to the final rule to account for the ongoing uses of chrysotile (paragraph (3)(i)) and the remaining prohibitions from the 1989 Asbestos Ban and Phaseout rule discussed above (paragraph (3)(ii)):

(3) Exceptions.
(i) The significant new use identified in (a)(2) of this section does not include manufacturing (including importing) or processing for the following uses of the asbestiform variety of chrysotile (serpentine) asbestos:
(A) Diaphragms for use in chorine and sodium hydroxide production;
(B) Sheet gaskets for use in chemical manufacturing;
(C) Brake blocks in oil drilling equipment;
(D) Aftermarket automotive brakes/linings;
(E) Other vehicle friction products; or
(F) Other gaskets.

(ii) The significant new use does not include the manufacture (including importation) or processing of the asbestos-containing products identified in § 763.165, which continue to be prohibited pursuant to 40 C.F.R. part 763, subpart I.

The specific uses of chrysotile carved out by paragraph (3)(i) account for uses EPA believes to be ongoing and thus outside of the Agency's SNUR authority. These uses are currently under consideration as conditions of use in the TSCA section 6 asbestos risk evaluation.

7. Economic Analysis

The Agency received two comments regarding the Economic Analysis for the Asbestos SNUR:

One commenter states "[w]ith the past negative effects of asbestos, this proposed policy appears to be too weak. $10,000 appears to be much too little to do a thorough analysis" (EPA-HQ-OPPT-2018-0159-4163). To clarify, $10,000 was the estimated cost to a business submitting a SNUN. According to the EA, the cost that EPA is expected to incur reviewing a SNUN is $41,000. Since publication of the proposed asbestos SNUR, the fees have been updated and are now $16,000 per SNUN submission for large businesses and $2,800 for small businesses. The updated estimate of the total cost of submitting a SNUN is approximately $10,000 for a small business and $23,000 for a large business.

Another commenter suggests, "only the cost of submitting and [preparing] the SNUN and a user fee are included. It is foreseeable any SNUN for asbestos could go through extensive follow-up investigation due to the health concern of the material and public perception of the

asbestos use. The overall economic cost for business should include additional data gathering, testing, and health study of using asbestos in the proposed categories" (EPA-HQ-OPPT-2018-0159-0010). In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. Testing, investigation, and study are not required for the SNUN submission, and therefore, EPA's cost estimates are based on reasonably ascertainable information gathering activities. However, Section 3.2.8 of EPA's Economic Analysis ("Article Importation and Processing") includes a discussion of the types of costs that firms may incur if they choose to undertake additional activities to assure themselves that they are not undertaking a new use.

EPA addressed the commenter's concern about follow-up costs in Section 3.5 ("Potential for Subsequent Regulatory Actions") of the Economic Analysis of the proposed rule, where the Agency explained that "The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the SNUN is being reviewed). Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions."

Contents of this Final Significant New Use Rule Package

Federal Register Notice – Asbestos; Significant New Use Rule
EPA-HQ-OPPT-2018-0159; FRL XXXX-XX

1. Action Memorandum

2. Action Information Sheet

3. Communications Strategy
    a. Desk Statement

4. Economic Analysis

5. Workgroup Member List

6. OGC Concurrence

7. Typesetting Request

8. Docket Certification

Action Information

Action: Final rule

Title: Asbestos; Significant New Use Rule

SAN: 6677; Tier Level: 3; RIN: 2070–AK45; OMB Not Significant; RCS: 18T-0126; FRL: 9978-76.

Purpose: Under the Toxic Substances Control Act (TSCA), EPA is finalizing a significant new use rule (SNUR) for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types: chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The final significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency has found no information indicating that the following uses of asbestos are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required significant new use notice (SNUN) provides EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

Background: In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The risk evaluation focuses on the conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise prohibited (that can resume at any time) must be reviewed and approved by EPA prior to commencing.

Stakeholder Involvement: No external stakeholder involvement.

Key Issues/Internal Review: The final significant new use rule was reviewed by Agency workgroup staff including Office of General Counsel, Office of Policy, Office of Research and Development, Office of Enforcement and Compliance Assurance, Office of Air, and Office of Water.

Legal Deadline: No statutory or court-ordered deadlines apply to this action.

Timing: The final rule is intended to be published on or before April 30, 2019. ~~along with EPA's response to an asbestos related TSCA section 21 petition.~~

Action Information

Contact: Robert Courtnage (202-566-1081, [HYPERLINK "mailto:Courtnage.Robert@epa.gov"]) or Lea Carmichael (202-564-4689, [HYPERLINK "mailto:Carmichael.Lea@epa.gov"]).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: Asbestos; Significant New Use Rule (Final Rule)
(Tier 3; SAN 6677; RIN 2070-AK45; EPA-HQ-OPPT-2018-0159)
– **ACTION MEMORANDUM**

FROM: Tanya Hodge Mottley, Director
National Program Chemicals Division

TO: Jeffery T. Morris, Director
Office of Pollution Prevention and Toxics

PURPOSE
Attached for your signature is a Federal Register notice for a final significant new use rule (SNUR) for asbestos under Section 5(a)(2) of the Toxic Substances Control Act.

DEADLINE
No statutory or court-ordered deadlines apply to this action; however, the final SNUR is intended to be published on or before April 29, 2019~~, along with the agency's response to an asbestos-related TSCA section 21 petition.~~

OVERVIEW
Authority
Section 5(a)(2) of TSCA (15 U.S.C. 2604(a)(2)) authorizes the EPA to determine that a use of a chemical substance is a "significant new use." The EPA must make this determination by rule after considering all relevant factors, including those listed in TSCA section 5(a)(2). Once the EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1) requires persons to submit a significant new use notice (SNUN) to the EPA at least 90 days before manufacturing (including importing) or processing the chemical substance for that intended activity (15 U.S.C. 2604(a)(1)(B)(i)). TSCA further prohibits such manufacturing (including importing) or processing from commencing until the EPA has conducted a review of the notice, made a determination on the notice, and taken such actions as are required in association with that determination (15 U.S.C. 2604(a)(1)(B)(ii)). Additionally, Section 5(a)(5) of TSCA (15 U.S.C. 2604(a)(5)) authorizes the EPA to require notification for the import or processing of a chemical substance as part of an article or category of articles under TSCA section 5(a)(1) (15 U.S.C. 2604(a)(1)(A)(ii)), if the EPA makes an affirmative finding in a rule under TSCA section 5(a)(2) (15 U.S.C. 2604(a)(2)) that the reasonable potential for exposure to the chemical substance through the article or category of articles subject to the rule justifies notification. General SNUR provisions are found at 40 CFR part 721, subpart A.

Summary of the Final Action

The EPA is finalizing a significant new use rule for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify the EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required SNUN provides the EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until the EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

The EPA issued the proposed asbestos SNUR on June 11, 2018, which opened a 60-day public comment period that closed on August 10, 2018. The agency received nearly 5,900 public comments; however, the majority of comments were those that misunderstood the action to be bringing back banned uses of asbestos and are not germane to the scope and intent of the rule. Overall, the agency received approximately 30 germane comments, half of which are substantive. Of the substantive comments, most suggested broadening the scope of the SNUR. In response to public comments, the agency is revising the final rule to provide clarifications and ensure all discontinued uses of asbestos are subject to the rulemaking.

Based on public comments received, the EPA is clarifying the following issues in the final rule:

- The distinction between a "new use" under the existing partial ban and a "significant new use rule"
- The agency's review process of significant new use notices
- Whether and how mining for asbestos is subject to the SNUR
- Whether and how recycling of legacy asbestos-containing material is subject to the SNUR

After consideration of the public comments, in addition to the 14 significant new uses identified in the proposed rule, in the final rule the EPA is broadening the scope of regulated significant new uses of asbestos (including as part of an article) to include:

- Cement products
- Friction Materials (with some exception)
- Packings
- Woven products
- Any other use of asbestos that is neither ongoing nor already prohibited under TSCA

Two issues raised in public comment that the agency is not addressing in this final SNUR are 1) to require TSCA section 12(b) export notification for all asbestos-containing articles; and 2) to require a significant new use notice for *any* asbestos mining in the United States. The agency views including these two issues as actions to go beyond the intended focus of the SNUR. The EPA is currently evaluating options for how these issues might be addressed in the future. For the first issue (export notification for articles), the agency believes this would impact ongoing uses of asbestos, not just uses that have been discontinued as identified in the SNUR. The EPA believes that this issue would be more appropriately addressed during consideration of any potential risk management actions following completion of the EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination. For the second issue (a notice for *any* asbestos mining beyond mining for the significant new uses), the EPA believes, if addressed, that further opportunity for public comment would be useful prior to a final action.

Background

In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, the EPA designated asbestos as one of the first 10 chemical substances subject to the agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The TSCA section 6 risk evaluation focuses on the ongoing conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The ongoing uses are not considered significant new uses and would not require a significant new use notification submission to the agency. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by the EPA prior to commencing.

Regardless of the outcome of the risk evaluation pursuant to TSCA section 6(b)(4)(A), the EPA is concerned about the potential for adverse health effects of asbestos based on established sound scientific data indicating that asbestos is a known carcinogen. Since its peak usage, the national consumption of asbestos has declined approximately 99 percent, and asbestos has not been mined or otherwise produced in the United States since 2002. The EPA believes any significant new use of asbestos (including as part of an article) could increase the duration and magnitude of human and environmental exposure to the substance, reverse the declining trend of national import volumes of the substance, and reintroduce exposure scenarios that have become obsolete over the past several decades. Thus, it is imperative that the EPA be notified of any intended significant new use of asbestos (including as part of an article) and be provided the opportunity to evaluate such intended new use.

ANTICIPATED PUBLIC AND STAKEHOLDER RESPONSE

The final rule will be of interest to multiple stakeholders including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.

The EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive agency research of ongoing uses of asbestos and considering the availability of safer

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and affordable alternatives, the EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).

The tribal, state, and local government reactions are expected to be generally positive to neutral as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive or indifferent ~~of~~ to the final rule if the purpose and impact of the rule is clearly communicated and understood. If the rule is misunderstood to be allowing for otherwise banned uses of asbestos the reaction will be negative. Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, the EPA expects interest in agency actions related to asbestos to continue.

INTERNAL DEVELOPMENT AND REVIEW PROCESS

This action was developed with participation from the Office of General Counsel, Office of Policy, Office of Research and Development, Office of Enforcement and Compliance Assurance, Office of Air, and Office of Water.

OMB TRANSACTION

On March xx, 2019, the Office of Management and Budget determined that this final rule is not a significant regulatory action under Executive Orders 12866 and 13563. As such, this final rule was not reviewed by OMB.

IMPACTS

Potentially Regulated Entities

Potentially affected entities may include, but are not limited to the following list of industries identified by North American Industrial Classification System codes:

- Construction (NAICS code 23)
- Manufacturing (NAICS codes 31 – 33)
- Wholesale Trade (NAICS code 42)
- Transportation (NAICS code 48)

Economic Impacts

In the event that a SNUN is submitted, costs are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters. Asbestos is already subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20), and the agency is not requiring export notifications for articles containing asbestos as articles are generally excluded from the TSCA section 12(b) export notification requirements. Therefore, the EPA assumes no additional costs under TSCA section 12(b) for this rule.

Small Entity Impacts

Analysis supporting the rulemaking indicates that this action would not have a significant adverse economic impact on a substantial number of small entities.

Recordkeeping and Reporting Impacts

The information collection requirements associated with existing chemical SNURs are already approved under OMB control number 2070-0038 (EPA ICR No. 1188) and the information collection activities associated with export notifications are already approved under OMB control number 2070-0030 (EPA ICR No. 0795). If an entity were to submit a SNUN to the agency, the annual burden is estimated to be

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less than 100 hours per response, and the burden is estimated to be reduced for submitters who have already registered to use the electronic submission system. Since asbestos is already subject to a TSCA section 6(a) rule (40 CFR part 763, subpart I) that triggers the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20) and because the EPA is not proposing to require export notifications for articles, the EPA assumes there is no cost or burden associated with export notifications under the proposed rule.

Governmental Impacts

The EPA has determined that the final rule will not significantly or uniquely affect state, local, or tribal governments.

STAKEHOLDER INVOLVEMENT

Stakeholder input was obtained through public comment on the proposed *Asbestos Significant New Use Rule* issued in June 2018. Additionally, this action was informed by the related outreach conducted in 2016 and 2017 during the early stages of the TSCA section 6 risk evaluation for asbestos involved numerous meetings and consultations with the American Chemistry Council, stakeholders from the chemical manufacturing industry (including the chlor-alkali industry), the International Association of Drilling Contractors, the Motor and Equipment Manufacturers Association, federal government agencies, non-government organizations, environmental groups, and public citizens. The agency also sought and received public comment on the *Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos*, released in February 2017, the *Scope of the Risk Evaluation for Asbestos*, released in June 2017 and the *Problem Formulation of the Risk Evaluation for Asbestos* released in June 2018.

PEER REVIEW

There were no major scientific or technical products supporting this action as defined by the EPA's Peer Review Handbook. Therefore, no support documents were submitted for peer review.

CONTACT

Please direct any questions regarding the Federal Register notice to the final rule workgroup lead, Robert Courtnage at 202-566-1081 or Courtnage.Robert@epa.gov.

RECOMMENDATION

I recommend that you sign the attached Federal Register notice.

Attachments

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OCSPP Communications Plan
Publication of Final Rule – Asbestos; Significant New Use Rule
INTERNAL DELIBERATIVE DRAFT

Summary (Includes background and topline messages)

- EPA is finalizing a significant new use rule (SNUR) for asbestos. This action will prevent discontinued uses of asbestos (that are not already prohibited under the partial 1989 Toxic Substances Control Act (TSCA) ban) from restarting without EPA evaluating those uses for safety and taking any necessary regulatory action.
- This final SNUR does not provide any means by which prohibited uses under the partial 1989 TSCA ban can return to the marketplace. On the contrary, the action ensures that otherwise unregulated uses of asbestos undergo EPA evaluation.
- Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use.
- Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.
- This SNUR compliments the TSCA section 6 risk evaluation for asbestos by ensuring that any discontinued use of asbestos not already prohibited (and that can otherwise absent the SNUR resume at any time) be reviewed by EPA for safety and any necessary regulatory action taken.

Background:

EPA is finalizing a significant new use rule for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The risk evaluation focuses on the conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The significant new use rule for asbestos serves to compliment the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by EPA prior to commencing.

In order to identify ongoing uses of asbestos in the United States to define the scope of the risk evaluation, EPA conducted extensive research, convened stakeholder meetings, and requested and considered public comment. EPA will conduct the risk evaluation for asbestos based on the conditions of use, which have been identified through scoping and refined during problem formulation as the following: imported raw bulk chrysotile asbestos for the fabrication of diaphragms for use in chlorine and sodium hydroxide production, sheet gaskets for use in titanium dioxide chemical production, brake blocks for use in oil drilling, aftermarket automotive brakes/linings and other vehicle friction products, and other gaskets. These ongoing uses are not considered significant new uses and would not require a significant new use notification submission to the Agency.

Regardless of the outcome of the risk evaluation pursuant to TSCA section 6(b)(4)(A), EPA is concerned about the potential for adverse health effects of asbestos based on established sound scientific data indicating that asbestos is a known carcinogen. Since its peak usage, the national consumption of asbestos has declined approximately 99 percent, and asbestos has not been mined or otherwise produced in the United States since 2002. EPA believes any significant new use of asbestos (including as part of an article) could increase the duration and magnitude of human and environmental exposure to the substance, reverse the declining trend of national import volumes of the substance, and reintroduce exposure scenarios that have become obsolete over the past several decades. It is imperative that EPA be notified of any intended significant new use of asbestos (including as part of an article) and be provided the opportunity to evaluate such intended new use.

Spokespeople

- OCSPP – notify interested parties, update website

Contents

- Communications rollout plan
- Communications resources
- Communications and management contacts

Attachments

- **Web content on:**
  - Asbestos [HYPERLINK "https://www.epa.gov/asbestos"]
  - Risk Evaluation for Asbestos [HYPERLINK "https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-evaluation-asbestos-0"]

Communications Rollout Plan

DATE	TASK	WHO	DONE
PRE-RELEASE			
Week before FRN publication	Draft communications plan, list serve + web materials to OPPT/OCSPP	Alison Pierce/ ~~Julia Ortiz,~~ OPPT IO	
	Draft communications plan + web materials to OPA	Linda Strauss, OCSPP IO	
	Final HQ approved comms plan, list serve + web materials	OPA	

Communications Resources

- **Desk Statement**
- **OPPT Listserv**
- **Asbestos website -** [HYPERLINK "https://www.epa.gov/asbestos"]

Communications and Management Contacts

Communications Contacts	
OCSPP	**HQ**
Linda Strauss, OCSPP IO 202-564-0797, [HYPERLINK "mailto:strauss.linda@epa.gov"] **Alison Pierce, OPPT IO** 202-564-2437, [HYPERLINK "mailto:pierce.alison@epa.gov"] **Cheryl Dunton, OCSPP IO – web** 202-564-4893, [HYPERLINK "mailto:Dunton.cheryl@epa.gov"]	**Nancy Grantham, Office of Public Affairs** 202-564-6879, [HYPERLINK "mailto:grantham.nancy@epa.gov"] **Cathy Milbourn, Office of Public Affairs** 202-564-7849, [HYPERLINK "mailto:Milbourn.cathy@epa.gov"] **Sven-Erik Kaiser, Office of Congressional Rel.** 202-566-2753, [HYPERLINK "mailto:Kaiser.sven-erik@epa.gov"]
Management Contacts	
OCSPP	
Nancy Beck, Principal Deputy Assistant Administrator, OCSPP 202-564-2910, [HYPERLINK "mailto:beck.nancy@epa.gov"] **Jeffery T. Morris, Director, OPPT** 202-564-6756, [HYPERLINK "mailto:morris.jeff@epa.gov"] ~~**Tala Henry, Acting Deputy Director**~~**Mark A. Hartman, Deputy Director for Management, OPPT** 202-564-2959, [HYPERLINK "mailto:mottley.tanya@epa.gov"]	**Tanya Mottley, Director, National Program Chemicals Division/OPPT** 202-564-3152, [HYPERLINK "mailto:mottley.tanya@epa.gov"] **Brian Symmes, Deputy Director, National Program Chemicals Division/OPPT** 202-566-1983, [HYPERLINK "mailto:Symmes.Brian@epa.gov"] **Erik Winchester, Chief, Fibers and Organics Branch/NPCD** 202- 564-6450, [HYPERLINK "mailto:Winchester.Erik@epa.gov"]

Key Audiences & Stakeholders

- Industry
- Government Agencies
- Environmental Groups
- Non-Governmental Organizations

The final rule will be of interest to multiple stakeholders including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the

general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.

EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive Agency research of ongoing uses of asbestos and considering the availability of safer and affordable alternatives, EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).

The tribal, state, and local government reactions are expected to be generally positive to neutral as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive or indifferent to the final rule if the purpose and impact of the rule is clearly communicated and understood. If the rule is misunderstood to be allowing for otherwise banned uses of asbestos the reaction will be negative. ~~of the final rule.~~ Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, EPA expects interest in Agency actions related to asbestos to continue.

Desk statement

Under the Toxic Substances Control Act (TSCA), EPA is finalizing a significant new use rule (SNUR) for asbestos. This action prevents any discontinued use of asbestos that is not already prohibited under the partial 1989 TSCA ban from restarting without EPA evaluating that use for safety and taking any necessary regulatory action. This final SNUR does not allow prohibited uses under the partial 1989 TSCA ban to return to the marketplace. On the contrary, the action ensures that the otherwise unregulated discontinued uses that are not covered by the partial 1989 asbestos ban undergo EPA evaluation for risk before any use can re-commence.

The following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. That notification would then trigger an EPA evaluation of that use for safety and any necessary regulatory action.

Listserv

Title: EPA Issues Final Rule to Require Review of Unregulated Asbestos Uses

EPA today issued a final significant new use rule (SNUR) in the Federal Register that requires any person who intends to manufacture (including import) or process discontinued (but not already banned) uses of asbestos (including as part of an article) to notify EPA at least 90 days before commencing that action. In accordance with the final SNUR, manufacturing (including importing) or processing for the intended significant new use would be prohibited until EPA conducts a review of the

notice, makes an appropriate determination on the notice, and takes such actions as are required in association with that determination.

The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for asbestos uses that are neither ongoing nor already prohibited under TSCA. The following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

To view the final rule, or for additional information, please visit: [URL]

Asbestos; Significant New Use Rule
Response to Comments
RIN 2070-AK45
Draft/Deliberative
March 7, 2019

Overview

The U.S. Environmental Protection Agency received a total of 17,912 comments related to the proposed *Asbestos; Significant New Use Rule* (SNUR) under docket identification (ID) number EPA-HQ-OPPT-2018-0159. The public comment period began on June 11, 2018 and ended August 10, 2018. Of the 17,912 public comments received, 11,732 are part of a mass mail campaign, 240 are from a second mass mail campaign, 67 are not posted due to inappropriate language, and 5,873[1] individual comments are identified by ID number, posted in the docket, and available to view on regulations.gov at [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159"]. Over 90% (5,386) of the individual comments received on the Asbestos SNUR are anonymous.

Upon careful review, EPA identified seven general themes throughout the public comments on the proposed Asbestos SNUR. The majority of the comments are not germane to the purpose and requirements of the proposed rule, as explained below. Comments are addressed in this document according to the following main topics areas:

1. Purpose of the proposed Asbestos SNUR
2. Extend the comment period
3. Ban asbestos
4. Explain EPA's review process of Significant New Use Notices (SNUNs)
5. Provide clarification: Recycling and disposal
6. Broaden the scope of the SNUR
    a. Include mining
    b. Require 12(b) export notification for articles
    c. Revise the SNUR to include every use of asbestos that is no longer ongoing
7. Economic Analysis

EPA received thousands of comments pertaining to the purpose of the proposed Asbestos SNUR as well as the request that EPA ban the use of asbestos in the United States. Due to the overwhelming number of comments on these two topics, the Agency does not cite each relevant comment by ID number in the following discussion. As for the other public comment topics of the proposed rule listed above, the Agency specifically cites 17 substantive comments, which may address multiple aspects of the proposed rule.

1. Purpose of the proposed Asbestos SNUR

Most commenters (too numerous to cite individually) expressed concern that the proposed rule would allow otherwise prohibited asbestos products to be reintroduced into U.S. commerce, which is not the case. Instead, this action will prevent any discontinued uses of asbestos (that are not already prohibited under the partial 1989 Toxic Substances Control Act (TSCA) ban) from restarting without EPA having an opportunity to evaluate each intended use for potential risks to

[1] 5,893 comments are reported in regulations.gov, but 18 of those comments have been withdrawn due to inappropriate language and are accounted for in this summary as part of the 67 not posted.

human health and the environment and take any necessary regulatory action, as appropriate. The final SNUR does not provide any means by which prohibited uses under the partial 1989 TSCA ban can return to the marketplace. On the contrary, the action ensures that otherwise unregulated uses of asbestos undergo EPA evaluation. Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The SNUR ensures that manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

This SNUR also compliments the TSCA section 6 risk evaluation for asbestos by ensuring that any discontinued use of asbestos not already prohibited (that otherwise could resume at any time) must be reviewed and approved by EPA prior to commencing. A further discussion of what a SNUR is and the relationship of this action to past and current Agency actions is provided in the following paragraphs.

Under the 1989 rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL-3476-2)*, any "new use" of asbestos – defined by that rule as uses for which the manufacture, importation or processing would be initiated *for the first time* after August 25, 1989 – are banned in the United States. However, after the court's decision in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), that 1989 rule did not ban uses of asbestos that began on or before August 25, 1989 and then were subsequently discontinued voluntarily after August 25, 1989. Recognizing the inherent confusion between what is covered as a "new use" as defined and banned by the 1989 rule and a "significant new use" at issue in the current rulemaking, the Agency attempted to make this distinction in Unit III.A. of the proposed Asbestos SNUR:

> "In 1989, EPA published a final rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions* (54 FR 29460, July 12, 1989) (FRL-3476-2), which was intended "to prohibit, at staged intervals, the future manufacture, importation, processing and distribution in commerce of asbestos in almost all products, as identified in the rule . . ." and to "reduce the unreasonable risks presented to human health by exposure to asbestos during activities involving these products." The 1989 final rule applied to the asbestos product categories identified in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products,* which was conducted in support of the rule (Ref. 20). However, the ban against most of the asbestos product categories was overturned by the Fifth Circuit Court of Appeals in 1991. In addition to the asbestos products that remain banned after the court ruling, which are identified in Table 1 below, any new use of asbestos was also banned. The prohibition on any new uses of asbestos is for uses initiated for the first time after August 25, 1989. As a point of clarification, in this proposed rulemaking, a significant new use of asbestos addresses multiple uses that were initiated prior to August 25, 1989, for which manufacturing and processing are no longer ongoing in the United States."

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After the court's ruling in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), only the specific asbestos products identified in Table 1 below as reflected in the preamble of the proposed rule, and new uses of asbestos initiated for the first time after August 25, 1989, remained banned. The new SNUR keeps these prohibitions in place and would not amend them in any way; in other words, the new SNUR would not provide a means by which these prohibited uses could return to the marketplace.

Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

Product Category	**Definition (40 CFR 763.163)**
Corrugated Paper	Corrugated paper means an asbestos-containing product made of corrugated paper, which is often cemented to a flat backing, may be laminated with foils or other materials, and has a corrugated surface. Major applications of asbestos corrugated paper include: Thermal insulation for pipe coverings; block insulation; panel insulation in elevators; insulation in appliances; and insulation in low-pressure steam, hot water, and process lines.
Rollboard	Rollboard means an asbestos-containing product made of paper that is produced in a continuous sheet, is flexible, and is rolled to achieve a desired thickness. Asbestos rollboard consists of two sheets of asbestos paper laminated together. Major applications of this product include: Office partitioning; garage paneling; linings for stoves and electric switch boxes; and fire-proofing agent for security boxes, safes, and files.
Commercial Paper	Commercial paper means an asbestos-containing product that is made of paper intended for use as general insulation paper or muffler paper. Major applications of commercial papers are insulation against fire, heat transfer, and corrosion in circumstances that require a thin, but durable, barrier.
Specialty Paper	Specialty paper means an asbestos-containing product that is made of paper intended for use as filters for beverages or other fluids or as paper fill for cooling towers. Cooling tower fill consists of asbestos paper that is used as a cooling agent for liquids from industrial processes and air conditioning systems.
Flooring Felt	Flooring felt means an asbestos-containing product that is made of paper felt intended for use as an underlayer for floor coverings, or to be bonded to the underside of vinyl sheet flooring.
New Uses *	The commercial uses of asbestos not identified in § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

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In this SNUR, a significant new use of asbestos addresses multiple uses that were initiated on or before August 25, 1989 (such that the uses were not covered by the 1989 ban for uses initiated *for the first time after August 25, 1989*), for which manufacturing and processing are no longer ongoing in the United States. This SNUR is designed to complement the existing prohibitions on asbestos, not alter or displace those prohibitions.

In response to the confusion surrounding the Asbestos SNUR, EPA offers the following explanation of a significant new use rule, which, in general terms, is a notification requirement. EPA is including some of the explanation below to more clearly distinguish between "new use" and "significant new use," to clarify what the proposed SNUR discussed and avoid additional confusion.

Significant new use rules can be promulgated for existing chemicals and new chemicals. "Existing" chemical substances are chemicals that are on the TSCA Chemical Substance Inventory[2]. Any chemical substance that is not on the TSCA Chemical Substance Inventory is classified as a new chemical.

Asbestos is classified as an existing chemical, and SNURs for existing chemicals typically occur in three circumstances:

1. The chemical has been phased out or taken off the market for certain uses or has not been manufactured for a certain use before;
2. The chemical is no longer being manufactured or processed for any use; or
3. There is a potential or likely use that has not commenced.

EPA can promulgate an existing chemical SNUR to ensure that no company will be able to manufacture or process the chemical for a certain use (circumstance 1) or for any use (circumstance 2) without prior notification to EPA, and not before EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

Most asbestos products are not banned in the United States, although some uses of asbestos are prohibited. Such limited banned uses of asbestos include:

- Under TSCA – Manufacturing, importing, processing or distributing five asbestos-containing products (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989 (40 CFR Part 763, Subpart I; FRL-3269-8).
- Under the Clean Air Act (CAA) – Asbestos pipe insulation and asbestos block insulation on facility components, such as boilers and hot water tanks, if the materials are either pre-

[2] Access the TSCA Chemical Substance Inventory [HYPERLINK "https://www.epa.gov/tsca-inventory/how-access-tsca-inventory"]

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formed (molded) and friable or wet-applied and friable after drying. Spray-on application of materials containing more than 1% asbestos on buildings, structures, pipes, and conduits unless certain conditions specified under 40 CFR 61, Subpart M are met.

- Under the Consumer Product Safety Act (CPSA) – Asbestos in artificial fireplace embers and wall patching compounds (16 CFR 1500).
- Under the Food and Drug Administration (FDA) – Asbestos-containing filters in pharmaceutical manufacturing, processing and packing (21 CFR 211.72).

Although the use of asbestos has declined significantly since EPA attempted a broad ban in 1989, any otherwise prohibited uses of asbestos can resume at any time. This SNUR targets uses of asbestos that are not already prohibited under TSCA nor ongoing in the United States. In the absence of the asbestos SNUR, manufacturing, importing, or processing of asbestos (including as part of an article) for the significant new uses identified in the rule may begin at any time without prior notice to EPA.

The significant new use rule for asbestos under TSCA section 5 served to compliment the ongoing risk evaluation for asbestos under TSCA section 6. In December 2016, EPA named asbestos as one of the first ten chemical substances subject to the Agency's initial chemical risk evaluations under TSCA. EPA is currently conducting that risk evaluation, and if EPA determines there is unreasonable risk for any of the activities being evaluated, EPA is then required by statute to initiate risk management under TSCA for those activities, including restrictions on such activities. While the risk evaluation for asbestos addresses conditions of use, the SNUR addresses unregulated uses that are no longer ongoing but could legally resume at any time absent the SNUR. By ~~taking action under the~~reviewing ongoing uses in the risk evaluation and issuing the SNUR simultaneously, EPA is ensuring that both ongoing uses of asbestos and uses that are no longer ongoing – but not prohibited – and which could resume at any time, are reviewed and evaluated by the Agency. Between these two regulatory actions under the authorities of TSCA sections 5 and 6, EPA is reviewing associated risks and exposures for the conditions of use of asbestos in the United States and ensuring that the Agency has the opportunity to evaluate uses that may reoccur in the future in the event that a company wishes to pursue resuming a former use of asbestos.

Commented [BS1]: We are not taking action under risk evaluation yet.

Section 5(a)(2) of TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors. These factors include:

- The projected volume of manufacturing (including import) and processing of a chemical substance;
- The extent to which a use changes the type or form of exposure of humans or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of humans or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once a SNUR is issued to identify a significant new use, then under TSCA section 5(a)(1), a person desiring to manufacture or process for commercial purposes the chemical substance or mixtures containing it for a significant new use identified in the SNUR must notify EPA at least 90 days prior to initiating manufacture (including import) or processing for the significant new use [see 40 CFR §721.5(a)(1)]. For asbestos, EPA is lifting a general SNUR exemption for articles so that this requirement applies to asbestos as part of an article.

2. Extend the comment period

EPA received several requests to extend the comment period for the proposed Asbestos SNUR (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-2767; EPA-HQ-OPPT-2018-0159-2924; EPA-HQ-OPPT-2018-0159-5647). However, these requests were submitted on the day the comment period ended or later, which did not provide sufficient time for the Agency to respond. Moreover, the requests to extend the comment period were largely based on the incorrect assertion that asbestos is entirely banned in the United States and that this regulation would allow otherwise banned uses of asbestos to begin again. On the contrary, as explained above, the SNUR would further regulate the use of asbestos by requiring notification of intended uses of asbestos subject to the rulemaking and by providing the Agency an opportunity to evaluate each intended use for potential risks to human health and the environment and take any necessary regulatory action to address risks, as appropriate.

3. Ban asbestos

The majority of commenters (too numerous to cite individually) called for an outright ban on asbestos. As discussed in the preamble of the proposed Asbestos SNUR and in section 1 above, on July 12, 1989, EPA issued a final rule under the TSCA Section 6(a) banning most asbestos-containing products. In 1991, this regulation was partially vacated and remanded to EPA by the Fifth Circuit Court of Appeals in New Orleans following a case brought by industry representatives. As a result of the Court's decision, most of the ban on asbestos-containing products were lifted. However, the following specific asbestos-containing products that were no longer manufactured or imported at the time of the 1989 rule remain banned: flooring felt, rollboard, and corrugated, commercial, or specialty paper. In addition, the regulation continues to ban "new uses" of asbestos, which the rule defines to mean uses where the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

Under TSCA, EPA cannot immediately issue a ban as envisioned by some commenters. Rather, TSCA section 6 provides a specific process for risk evaluation and risk management that EPA must follow prior to taking any risk managment action for a chemical, such as a "ban". As part of the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act amendments, TSCA section 6(b)(4) requires EPA to establish a risk evaluation process. In performing risk evaluations for existing chemicals, EPA is directed to "determine whether a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator under the conditions of use."

In December of 2016, EPA published a list of 10 chemical substances that are the subject of the Agency's initial chemical risk evaluations as required by TSCA section 6(b)(2)(A). Asbestos was one of these chemicals. EPA subsequently published the scope of the risk evaluation to be conducted for asbestos in June 2017 as per TSCA section 6(b)(4)(D). In this scope document, EPA identified asbestos conditions of use that would be included within the scope of the asbestos risk evaluation. In June 2018, EPA issued a problem formulation document which refined the conditions of use, exposures and hazards presented in the scope of the risk evaluation for asbestos and presented refined conceptual models and analysis plans that describe how EPA expects to evaluate the risk for asbestos.

Per statute, the first ten risk evaluations must be completed within three years of initiation, with a possible extension of ~~6~~ six months. If EPA determines from the asbestos risk evaluation that the conditions of use of asbestos present an unreasonable risk of injury to health or the environment, then regulation would be pursued under TSCA section 6(a), which authorizes EPA to issue regulations requiring one or more of the following actions to the extent necessary so that the chemical substance no longer presents an unreasonable risk:

- Prohibit or otherwise restrict the manufacturing, processing, or distribution in commerce of such substances (§ 6(a)(1)).
- Prohibit or otherwise restrict manufacturing, processing, or distribution in commerce of such substances for particular uses or for uses in excess of a specified concentration (§ 6(a)(2)).
- Require minimum warning labels and instructions (§ 6(a)(3)).
- Require record keeping or testing (§ 6(a)(4)).
- Prohibit or regulate any manner or method of commercial use (§ 6(a)(5)).
- Prohibit or otherwise regulate any manner or method of disposal (§ 6(a)(6)).
- Direct manufacturers and processors to give notice of the determination to distributors and the public and replace or repurchase substances (§ 6(a)(7)).'

EPA must issue these regulations within specific timelines and in accordance with additional requirements laid out in TSCA section 6(c) (15 U.S.C. §2605).

4. Explain EPA's review process of Significant New Use Notices (SNUNs)

The Agency received several comments requesting more explanation regarding the review process of significant new use notices (SNUNs) (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-3224) and the opportunity for public comment on submitted SNUN applications, if any, as well as the Agency's significant new use determinations, if any, for asbestos (EPA-HQ-OPPT-2018-0159-4021; EPA-HQ-OPPT-2018-0159-1270; EPA-HQ-OPPT-2018-0159-5889).

In response to concerns about the review process of a significant new use notice, the Agency is including additional explanation in the final rule. Anyone who plans to manufacture, import, or process asbestos (including as part of an article) for a significant new use identified in the rule is required by Section 5 of TSCA to provide EPA with notice at least 90 days before initiating the activity. A SNUN submission follows the same process as a premanufacture notice (PMN) for

new chemicals, as described in 40 CFR 721.25. Upon receipt of a significant new use notice, EPA is required by TSCA Section 5(d)(2) to publish notification of the intended significant new use in the Federal Register. For transparency purposes, in addition, EPA intends to take public comment on any intended significant new use following that public notification. Under TSCA section 5(g), the Agency must also publish notice in the Federal Register of a TSCA section 5(a)(3)(C) determination that a significant new use is not likely to present an unreasonable risk of injury to health or the environment.

Commented [USEPA2]: Flagging for OPPT IO: Also added to the FRN. This would go beyond what we understand is the normal practice for SNURs. Given the attention asbestos receives and the unlikelihood of ever getting a SNUN, may make sense as a policy.

In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. In addition, EPA requires that the following information be submitted with the notice: any health and environmental information in the possession or control of the submitter, parent company or affiliates, and a description of any other applicable information known to or reasonably ascertainable by the submitter (see 40 CFR 720.45 and 40 CFR 720.50 for specific requirements). EPA risk assessors consider all of this information during the EPA significant new use review process.

For asbestos, the final rule also explains that the submitter must include with the notice adequate documentation or supporting information in the submitter's possession or control that the intended use is not subject to the prohibitions identified in 40 C.F.R. part 763, subpart I. In particular, this would include documentation in the submitter's possession or control that the manufacture, importation or processing for the intended use had been initiated for the first time before August 25, 1989.

SNUNs are reported using the standard electronic PMN form, which allows manufacturers of TSCA chemical substances to use the Internet through EPA's Central Data Exchange (CDX), to submit TSCA section 5 notices to EPA (instructions available at [HYPERLINK "https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn"]). SNUNS are subject to a 90-day review process similar to that for a PMN. When submitting a SNUN, the submitter should include a cover letter that provides the Code of Federal Regulations citation of the SNUR and identifies the specific significant new use(s) for which the SNUN is being submitted. The fee for each SNUN is $16,000, except for small businesses the fee is $2,800 (see 40 CFR 700.45).

Under TSCA, once EPA receives and reviews a significant new use notice, the Agency must make one of the following determinations:

- "Not likely to present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(C)) – In cases where EPA determines that a significant new use is not likely to present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including unreasonable risk to a potentially exposed or susceptible subpopulation under the conditions of use, EPA will notify the submitter of its decision under TSCA section 5(a)(3)(C) and the submitter may commence manufacture or processing for the significant new use notwithstanding any remaining portion of the 90-day review period. EPA will publish its findings in a statement in the Federal Register pursuant to TSCA section 5(g).
- "Insufficient Information" Determinations (See TSCA section 5(a)(3)(B)(i)) – In cases where EPA determines that the available information is insufficient to allow EPA to make a

reasoned evaluation of the health and environmental effects of the significant new use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing distribution in commerce, use or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements.

- "May present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(B)(ii)(I)) – In cases where EPA determines that in the absence of sufficient information to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, the manufacture, processing, distribution in commerce, use, or disposal of the chemical may present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements. Most TSCA section 5(e) orders issued by EPA are consent orders that are negotiated with the submitter of the SNUN.
- "Exposure-based" Determinations (See TSCA section 5(a)(3)(B)(ii)(II)) – In cases where EPA determines that the chemical substance is or will be produced in substantial quantities and either enters or may reasonably be anticipated to enter the environment in substantial quantities or there is or may be significant or substantial human exposure to the substance, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk and may include testing requirements.
- "Presents an unreasonable risk" Determinations (See TSCA section 5(a)(3)(A)) – In cases where EPA determines that the significant new use presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must take action under section 5(f) to protect against the unreasonable risk. Pursuant to section 5(f), EPA may propose a rule under section 6(a) or may issue an order to prohibit or limit the manufacture, processing, or distribution in commerce of the substance.

Upon making a determination, the Agency must notify the SNUN submitter.

5. Provide Clarification: Recycling and Disposal

One commenter (EPA-HQ-OPPT-2018-0159-0437) posits, "the SNUR is silent on the use of legacy materials that may be manufactured into new products. For example, a scrapped vehicle that may contain asbestos components (e.g., brake linings) will be recycled into new materials for the production of other products, including vehicles. Another example would be products manufactured with recycled building demolition materials (e.g., metal, gypsum wallboard) and how these materials and products would be evaluated under the proposed SNUR to ensure the protection of human health and the environment."

The Agency provides the following explanation in the preamble of the final rule: EPA interprets recycling to be part of *processing* under TSCA. Therefore, recycling asbestos-containing

material for a significant new use of asbestos subject to the SNUR would require a significant new use notice.

Commented [BS3]: Just flagging this again. I will make sure to diiscuss with Jeff et al.

Another commenter (EPA-HQ-OPPT-2018-0159-4066) requested EPA "make clear that the scope of this rulemaking *does not* in any way regulate or otherwise impede the (1) the continued use of asbestos-containing products from manufacturing/processing activities that occurred *prior* to June 1, 2018 (the proposed cutoff date for determining the applicability of the SNUR to new manufacturing/processing activities); or (2) the removal from service for disposal of asbestos-containing materials, including where such disposal activities may involve the incidental 'processing' of asbestos as part of the asbestos disposal process (as such processing is not being conducted for a commercial purpose)."

The Agency does not interpret disposal of legacy materials containing asbestos to be processing for a significant new use under this rule. Additionally, the SNUR does not prohibit any ongoing uses of asbestos-containing products from manufacturing/ processing activities that were initiated prior to June 1, 2018; more specifically the conditions of use of asbestos subject to the current asbestos risk evaluation under TSCA section 6 are not subject to this SNUR.

6. Broaden the scope of the SNUR

The Agency received numerous suggestions to broaden the scope of the significant new use rule to address mining, export notification for asbestos articles, and to include additional significant new uses of asbestos. These comments are addressed by topic in the following section.

a. Include mining

Some commenters (EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886) suggested that mining be subject to the significant new use rule because it is no longer ongoing in the United States.

The Agency interprets mining to be *production* under the TSCA definition of *manufacture*. Therefore, mining asbestos for a significant new use as identified in the final rule would require a SNUN. Mining for ongoing uses of asbestos would not require a SNUN. However, the Agency may pursue a separate action under TSCA to address asbestos mining for ongoing asbestos uses in the United States.

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b. Require 12(b) export notification for articles

The Agency received several comments recommending that the export notification requirement under TSCA section 12(b) apply to exported articles that contain asbestos (EPA-HQ-OPPT-2018-0159-0469; EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886).

Raw asbestos is subject to the export notification requirement at Section 12(b) of TSCA. One of the purposes of a significant new use rule for an existing chemical is to require notification from anyone who intends to resume uses that have been identified

as no longer ongoing. Should anyone intend to resume such uses as identified in a SNUR, the Agency would review the significant new use notice submitted to the Agency, evaluate the associated risks, hazards, and exposures based on the conditions of use, make a determination on the notice under Section 5(a)(3), and take such actions as are required in association with that determination.

Based on the research conducted in support of the ongoing TSCA section 6 risk evaluation, the Agency identified uses of asbestos (including as part of an article) that are no longer ongoing. The Agency has found no evidence to suggest that asbestos is used for any of the activities subject to the SNUR, and therefore, does not believe that an export notification is required for articles containing asbestos that are neither manufactured (including imported) nor processed in the United States. The commenters have not indicated that any of the uses of asbestos (including as part of an article) subject to the SNUR are currently ongoing nor have the commenters provided a persuasive argument as to why the Agency should require export notification for articles that are not manufactured, imported, or processed in the United States. Therefore, EPA assumes that applying an export requirement for asbestos-containing products that no longer exist in the U.S. marketplace would provide no meaningful benefit because the Agency would not receive any such export notifications.

In the event that anyone would be interested in using asbestos for any of the uses subject to the SNUR, EPA would receive notification through a SNUN, which would include information about the conditions of use, including distribution. Review of that SNUN would provide an opportunity for the Agency to require TSCA section 12(b) export notification if a discontinued use for a particular article were to be resumed.

As for the conditions of use of asbestos that are currently undergoing risk evaluation, if an unreasonable risk determination is made, the Agency will at that time evaluate what appropriate risk management options and tools should be used to address the risk, and requiring a TSCA section 12(b) export notification would be part of that evaluation.

c. Revise the SNUR to include every use of asbestos that is no longer ongoing

EPA received several comments suggesting that the SNUR be revised to include all uses of asbestos that are no longer ongoing and some suggest targeting all uses of asbestos except ongoing uses currently under consideration for the asbestos risk evaluation (EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-1271; EPA-HQ-OPPT-2018-0159-5755; EPA-HQ-OPPT-2018-0159-5886).

After further review and consideration, the Agency agrees with this comment and is revising the regulatory text to include any use of asbestos that is no longer ongoing and not currently banned under TSCA which is captured in the following category:
(xviii) Any other use of asbestos

In light of that revision, the Agency is also adding two exceptions to the final rule to account for the ongoing uses of chrysotile (paragraph (3)(i)) and the remaining prohibitions from the 1989 Asbestos Ban and Phaseout rule discussed above (paragraph (3)(ii)):

(3) Exceptions.
(i) The significant new use identified in (a)(2) of this section does not include manufacturing (including importing) or processing for the following uses of the asbestiform variety of chrysotile (serpentine) asbestos:
(A) Diaphragms for use in chorine and sodium hydroxide production;
(B) Sheet gaskets for use in chemical manufacturing;
(C) Brake blocks in oil drilling equipment;
(D) Aftermarket automotive brakes/linings;
(E) Other vehicle friction products; or
(F) Other gaskets.

(ii) The significant new use does not include the manufacture (including importation) or processing of the asbestos-containing products identified in § 763.165, which continue to be prohibited pursuant to 40 C.F.R. part 763, subpart I.

The specific uses of chrysotile carved out by paragraph (3)(i) account for uses EPA believes to be ongoing and thus outside of the Agency's SNUR authority. These uses are currently under consideration as conditions of use in the TSCA section 6 asbestos risk evaluation.

7. Economic Analysis

The Agency received two comments regarding the Economic Analysis for the Asbestos SNUR:

One commenter states "[w]ith the past negative effects of asbestos, this proposed policy appears to be too weak. $10,000 appears to be much too little to do a thorough analysis" (EPA-HQ-OPPT-2018-0159-4163). To clarify, $10,000 was the estimated cost to a business submitting a SNUN. According to the EA, the cost that EPA is expected to incur reviewing a SNUN is $41,000. Since publication of the proposed asbestos SNUR, the fees have been updated and are now $16,000 per SNUN submission for large businesses and $2,800 for small businesses. The updated estimate of the total cost of submitting a SNUN is approximately $10,000 for a small business and $23,000 for a large business.

Another commenter suggests, "only the cost of submitting and [preparing] the SNUN and a user fee are included. It is foreseeable any SNUN for asbestos could go through extensive follow-up investigation due to the health concern of the material and public perception of the

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asbestos use. The overall economic cost for business should include additional data gathering, testing, and health study of using asbestos in the proposed categories" (EPA-HQ-OPPT-2018-0159-0010). In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. Testing, investigation, and study are not required for the SNUN submission, and therefore, EPA's cost estimates are based on reasonably ascertainable information gathering activities. However, Section 3.2.8 of EPA's Economic Analysis ("Article Importation and Processing") includes a discussion of the types of costs that firms may incur if they choose to undertake additional activities to assure themselves that they are not undertaking a new use.

EPA addressed the commenter's concern about follow-up costs in Section 3.5 ("Potential for Subsequent Regulatory Actions") of the Economic Analysis of the proposed rule, where the Agency explained that "The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the SNUN is being reviewed). Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions."

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/17/2019 1:41:11 PM
To: Anderson, Steve [Anderson.Steve@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]
Subject: FW: Final SNUR FRN Pre-Pub
Attachments: Asbestos SNUR Response to Comments 20190416.docx

Any showstoppers? Thanks!

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Carmichael, Lea
Sent: Wednesday, April 17, 2019 9:38 AM
To: Scheifele, Hans <Scheifele.Hans@epa.gov>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Subject: RE: Final SNUR FRN Pre-Pub

Hans,

We are ready to upload all reference materials in FDMS for the docket, but the response to comments document (attached) may need final clearance from OPPT IO. We made some conforming edits to match language added/removed from the FRN and added a paragraph about impurities (highlighted in the attached and pasted below).

> General provisions for SNURs appear under 40 CFR part 721, subpart A. These provisions describe persons subject to the rule, recordkeeping requirements, and exemptions to reporting requirements. General exemptions for SNURs appear under 40 CFR 721.45. While commenters requested the scope of the SNUR be broadened, one commenter (EPA-HQ-OPPT-2018-0159-4066) supported the general exemption for impurities and no commenter suggested lifting the impurities exemption.

Please let us know if OPPT IO would like to make any changes (other than removing internal deliberative).

Lea Carmichael
Environmental Protection Specialist
National Program Chemicals Division
Fibers and Organics Branch
(202) 564-4689
Carmichael.Lea@epa.gov

From: Scheifele, Hans
Sent: Wednesday, April 17, 2019 9:12 AM
To: Carmichael, Lea <Carmichael.Lea@epa.gov>; Hofmann, Angela <Hofmann.Angela@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: RE: Final SNUR FRN Pre-Pub

Ditto, great work team!

Hans Scheifele
Special Assistant
Office of Pollution Prevention and Toxics
William Jefferson Clinton Building - East, MC7401M
Washington DC 20460
202.564.3122 (office) | Scheifele.hans@epa.gov

From: Carmichael, Lea
Sent: Wednesday, April 17, 2019 9:11 AM
To: Scheifele, Hans <Scheifele.Hans@epa.gov>; Hofmann, Angela <Hofmann.Angela@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: RE: Final SNUR FRN Pre-Pub

Congrats, and great teamwork!

From: Scheifele, Hans
Sent: Wednesday, April 17, 2019 9:07 AM
To: Hofmann, Angela <Hofmann.Angela@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: RE: Final SNUR FRN Pre-Pub

Alex just signed and Charlotte delivered to RICS during a meeting we are having.

Hans Scheifele
Special Assistant
Office of Pollution Prevention and Toxics
William Jefferson Clinton Building - East, MC7401M
Washington DC 20460
202.564.3122 (office) | Scheifele.hans@epa.gov

From: Hofmann, Angela
Sent: Tuesday, April 16, 2019 8:26 PM
To: Pierce, Alison <Pierce.Alison@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>; Scheifele, Hans <Scheifele.Hans@epa.gov>
Subject: RE: Final SNUR FRN Pre-Pub

OK.

From: Pierce, Alison
Sent: Tuesday, April 16, 2019 6:16 PM
To: Hofmann, Angela <Hofmann.Angela@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>; Scheifele, Hans <Scheifele.Hans@epa.gov>
Subject: RE: Final SNUR FRN Pre-Pub

OPPT IO received the action memo after the OD left for the evening; we'll have him sign first thing and get it you in the early morning.

Best,
Alison

ALISON PIERCE
202.564.2437

From: Hofmann, Angela
Sent: Tuesday, April 16, 2019 6:12 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: RE: Final SNUR FRN Pre-Pub

Did the OD sign the Action memo and is that loaded there too, or is the paper original in my box?

From: Courtnage, Robert
Sent: Tuesday, April 16, 2019 5:31 PM
To: Hofmann, Angela <Hofmann.Angela@epa.gov>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: Final SNUR FRN Pre-Pub
Importance: High

Angela- We worked with Peter this afternoon and incorporated the final approved OCSPP IO changes into the RICS master copy on the your SP site. It should be ready to go in preparation for Alex's signature. Please let us know of any questions.

Best,

-Robert

Robert T. Courtnage
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Restrictions on Discontinued Uses of Asbestos; Significant New Use Rule
Response to Comments
RIN 2070-AK45
Draft/Deliberative
April 16, 2019

Overview

The U.S. Environmental Protection Agency received a total of 17,912 comments related to the proposed *Asbestos; Significant New Use Rule* (SNUR) under docket identification (ID) number EPA-HQ-OPPT-2018-0159. The public comment period began on June 11, 2018 and ended August 10, 2018. Of the 17,912 public comments received, 11,732 are part of a mass mail campaign, 240 are from a second mass mail campaign, 67 are not posted due to inappropriate language, and 5,873[1] individual comments are identified by ID number, posted in the docket, and available to view on regulations.gov at [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159"]. Over 90% (5,386) of the individual comments received on the Asbestos SNUR are anonymous.

Upon careful review, EPA identified seven general themes throughout the public comments on the proposed Asbestos SNUR. The majority of the comments are not germane to the purpose and requirements of the proposed rule, as explained below. Comments are addressed in this document according to the following main topics areas:

1. Purpose of the proposed Asbestos SNUR
2. Extend the comment period
3. Ban asbestos
4. Explain EPA's review process of Significant New Use Notices (SNUNs)
5. Provide clarification: Recycling and disposal
6. Broaden the scope of the SNUR
    a. Include mining
    b. Require 12(b) export notification for articles
    c. Revise the SNUR to include every use of asbestos that is no longer ongoing
7. Economic Analysis

EPA received thousands of comments pertaining to the purpose of the proposed Asbestos SNUR as well as the request that EPA ban the use of asbestos in the United States. Due to the overwhelming number of comments on these two topics, the Agency does not cite each relevant comment by ID number in the following discussion. As for the other public comment topics of the proposed rule listed above, the Agency specifically cites 17 substantive comments, which may address multiple aspects of the proposed rule.

1. Purpose of the proposed Asbestos SNUR

Most commenters expressed concern that the proposed rule would allow otherwise prohibited asbestos products to be reintroduced into U.S. commerce, which is not the case. Instead, this action will prevent any discontinued uses of asbestos (that are not already prohibited under the 1989 partial ban under Toxic Substances Control Act (TSCA) section 6 from restarting without EPA having an opportunity to evaluate each intended use for potential risks to human health and the environment and take any necessary regulatory action, which may include a prohibition.

[1] 5,893 comments are reported in regulations.gov, but 18 of those comments have been withdrawn due to inappropriate language and are accounted for in this summary as part of the 67 not posted.

The final SNUR does not provide any means by which prohibited uses under the 1989 partial ban under TSCA section 6 can return to the marketplace. The SNUR keeps all prior asbestos prohibitions in place and would not amend them in any way. The action ensures that otherwise unregulated uses of asbestos undergo EPA review, and, as necessary, regulation by EPA.

EPA is focused on protecting the public from exposure to asbestos and as such, persons subject to the SNUR may not undertake any of these activities; they are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The SNUR ensures that manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

The SNUR also complements the TSCA section 6 risk evaluation for ongoing uses of asbestos by ensuring that any discontinued use of asbestos not already prohibited (that could otherwise resume at any time) cannot restart without prior notice, review, and, as necessary, regulation by EPA. A further discussion of what a SNUR is and the relationship of this action to past and current Agency actions is provided in the following paragraphs.

Under the 1989 rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL-3476-2)*, any "new use" of asbestos – defined by that rule as uses for which the manufacture, importation or processing would be initiated *for the first time* after August 25, 1989 – are banned in the United States. However, after the court's decision in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), that 1989 rule did not ban uses of asbestos that began on or before August 25, 1989 and then were subsequently discontinued voluntarily after August 25, 1989. Recognizing the inherent confusion between what is covered as a "new use" as defined and banned by the 1989 rule and a "significant new use" at issue in the current rulemaking, the Agency attempted to make this distinction in Unit III.A. of the proposed Asbestos SNUR:

> "In 1989, EPA published a final rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions* (54 FR 29460, July 12, 1989) (FRL-3476-2), which was intended "to prohibit, at staged intervals, the future manufacture, importation, processing and distribution in commerce of asbestos in almost all products, as identified in the rule . . ." and to "reduce the unreasonable risks presented to human health by exposure to asbestos during activities involving these products." The 1989 final rule applied to the asbestos product categories identified in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products,* which was conducted in support of the rule (Ref. 20). However, the ban against most of the asbestos product categories was overturned by the Fifth Circuit Court of Appeals in 1991. In addition to the asbestos products that remain banned after the court ruling, which are identified in Table 1 below, any new use of asbestos was also banned. The prohibition on any new uses of asbestos is for uses initiated for the first time after August 25, 1989. As a point of clarification, in this proposed rulemaking, a significant new use of asbestos addresses multiple uses that were

initiated prior to August 25, 1989, for which manufacturing and processing are no longer ongoing in the United States."

After the court's ruling in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), only the specific asbestos products identified in Table 1 below as reflected in the preamble of the proposed rule, and new uses of asbestos initiated for the first time after August 25, 1989, remained banned. The new SNUR keeps these prohibitions in place and does not amend them in any way; in other words, the new SNUR does not provide a means by which these prohibited uses can return to the marketplace.

Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

Product Category	**Definition (40 CFR 763.163)**
Corrugated Paper	Corrugated paper means an asbestos-containing product made of corrugated paper, which is often cemented to a flat backing, may be laminated with foils or other materials, and has a corrugated surface. Major applications of asbestos corrugated paper include: Thermal insulation for pipe coverings; block insulation; panel insulation in elevators; insulation in appliances; and insulation in low-pressure steam, hot water, and process lines.
Rollboard	Rollboard means an asbestos-containing product made of paper that is produced in a continuous sheet, is flexible, and is rolled to achieve a desired thickness. Asbestos rollboard consists of two sheets of asbestos paper laminated together. Major applications of this product include: Office partitioning; garage paneling; linings for stoves and electric switch boxes; and fire-proofing agent for security boxes, safes, and files.
Commercial Paper	Commercial paper means an asbestos-containing product that is made of paper intended for use as general insulation paper or muffler paper. Major applications of commercial papers are insulation against fire, heat transfer, and corrosion in circumstances that require a thin, but durable, barrier.
Specialty Paper	Specialty paper means an asbestos-containing product that is made of paper intended for use as filters for beverages or other fluids or as paper fill for cooling towers. Cooling tower fill consists of asbestos paper that is used as a cooling agent for liquids from industrial processes and air conditioning systems.
Flooring Felt	Flooring felt means an asbestos-containing product that is made of paper felt intended for use as an underlayer for floor coverings, or to be bonded to the underside of vinyl sheet flooring.

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Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

New Uses *	The commercial uses of asbestos not identified in § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

The purpose of the SNUR is to address the uses of asbestos that began prior to August 25, 1989, for which manufacturing (including importing) and processing are no longer ongoing in the United States but are not prohibited under the 1989 partial ban under TSCA section 6.
In response to the confusion surrounding the SNUR, EPA offers the following explanation. EPA is including some of the explanation below to more clearly distinguish between "new use" and "significant new use," to clarify what the proposed SNUR discussed and avoid additional confusion.

Significant new use rules can be promulgated for existing chemicals and new chemicals. "Existing" chemical substances are chemicals that are on the TSCA Chemical Substance Inventory[2]. Any chemical substance that is not on the TSCA Chemical Substance Inventory is classified as a new chemical.

Asbestos is classified as an existing chemical, and SNURs for existing chemicals typically occur in three circumstances:

1. The chemical has been phased out or taken off the market for certain uses or has not been manufactured for a certain use before;
2. The chemical is no longer being manufactured or processed for any use; or
3. There is a potential or likely use that has not commenced.

EPA can promulgate an existing chemical SNUR to ensure that no company will be able to manufacture or process the chemical for a certain use (circumstance 1) or for any use (circumstance 2) without prior notification to EPA, and not before EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination, including prohibiting use.

Most asbestos products are not banned in the United States, although some uses of asbestos are prohibited. Such limited banned uses of asbestos include:

- Under TSCA – Manufacturing, importing, processing or distributing five asbestos-containing products (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989 (40 CFR Part 763, Subpart I; FRL-3269-8).
- Under the Clean Air Act (CAA) – Asbestos pipe insulation and asbestos block insulation on facility components, such as boilers and hot water tanks, if the materials are either pre-formed (molded) and friable or wet-applied and friable after drying. Spray-on application of materials containing more than 1% asbestos on buildings, structures, pipes, and conduits unless certain conditions specified under 40 CFR 61, Subpart M are met.

[2] Access the TSCA Chemical Substance Inventory [HYPERLINK "https://www.epa.gov/tsca-inventory/how-access-tsca-inventory"]

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- Under the Consumer Product Safety Act (CPSA) – Asbestos in artificial fireplace embers and wall patching compounds (16 CFR 1500).

Although the use of asbestos has declined significantly since EPA attempted a broad ban in 1989 under TSCA section 6, any not otherwise prohibited uses of asbestos can resume at any time. This SNUR targets uses of asbestos that are not already prohibited under TSCA and are not ongoing in the United States. In the absence of the Asbestos SNUR, manufacturing, importing, or processing of asbestos (including as part of an article) for the significant new uses identified in the rule may begin at any time and without prior notice to EPA.

Section 5(a)(2) of TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors. These factors include:

- The projected volume of manufacturing (including import) and processing of a chemical substance;
- The extent to which a use changes the type or form of exposure of humans or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of humans or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once a SNUR is issued to identify a significant new use, then under TSCA section 5(a)(1), a person desiring to manufacture or process for commercial purposes the chemical substance or mixtures containing it for a significant new use identified in the SNUR must notify EPA at least 90 days prior to initiating manufacture (including import) or processing for the significant new use [see 40 CFR §721.5(a)(1)]. For asbestos, EPA is lifting a general SNUR exemption for articles so that this requirement applies to asbestos as part of an article.

EPA is committed to protecting the public from asbestos risks and is concerned that the commencement of the manufacturing (including importing) or processing for the significant new uses of asbestos subject to the SNUR could increase the volume of manufacturing (including importing) and processing of asbestos as well as the magnitude and duration of exposure to humans over that which would otherwise exist currently. EPA has concluded that action on this chemical substance is warranted and therefore determined that any manufacturing (including importing) or processing of asbestos (including as part of an article), using the definition under Title II of TSCA, for any use identified in the SNUR is a significant new use.

2. Extend the comment period

EPA received several requests to extend the comment period for the proposed Asbestos SNUR (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-2767; EPA-HQ-OPPT-2018-0159-2924; EPA-HQ-OPPT-2018-0159-5647). However, these requests were submitted on the day the comment period ended or later, which did not provide sufficient time for the Agency to respond. Moreover, the requests to extend the comment period were largely based on the incorrect assertion that asbestos is entirely banned in the United States and that this regulation would allow otherwise banned uses of asbestos to begin again. On the contrary, as explained

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above, the SNUR prohibits discontinued uses of asbestos from restarting without EPA having an opportunity to evaluate each intended use (i.e., significant new use) for potential risks to health and the environment and take any necessary regulatory action, which may include a prohibition.

3. Ban asbestos

The majority of commenters called for an outright ban on asbestos. As discussed in the preamble of the proposed Asbestos SNUR and in section 1 above, on July 12, 1989, EPA issued a final rule under the TSCA Section 6(a) banning most asbestos-containing products. In 1991, this regulation was partially vacated and remanded to EPA by the Fifth Circuit Court of Appeals in New Orleans following a case brought by industry representatives. As a result of the Court's decision, most of the ban on asbestos-containing products were lifted. However, the following specific asbestos-containing products that were no longer manufactured or imported at the time of the 1989 rule remain banned: flooring felt, rollboard, and corrugated, commercial, or specialty paper. In addition, the regulation continues to ban "new uses" of asbestos, which the rule defines to mean uses where the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

Under TSCA section 6, EPA cannot immediately issue a ban as envisioned by some commenters. Rather, TSCA section 6 provides a specific process for risk evaluation and risk management that EPA must follow prior to taking any risk managment action for a chemical, such as a "ban." As part of the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act amendments, TSCA section 6(b)(4) requires EPA to establish a risk evaluation process. In performing risk evaluations for existing chemicals, EPA is directed to "determine whether a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator under the conditions of use."

In December of 2016, EPA published a list of 10 chemical substances that are the subject of the Agency's initial chemical risk evaluations as required by TSCA section 6(b)(2)(A). Asbestos was one of these chemicals. EPA subsequently published the scope of the risk evaluation to be conducted for asbestos in June 2017 as per TSCA section 6(b)(4)(D). In this scope document, EPA identified asbestos conditions of use that would be included within the scope of the asbestos risk evaluation. In June 2018, EPA issued a problem formulation document which refined the conditions of use, exposures and hazards presented in the scope of the risk evaluation for asbestos and presented refined conceptual models and analysis plans that describe how EPA expects to evaluate the risk for asbestos.

Per statute, the first ten risk evaluations must be completed within three years of initiation, with a possible extension of six months. If EPA determines from the asbestos risk evaluation that the conditions of use of asbestos present an unreasonable risk of injury to health or the environment, then regulation would be pursued under TSCA section 6(a), which authorizes EPA to issue regulations requiring one or more of the following actions to the extent necessary so that the chemical substance no longer presents an unreasonable risk:

- Prohibit or otherwise restrict the manufacturing, processing, or distribution in commerce of such substances (§ 6(a)(1)).

- Prohibit or otherwise restrict manufacturing, processing, or distribution in commerce of such substances for particular uses or for uses in excess of a specified concentration (§ 6(a)(2)).
- Require minimum warning labels and instructions (§ 6(a)(3)).
- Require record keeping or testing (§ 6(a)(4)).
- Prohibit or regulate any manner or method of commercial use (§ 6(a)(5)).
- Prohibit or otherwise regulate any manner or method of disposal (§ 6(a)(6)).
- Direct manufacturers and processors to give notice of the determination to distributors and the public and replace or repurchase substances (§ 6(a)(7)).'

EPA must issue these regulations within specific timelines and in accordance with additional requirements laid out in TSCA section 6(c) (15 U.S.C. §2605).

4. Explain EPA's review process of Significant New Use Notices (SNUNs)

The Agency received several comments requesting more explanation regarding the review process of significant new use notices (SNUNs) (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-3224) and the opportunity for public comment on submitted SNUN applications, if any, as well as the Agency's significant new use determinations, if any, for asbestos (EPA-HQ-OPPT-2018-0159-4021; EPA-HQ-OPPT-2018-0159-1270; EPA-HQ-OPPT-2018-0159-5889).

In response to concerns about the review process of a significant new use notice, the Agency is including additional explanation in the final rule. Anyone who plans to manufacture, import, or process asbestos (including as part of an article) for a significant new use identified in the rule is required by Section 5 of TSCA to provide EPA with notice at least 90 days before initiating the activity. A SNUN submission follows the same process as a premanufacture notice (PMN) for new chemicals, as described in 40 CFR 721.25. Upon receipt of a significant new use notice, EPA is required by TSCA Section 5(d)(2) to publish notification of the intended significant new use in the Federal Register. For transparency purposes, in addition, EPA intends to take public comment on any intended significant new use following that public notification.

In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. In addition, EPA requires that the following information be submitted with the notice: any health and environmental information in the possession or control of the submitter, parent company or affiliates, and a description of any other applicable information known to or reasonably ascertainable by the submitter (see 40 CFR 720.45 and 40 CFR 720.50 for specific requirements). EPA risk assessors consider all of this information during the EPA significant new use review process and conduct a detailed analysis with the ultimate goal of identifying and controlling unreasonable risks. EPA uses an integrated approach that draws on knowledge and experience across disciplines to identify and evaluate concerns regarding human health and environmental effects, exposure and release and impacts. EPA has developed assessment methods, databases, and predictive tools to evaluate what happens to chemicals when they are used and released to the environment and how workers, citizens, and the environment might be exposed to and affected by these chemicals. These tools are helpful when laboratory studies or monitoring data are not available or need to be

supplemented. The Agency can take a range of actions, including prohibition, to ensure the use of the chemical does not present an unreasonable risk to human health or the environment.

For asbestos, the final rule also explains that the submitter must include with the notice adequate documentation or supporting information in the submitter's possession or control that the intended use is not subject to the prohibitions identified in 40 CFR. part 763, subpart I. In particular this would include documentation in the submitter's possession or control that the manufacture, importation or processing for the intended use had been initiated for the first time before August 25, 1989.

SNUNs are reported using the standard electronic PMN form, which allows manufacturers of TSCA chemical substances to use the Internet through EPA's Central Data Exchange (CDX), to submit TSCA section 5 notices to EPA (instructions available at [HYPERLINK "https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn"]). SNUNS are subject to a 90-day review process similar to that for a PMN. When submitting a SNUN, the submitter should include a cover letter that provides the Code of Federal Regulations citation of the SNUR and identifies the specific significant new use(s) for which the SNUN is being submitted. The fee for each SNUN is $16,000, except for small businesses the fee is $2,800 (see 40 CFR 700.45).

Under TSCA, once EPA receives and reviews a significant new use notice, the Agency must make one of the following determinations:

- "Not likely to present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(C)) – In cases where EPA determines that a significant new use is not likely to present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including unreasonable risk to a potentially exposed or susceptible subpopulation under the conditions of use, EPA will notify the submitter of its decision under TSCA section 5(a)(3)(C) and the submitter may commence manufacture or processing for the significant new use notwithstanding any remaining portion of the 90-day review period. EPA will publish its findings in a statement in the Federal Register pursuant to TSCA section 5(g).
- "Insufficient Information" Determinations (See TSCA section 5(a)(3)(B)(i)) – In cases where EPA determines that the available information is insufficient to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing distribution in commerce, use or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements.
- "May present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(B)(ii)(I)) – In cases where EPA determines that in the absence of sufficient information to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, the manufacture, processing, distribution in commerce, use, or disposal of the chemical may present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk,

and may include testing requirements. Most TSCA section 5(e) orders issued by EPA are consent orders that are negotiated with the submitter of the SNUN.

- "Exposure-based" Determinations (See TSCA section 5(a)(3)(B)(ii)(II)) – In cases where EPA determines that the chemical substance is or will be produced in substantial quantities and either enters or may reasonably be anticipated to enter the environment in substantial quantities or there is or may be significant or substantial human exposure to the substance, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk and may include testing requirements.
- "Presents an unreasonable risk" Determinations (See TSCA section 5(a)(3)(A)) – In cases where EPA determines that the significant new use presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must take action under section 5(f) to protect against the unreasonable risk. Pursuant to section 5(f), EPA may propose a rule under section 6(a) or may issue an order to prohibit or limit the manufacture, processing, or distribution in commerce of the substance.

Upon making a determination, the Agency must notify the SNUN submitter.

5. Provide Clarification: Recycling and Disposal

One commenter (EPA-HQ-OPPT-2018-0159-0437) posits, "the SNUR is silent on the use of legacy materials that may be manufactured into new products. For example, a scrapped vehicle that may contain asbestos components (e.g., brake linings) will be recycled into new materials for the production of other products, including vehicles. Another example would be products manufactured with recycled building demolition materials (e.g., metal, gypsum wallboard) and how these materials and products would be evaluated under the proposed SNUR to ensure the protection of human health and the environment."

The Agency provides the following explanation in the preamble of the final rule: EPA interprets recyling to be processing under TSCA, and recycling of any asbestos-containing material for a significant new use of asbestos subject to this rulemaking requires a SNUN. For example, recycling asbestos building material, such as roofing tiles, for reuse is prohibited without notification, review, and, as necessary, regulation by EPA.
Another commenter (EPA-HQ-OPPT-2018-0159-4066) requested EPA "make clear that the scope of this rulemaking *does not* in any way regulate or otherwise impede the (1) the continued use of asbestos-containing products from manufacturing/processing activities that occurred *prior* to June 1, 2018 (the proposed cutoff date for determining the applicability of the SNUR to new manufacturing/processing activities); or (2) the removal from service for disposal of asbestos-containing materials, including where such disposal activities may involve the incidental 'processing' of asbestos as part of the asbestos disposal process (as such processing is not being conducted for a commercial purpose)."

The Agency does not interpret the disposal of asbestos-containing materials to be processing for a significant new use; therefore, such activity does not require a significant new use notice under this final rule. Additionally, the SNUR does not prohibit any ongoing uses of asbestos-containing products from manufacturing/ processing activities that were initiated prior to June 1, 2018; more

specifically the conditions of use of asbestos subject to the current asbestos risk evaluation under TSCA section 6 are not subject to this SNUR.

6. Broaden the scope of the SNUR

The Agency received numerous suggestions to broaden the scope of the significant new use rule to address mining, export notification for asbestos articles, and to include additional significant new uses of asbestos. These comments are addressed by topic in the following section.

a. Include mining

Some commenters (EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886) suggested that mining be subject to the significant new use rule because it is no longer ongoing in the United States. Asbestos mining in the United States ceased in 2002.

The Agency interprets mining to be *production* under the TSCA definition of *manufacture.* Therefore, mining asbestos for a significant new use as identified in the final rule would require a SNUN. Mining for ongoing uses of asbestos would not require a SNUN.

b. Require 12(b) export notification for articles

The Agency received several comments recommending that the export notification requirement under TSCA section 12(b) apply to exported articles that contain asbestos (EPA-HQ-OPPT-2018-0159-0469; EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886).

Raw asbestos is subject to the export notification requirement at Section 12(b) of TSCA. One of the purposes of a significant new use rule for an existing chemical is to require notification from anyone who intends to resume uses that have been identified as no longer ongoing. Should anyone intend to resume such uses as identified in a SNUR, the Agency would review the significant new use notice submitted to the Agency, evaluate the associated risks, hazards, and exposures based on the conditions of use, make a determination on the notice under Section 5(a)(3), and take such actions as are required in association with that determination.

Based on the research conducted in support of the ongoing TSCA section 6 risk evaluation, the Agency identified uses of asbestos (including as part of an article) that are no longer ongoing. The Agency has found no evidence to suggest that asbestos is used for any of the activities subject to the SNUR, and therefore, does not believe that an export notification is required for articles containing asbestos that are neither manufactured (including imported) nor processed in the United States. The commenters have not indicated that any of the uses of asbestos (including as part of an article) subject to the SNUR are currently ongoing nor have the commenters provided a persuasive argument as to why the Agency should require export notification for articles that are not manufactured, imported, or processed in the United States. Therefore, EPA assumes that applying an export requirement for asbestos-containing products that no longer exist in the U.S. marketplace would

provide no meaningful benefit because the Agency would not receive any such export notifications.

In the event that anyone would be interested in using asbestos for any of the uses subject to the SNUR, EPA would receive notification through a SNUN, which would include information about the conditions of use, including distribution. Review of that SNUN would provide an opportunity for the Agency to require TSCA section 12(b) export notification if a discontinued use for a particular article were to be resumed.

As for the conditions of use of asbestos that are currently undergoing risk evaluation, if an unreasonable risk determination is made, the Agency will at that time evaluate what appropriate risk management options and tools should be used to address the risk and requiring a TSCA section 12(b) export notification would be part of that evaluation.

c. Revise the SNUR to include every use of asbestos that is no longer ongoing

EPA received several comments suggesting that the SNUR be revised to include all uses of asbestos that are no longer ongoing and some suggest targeting all uses of asbestos except ongoing uses currently under consideration for the asbestos risk evaluation (EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-1271; EPA-HQ-OPPT-2018-0159-5755; EPA-HQ-OPPT-2018-0159-5886).

After further review and consideration, the Agency agrees with this comment and is revising the regulatory text to include any use of asbestos that is no longer ongoing and not currently banned under TSCA which is captured in the following category: *(xviii) Any other use of asbestos*

In light of that revision, the Agency is also adding two exceptions to the final rule to account for the ongoing uses of chrysotile (paragraph (3)(i)) and the remaining prohibitions from the 1989 Asbestos Ban and Phaseout rule discussed above (paragraph (3)(ii)):

(3) Exceptions.
(i) The significant new use identified in (a)(2) of this section does not include manufacturing (including importing) or processing for the following uses of the asbestiform variety of chrysotile (serpentine) asbestos:
(A) Diaphragms for use in chorine and sodium hydroxide production;
(B) Sheet gaskets for use in chemical manufacturing;
(C) Brake blocks in oil drilling equipment;
(D) Aftermarket automotive brakes/linings;
(E) Other vehicle friction products; or
(F) Other gaskets.

(ii) The significant new use does not include the manufacture (including importation) or processing of the asbestos-containing products identified in § 763.165, which continue to be prohibited pursuant to 40 C.F.R. part 763, subpart I.

The specific uses of chrysotile carved out by paragraph (3)(i) account for uses EPA believes to be ongoing and thus outside of the Agency's SNUR authority. These uses are currently under consideration as conditions of use in the TSCA section 6 asbestos risk evaluation.

General provisions for SNURs appear under 40 CFR part 721, subpart A. These provisions describe persons subject to the rule, recordkeeping requirements, and exemptions to reporting requirements. General exemptions for SNURs appear under 40 CFR 721.45. While commenters requested the scope of the SNUR be broadened, one commenter (EPA-HQ-OPPT-2018-0159-4066) supported the general exemption for impurities and no commenter suggested lifting the impurities exemption.

7. Economic Analysis

The Agency received two comments regarding the Economic Analysis for the Asbestos SNUR. One commenter states "[w]ith the past negative effects of asbestos, this proposed policy appears to be too weak. $10,000 appears to be much too little to do a thorough analysis" (EPA-HQ-OPPT-2018-0159-4163). To clarify, $10,000 was the estimated cost to a business submitting a SNUN. According to the EA, the cost that EPA is expected to incur reviewing a SNUN is $41,000. Since publication of the proposed Asbestos SNUR, the fees have been updated and are now $16,000 per SNUN submission for large businesses and $2,800 for small businesses. The updated estimate of the total cost of submitting a SNUN is approximately $10,000 for a small business and $23,000 for a large business.

Another commenter suggests, "only the cost of submitting and [preparing] the SNUN and a user fee are included. It is foreseeable any SNUN for asbestos could go through extensive follow-up investigation due to the health concern of the material and public perception of the asbestos use. The overall economic cost for business should include additional data gathering, testing, and health study of using asbestos in the proposed categories" (EPA-HQ-OPPT-2018-0159-0010). In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. Testing, investigation, and study are not required for the SNUN submission, and therefore, EPA's cost estimates are based on reasonably ascertainable information gathering activities. However, Section 3.2.8 of EPA's Economic Analysis ("Article Importation and Processing") includes a discussion of the types of costs that firms may incur if they choose to undertake additional activities to assure themselves that they are not undertaking a new use.

EPA addressed the commenter's concern about follow-up costs in Section 3.5 ("Potential for Subsequent Regulatory Actions") of the Economic Analysis of the proposed rule, where the Agency explained that "The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the

SNUN is being reviewed). Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions."

EPA Finalizes Rule to Prohibit Former Asbestos Uses from Restarting

WASHINGTON–The U.S. Environmental Protection Agency (EPA) issued a final rule to ensure that discontinued uses of asbestos cannot restart without the Agency undertaking risk assessment and any necessary restrictions.

"Today's important action prevents former asbestos uses not currently banned in the U.S. from unknowingly returning to the marketplace," said EPA Administrator Andrew Wheeler.

"This TSCA action compliments the asbestos risk evaluation already underway for ongoing asbestos uses. Although that risk evaluation is not yet completed, today's action addressing former asbestos uses, provides a valuable safeguard," said EPA Office of Chemical Safety and Pollution Prevention Assistant Administrator Alexandra Dapolito Dunn.

Today's final action, regulatorily called a "significant new use rule," under TSCA section 5(a), will not impact asbestos uses already banned and does not allow new asbestos uses to start. This action compliments the existing ban on certain uses by establishing additional safeguards requiring that any person who intends to restart the manufacture, import or processing of discontinued asbestos uses notify EPA at least 90 days before commencing. Manufacturing, importing or processing of these former asbestos uses is prohibited until EPA conducts a thorough review of the notice, makes an appropriate determination, and takes such actions as are required in association with that determination, including prohibiting use.

The former uses that are subject to the final significant new use rule include: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; certain friction materials; high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; certain woven products; any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

EPA is separately conducting a risk evaluation for asbestos uses that are still ongoing in the U.S. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's chemical risk evaluation process. Once that risk evaluation is complete, EPA may restrict or ban those ongoing asbestos uses if unreasonable risk is found.

The final significant new use rule and supporting documents will be published in the Federal Register and available under docket identification number (ID) EPA-HQ-OPPT-2018-0159 at: [HYPERLINK "https://www.regulations.gov./"]

EPA developed an infographic to illustrate how today's final rule fits into the Agency's other current actions regarding asbestos, available at: [Link]

Learn more about asbestos at: [HYPERLINK "http://www.epa.gov/asbestos"]

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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 2/20/2019 12:46:49 PM
To: Anderson, Steve [Anderson.Steve@epa.gov]; 'Seltzer, Mark' [seltzer.mark@epa.gov]; Gardner, Geraldine [Gardner.Geraldine@epa.gov]; Flaherty, Colleen [Flaherty.Colleen@epa.gov]; Goldstein, Jessica [goldstein.jessica@epa.gov]; Cooperstein, Sharon [Cooperstein.Sharon@epa.gov]; Watkins, Stephen [watkins.stephen@epa.gov]; Gallagher, Kathryn [Gallagher.Kathryn@epa.gov]; Silagi, William [Silagi.William@epa.gov]; Lloyd, Tyler [Lloyd.Tyler@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Smith, Peterj [Smith.Peterj@epa.gov]; Harper, Ashley [harper.ashley@epa.gov]; Smith, Korbin [smith.korbin@epa.gov]
CC: Winchester, Erik [Winchester.Erik@epa.gov]; Pfahles-Hutchens, Andrea [Pfahles-Hutchens.Andrea@epa.gov]
Subject: RE: Draft Asbestos SNUR Documents for Review
Attachments: Asbestos SNUR Response to Comments (Workgroup) 20190215.docx; Asbestos SNUR Draft Fina Rule (Workgroup) 20190215.docx; Asbestos SNUR FRM EA_2-8-19.docx

Importance: High

Hi All- The link I sent yesterday isn't working for several folks. I am trying this one below. Please use it if you can. If you still have issues, I've also attached the documents to the email. Please remember these are draft internal deliberative documents not to be released outside of the Agency. Thanks again for spending the time on reviewing.

https://usepa.sharepoint.com/:f:/r/sites/OCSPP/OPPT/npcd/FOB/asbestos/Shared%20Documents/SNUR/Final%20SNUR/Workgroup?csf=1&e=XTbxvQ

Best,

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
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202.566.1081 (Desk)
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From: Courtnage, Robert
Sent: Tuesday, February 19, 2019 5:11 PM
To: Anderson, Steve <Anderson.Steve@epa.gov>; Seltzer, Mark <seltzer.mark@epa.gov>; Gardner, Geraldine <Gardner.Geraldine@epa.gov>; Flaherty, Colleen <Flaherty.Colleen@epa.gov>; Goldstein, Jessica <goldstein.jessica@epa.gov>; Cooperstein, Sharon <Cooperstein.Sharon@epa.gov>; Watkins, Stephen <watkins.stephen@epa.gov>; Gallagher, Kathryn <Gallagher.Kathryn@epa.gov>; Silagi, William <Silagi.William@epa.gov>; Lloyd, Tyler <Lloyd.Tyler@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>; Smith, Peterj <Smith.Peterj@epa.gov>; Harper, Ashley <harper.ashley@epa.gov>; Smith, Korbin <smith.korbin@epa.gov>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Pfahles-Hutchens, Andrea <Pfahles-Hutchens.Andrea@epa.gov>
Subject: Draft Asbestos SNUR Documents for Review
Importance: High

All-

As discussed in our check-in last week, please find the attached draft final SNUR documents (Federal Register, Response to Comments and Economic Assessment for your Review). Please provide comments by COB on 2/26. We are once again

under a tight schedule and appreciate your attention to review the drafts. We will be looking to schedule another WG check-in as schedules allow to get input on a few outstanding issues.

We appreciate you providing comments through the Sharepoint files linked to below. If you have any difficulty accessing and providing comments on these drafts, please let me know right away. Thanks!

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 3/29/2019 4:00:10 PM
To: Blair, Susanna [Blair.Susanna@epa.gov]
CC: Winchester, Erik [Winchester.Erik@epa.gov]; Pierce, Alison [Pierce.Alison@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]
BCC: Altieri, Sonia [Altieri.Sonia@epa.gov]
Subject: RE: Early Preview: Asbestos SNUR
Attachments: Asbestos SNUR Press Release 3.29.19.docx

Hi Susanna- This is NPCD-reviewed and ready for the OPPT IO. One caveat is that OGC has not been able to sign-off yet, with our OGC staff person on leave this afternoon. So, that will still need to happen (said he can do it Monday) and might be something that can happen further in the process, prior to release. Linda has initially reviewed. I know she was interested in having Alex look at it over the weekend, if possible.

Thanks!

-Robert

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From: Strauss, Linda
Sent: Friday, March 29, 2019 10:47 AM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Subject: FW: Early Preview: Asbestos SNUR
Importance: High

Got it, thanks. I believe Susanna is covering for Alison so just send to her after NPCD signs off.
Linda

Request for Non-Significance Determination

Office: OCSPP/OPPT
Title: Asbestos; Significant New Use Rule
SAN: 6677
RIN: 2070-AK45
Stage: Final Rule
Spring 2019 Proposed Reg Agenda Priority: Substantive, not significant.
Spring 2019 Proposed Reg Agenda EO 13771 Designation: Not Subject/Non-Significant.

Description of the Action: EPA is finalizing a significant new use rule (SNUR) for asbestos under section 5(a)(2) of the Toxic Substances Control Act (TSCA). The Asbestos Hazard Emergency Response Act (i.e., TSCA Title II) defines asbestos as the asbestiform varieties of six fiber types – chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite. *See* 15 U.S.C. 2642(3).

Persons subject to the SNUR are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required significant new use notice (SNUN) provides EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The Agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products (other than brake blocks used in oilfield drawworks); packings; any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Commented [USEPA1]: Note, after discussions with RAD we are adding this use category to the SNUR and it is being removed from the draft risk evaluation.

Background: EPA designated asbestos as one of the first 10 chemical substances to undergo chemical risk evaluation under TSCA section 6(b)(2)(A) (81 FR 91927, December 19, 2016). The TSCA risk evaluation focuses on the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States (i.e., the conditions of use). This SNUR complements the TSCA section 6 risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (and therefore could resume at any time) must be reviewed and approved by EPA prior to recommencing.

Commented [EPA2]: Recommencing?

Commented [USEPA3R2]: I think changing to "recommencing" helps convey the situation.

Commented [EW4R2]: Agree

Under TSCA, manufacturing (including importing) or processing for a significant new use cannot proceed until EPA has responded to the circumstances by taking the required actions under Sections 5(e) or 5(f) in the event that EPA determines that:

(1) The significant new use presents an unreasonable risk under the conditions of use (without consideration of costs or other non-risk factors, and including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant by EPA);
(2) The information available to EPA is insufficient to permit a reasoned evaluation of the health and environmental effects of the significant new use;
(3) In the absence of sufficient information, the manufacturing (including importing), processing, distribution in commerce, use, or disposal of the substance, or any combination of such activities, may present an unreasonable risk (without consideration of costs or other non-risk factors, and including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant by EPA); and/or
(4) There is substantial production and sufficient potential for environmental release or human exposure (as defined in TSCA section 5(a)(3)(B)(ii)(II)).

Commented [EPA5]: Added from NPRM to help explain why the SNUR is complementary

In 1989, EPA attempted to ban most asbestos-containing products by issuing a final rule under Section 6 of TSCA. However, the original ban was partially vacated and remanded to EPA in 1991 by the Fifth Circuit Court of Appeals. As a result, the remaining partial 1989 asbestos ban only prohibits five asbestos-containing products no longer in use at the time of the ban (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989.

Public Comments: EPA issued the proposed Asbestos SNUR on June 11, 2018, which opened a 60-day public comment period that closed on August 10, 2018. The Agency received nearly 5,900 public comments; however, the majority of comments were based on a misunderstanding of the scope and intent of the rule. Overall, the Agency received approximately 30 germane comments, half of which are substantive. EPA did not receive any adverse comments from industry. One industry commenter did ask that EPA clarify that the SNUR would not regulate the disposal of asbestos-containing materials. EPA will clarify in the final rule that disposal of asbestos-containing materials is not subject to the SNUR. Of the substantive comments, most suggested broadening the scope of the SNUR. Other comments speak to public confusion about:

- The distinction between a "new use" under the existing partial ban and a "significant new use rule"
- The Agency's review process of Significant New Use Notices
- Whether and how mining for asbestos is subject to the SNUR
- Whether and how recycling of legacy asbestos-containing material is subject to the SNUR

Commented [EPA6]: OMB will be interested in whether industry supported the SNUR or filed adverse comments

Commented [USEPA7R6]: Added mention of no adverse comment but that USWAG wanted clarification that any disposal is not covered, which we do in the draft final rule preamble.

Commented [EPA8]: Probably worth including a high-level summary of the existing ban

Commented [USEPA9R8]: Added in the background section before we discuss the comments received.

Some commenters suggested that EPA should apply export notification requirements under TSCA section 12(b) to all asbestos-containing articles, and that EPA should require that a SNUN be submitted for *any* asbestos mining in the U.S.

EPA Response: In response to public comments, the Agency is revising the final rule to provide clarifications and ensure all discontinued uses of asbestos are subject to the rulemaking. EPA is clarifying identified issues of public confusion in the final rule. EPA is also broadening the

Commented [EPA10]: Given litigation environment, expect that we will be asked about logical outgrowth

SNUR to add the following use categories to the existing 14 significant new uses of asbestos (including as part of an article) that were identified in the proposed rule:

- Cement products
- Friction Materials (with some exception)
- Woven products
- Packings
- Any other use of asbestos that is neither ongoing nor already prohibited under TSCA

Commented [USEPA11]: Note, after discussions with RAD we are adding this use category to the SNUR and it is being removed from the draft risk evaluation.

EPA disagrees that it should require export notification for all asbestos-containing articles under TSCA 12(b) or that it should require a significant new use notice for *any* asbestos mining in the United States. The Agency views including these two issues as actions to go beyond the intended focus of the SNUR. EPA is currently evaluating options for how these issues might be addressed in the future.

With respect to a potential export notification requirement for asbestos-containing articles, the Agency believes this would impact ongoing uses of asbestos, not just uses that have been discontinued as identified in the SNUR. EPA believes that this issue would be more appropriately addressed during consideration of any potential risk management actions following completion of EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination.

EPA agrees with commenters that mining for significant new uses identified in the rule is subject to the SNUR because EPA considers mining production under the TSCA definition of manufacturing. Therefore, the Agency will indicate in the preamble that manufacturing by mining for a significant new use identified in the rule requires a SNUN.

With respect to a potential requirement for a SNUN for *any* asbestos mining (including ongoing asbestos uses and beyond the significant new uses), if pursued under a SNUR, EPA believes further opportunity for public comment through a separate proposed rulemaking would be appropriate prior to taking a final action.

Commented [EPA12]: May be helpful to clarify how this fits with the scope of this SNUR. Unclear whether we are signaling another potential SNUR.

Rationale: A SNUR involves already defined requirements, both in terms of what EPA must do to designate a "new use" for a particular chemical substance, and what the regulated entity must do in response to such a designation. Those requirements are not changed by an action for an individual chemical, such as this action. As a result, OMB determined in 1995 that SNURs do not generally meet the "significant regulatory action" criteria in section 3(f) of EO 12866 unless the SNUR involves unusual circumstances (e.g., existing chemical with impacts on existing stocks). There are no such unusual circumstances with this particular SNUR.

Commented [EPA13]: Not rationale for "not significant" determination.

Commented [EPA14]: Brace for possibility that OMB might determine mining to be an unusual circumstance.

Costs: In the event that a SNUN is submitted, costs (includes the most recent TSCA user fees) are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters.

Commented [EPA15]: If no 12(b) costs associated with this SNUR, let's avoid confusing the issue for OMB

Timing: EPA plans to publish the final asbestos significant new use rule in the *Federal Register* on or before April 30, 2019.

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 2/4/2019 3:16:24 PM
To: Pierce, Alison [Pierce.Alison@epa.gov]; Clark, Sharon [Clark.Sharon@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]
Subject: Asbestos SNUR Meeting
Attachments: OPPT MTG REQUEST FORM asbestos SNUR.PDF

Hi Alison/Sharon-

We'd like to have a quick check-in (30 mins) with Jeff on our proposed approach to the final asbestos SNUR. We are meeting with OGC Weds am. which will help inform our meeting with Jeff. Can we get 30 mins Weds pm (2/6) or Thurs. pm (2/7)? I am on leave the morning of 2/7. Thank you!

-Robert

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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/2/2019 5:47:23 PM
To: Lloyd, Tyler [Lloyd.Tyler@epa.gov]
CC: Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]
Subject: RE: WG REVIEW - DUE 4/2/19 @ 12PM
Attachments: AG Asbestos Petition FRN 2019-4-2 NPCD.docx

Hi Tyler- Please find attached comments from Lea and I for your consideration. Apologies for being a bit tardy and for having to attach a file with our combined edits vs. Sharepoint. Lea's edits alone are in the Sharepoint version though.

One thing to note is the timing for the risk evaluation. I think it's nearly impossible for them to make December 2019 at this point so I suggested "no later than June 2020."

-Robert

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From: Lloyd, Tyler
Sent: Thursday, March 28, 2019 5:00 PM
To: Carmichael, Lea <Carmichael.Lea@epa.gov>; Cooperstein, Sharon <Cooperstein.Sharon@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Cybulski, Walter <Cybulski.Walter@epa.gov>; Forbes, Thomas <Forbes.Thomas@epa.gov>; Foster, Stiven <Foster.Stiven@epa.gov>; Gardner, Geraldine <Gardner.Geraldine@epa.gov>; Goldstein, Jessica <goldstein.jessica@epa.gov>; Gsell, Alyssa <Gsell.Alyssa@epa.gov>; Kirk, Andrea <Kirk.Andrea@epa.gov>; Kramek, Niva <kramek.niva@epa.gov>; Libelo, Laurence <Libelo.Laurence@epa.gov>; Pfahles-Hutchens, Andrea <Pfahles-Hutchens.Andrea@epa.gov>; Scarano, Louis <Scarano.Louis@epa.gov>; Seltzer, Mark <Seltzer.Mark@epa.gov>; Sharkey, Susan <Sharkey.Susan@epa.gov>; Silagi, William <Silagi.William@epa.gov>; Smith, Peterj <Smith.Peterj@epa.gov>; Taylor, Jeffrey <Taylor.Jeffrey@epa.gov>; Wilber, Eric <Wilber.Eric@epa.gov>; Wolf, Joel <Wolf.Joel@epa.gov>; Richmond, Jonah <Richmond.Jonah@epa.gov>
Subject: WG REVIEW - DUE 4/2/19 @ 12PM

All,

Thank you for your comments, insights, and work over the last two months. It has been much appreciated. Please find the FRN for EPA's petition response here:

https://usepa.sharepoint.com/sites/OCSPP_Community/RCS/EO12866/TSCA21-CDR-Asbestos/WGDocsStateAGpetition/AG%20Asbestos%20Petition%20FRN%202019-3-28.docx?d=w8a67d55f2317402f907bdc33cfab4e03

I ask that you complete your review of the document by **Tuesday, April 2, by noon**. I apologize for the short review time, but much of what we are saying comes from the previous petition.

This quick review will allow me time to respond to your comments and prepare the package for OPPT IO review, which will begin Thursday, April 4. The other package contents are currently under development. Alex Dunn has asked to see the complete package by April 15th.

If you have any questions, please feel free to reach out. If you are unable to access the document, please contact Peter Smith or Jonah Richmond. They are managing this RCS SharePoint.

All the best,
Tyler

Tyler Edward Lloyd
Environmental Protection Specialist
U.S. Environmental Protection Agency
Office of Pollution Prevention and Toxics
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Tel (202) 564-4016

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WARNING - Do not e-mail any Confidential Business Information (CBI) to EPA

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/5/2019 6:36:58 PM
To: Pierce, Alison [Pierce.Alison@epa.gov]; Blair, Susanna [Blair.Susanna@epa.gov]
CC: Symmes, Brian [Symmes.Brian@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]; Groeneveld, Thomas [Groeneveld.Thomas@epa.gov]
Subject: RE: SNUR Comms.
Attachments: Asbestos Backpocket Questions 4-5-19rev.docx; Asbestos web 04 05 19 .docx

Hi All- Sending the revised internal Q&As with OECA's slight edit to the enforcement Q.

Added "TSCA §16," to that answer-- that's it.

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From: Courtnage, Robert
Sent: Friday, April 05, 2019 1:48 PM
To: Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Cc: Symmes, Brian <Symmes.Brian@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Strauss, Linda <Strauss.Linda@epa.gov>
Subject: RE: SNUR Comms.

As promised. . .

Note, OECA has not responded on the enforcement Q&A. For the time being, I've the answered verbatim from the draft preamble. We don't have anything to add to the tick tock. . .reaching out to ADAO as Alex has done in the past may be fruitful (or not), but I leave that to her.

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From: Courtnage, Robert
Sent: Friday, April 05, 2019 10:47 AM
To: Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Cc: Symmes, Brian <Symmes.Brian@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Carmichael, Lea

<carmichael.lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Strauss, Linda <Strauss.Linda@epa.gov>
Subject: SNUR Comms.
Importance: High

We will be sending up shortly the NPCD-approved and OGC reviewed comms so they can be included in Alex's weekend packet. We have some minor suggestions to Cheryl's web edits (OGC flagged a couple things too). Thank you Cheryl for jumping in—it's very much appreciated!

Linda already did the tic toc and has the pen on the press release, so it's just going to be the internal Q&As and suggestions for the web edits. As discussed, we are not planning to send the FRN up until Monday (along with the response to comments) so that we can re-read for flow and clarity. We didn't get comments on the response to comments from the principals but will be making it consistent with the FRN.

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Restrictions on Discontinued Uses of Asbestos; Significant New Use Rule
Response to Comments
RIN 2070-AK45
April 16, 2019

Overview

The U.S. Environmental Protection Agency received a total of 17,912 comments related to the proposed *Asbestos; Significant New Use Rule* (SNUR) under docket identification (ID) number EPA-HQ-OPPT-2018-0159. The public comment period began on June 11, 2018 and ended August 10, 2018. Of the 17,912 public comments received, 11,732 are part of a mass mail campaign, 240 are from a second mass mail campaign, 67 are not posted due to inappropriate language, and 5,~~873~~[1]873[1] individual comments are identified by ID number, posted in the docket, and available to view on regulations.gov at [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159"]-[HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159" \h] [HYPERLINK "https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159" \h] Over 90% (5,386) of the individual comments received on the Asbestos SNUR are anonymous.

Upon careful review, EPA identified seven general themes throughout the public comments on the proposed Asbestos SNUR. The majority of the comments are not germane to the purpose and requirements of the proposed rule, as explained below. Comments are addressed in this document according to the following main topics areas:

1. Purpose of the proposed Asbestos SNUR
2. Extend the comment period
3. Ban asbestos
4. Explain EPA's review process of Significant New Use Notices (SNUNs)
5. Provide clarification: Recycling and disposal
6. Broaden the scope of the SNUR
    a. Include mining
    b. Require 12(b) export notification for articles
    c. Revise the SNUR to include every use of asbestos that is no longer ongoing
7. Economic Analysis

EPA received thousands of comments pertaining to the purpose of the proposed Asbestos SNUR as well as the request that EPA ban the use of asbestos in the United States. Due to the overwhelming number of comments on these two topics, the Agency does not cite each relevant comment by ID number in the following discussion. As for the other public comment topics of the proposed rule listed above, the Agency specifically cites 17 substantive comments, which may address multiple aspects of the proposed rule.

1. Purpose of the proposed Asbestos SNUR

Most commenters expressed concern that the proposed rule would allow otherwise prohibited asbestos products to be reintroduced into U.S. commerce, which is not the case. Instead, this action will prevent any discontinued uses of asbestos (that are not already prohibited under the 1989 partial ban under Toxic Substances Control Act (TSCA) section 6 from restarting without EPA having an opportunity to evaluate each intended use for potential risks to human health and the environment and take any necessary regulatory action, ~~as appropriate.~~ which may include a

~~[1] 5,893 comments are reported in regulations.gov, but 18 of those comments have been withdrawn due to inappropriate language and are accounted for in this summary as part of the 67 not posted.~~

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prohibition.

[1] 5,893 comments are reported in regulations.gov, but 18 of those comments have been withdrawn due to inappropriate language and are accounted for in this summary as part of the 67 not posted.

The final SNUR does not provide any means by which prohibited uses under the 1989 partial ban under TSCA section 6 can return to the marketplace. ~~On the contrary, the~~The SNUR keeps all prior asbestos prohibitions in place and would not amend them in any way. The action ensures that otherwise unregulated uses of asbestos undergo EPA review, and, as necessary, regulation by EPA. ~~Persons subject to the SNUR~~

EPA is focused on protecting the public from exposure to asbestos and as such, persons subject to the SNUR may not undertake any of these activities; they are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The SNUR ensures that manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination~~, including a prohibition on use~~.

~~This~~The SNUR also ~~compliments~~complements the TSCA section 6 risk evaluation for ongoing uses of asbestos by ensuring that any discontinued use of asbestos not already prohibited (that could otherwise resume at any time) cannot restart without prior notice, review, and, as necessary, regulation by EPA. A further discussion of what a SNUR is and the relationship of this action to past and current Agency actions is provided in the following paragraphs.

Under the 1989 rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL-3476-2)*, any "new use" of asbestos – defined by that rule as uses for which the manufacture, importation or processing would be initiated *for the first time* after August 25, 1989 – are banned in the United States. However, after the court's decision in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), that 1989 rule did not ban uses of asbestos that began on or before August 25, 1989 and then were subsequently discontinued voluntarily after August 25, 1989. Recognizing the inherent confusion between what is covered as a "new use" as defined and banned by the 1989 rule and a "significant new use" at issue in the current rulemaking, the Agency attempted to make this distinction in Unit III.A. of the proposed Asbestos SNUR:

> "In 1989, EPA published a final rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions* (54 FR 29460, July 12, 1989) (FRL-3476-2), which was intended "to prohibit, at staged intervals, the future manufacture, importation, processing and distribution in commerce of asbestos in almost all products, as identified in the rule . . ." and to "reduce the unreasonable risks presented to human health by exposure to asbestos during activities involving these products." The 1989 final rule applied to the asbestos product categories identified in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products,* which was conducted in support of the rule (Ref. 20). However, the ban against most of the asbestos product categories was overturned by the Fifth Circuit Court of Appeals in 1991. In addition to the asbestos products that remain banned after the court ruling, which are identified in Table 1 below, any new use of asbestos was also banned. The prohibition on any new uses of asbestos is for uses initiated for the first time after August 25, 1989. As a point of clarification, in this proposed

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rulemaking, a significant new use of asbestos addresses multiple uses that were

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initiated prior to August 25, 1989, for which manufacturing and processing are no longer ongoing in the United States."

After the court's ruling in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), only the specific asbestos products identified in Table 1 below as reflected in the preamble of the proposed rule, and new uses of asbestos initiated for the first time after August 25, 1989, remained banned. The new SNUR keeps these prohibitions in place and does not amend them in any way; in other words, the new SNUR does not provide a means by which these prohibited uses can return to the marketplace.

~~*Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6*~~

Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

Product Category	Definition (40 CFR 763.163)
Corrugated Paper	Corrugated paper means an asbestos-containing product made of corrugated paper, which is often cemented to a flat backing, may be laminated with foils or other materials, and has a corrugated surface. Major applications of asbestos corrugated paper include: Thermal insulation for pipe coverings; block insulation; panel insulation in elevators; insulation in appliances; and insulation in low-pressure steam, hot water, and process lines.
Rollboard	Rollboard means an asbestos-containing product made of paper that is produced in a continuous sheet, is flexible, and is rolled to achieve a desired thickness. Asbestos rollboard consists of two sheets of asbestos paper laminated together. Major applications of this product include: Office partitioning; garage paneling; linings for stoves and electric switch boxes; and fire-proofing agent for security boxes, safes, and files.
Commercial Paper	Commercial paper means an asbestos-containing product that is made of paper intended for use as general insulation paper or muffler paper. Major applications of commercial papers are insulation against fire, heat transfer, and corrosion in circumstances that require a thin, but durable, barrier.
Specialty Paper	Specialty paper means an asbestos-containing product that is made of paper intended for use as filters for beverages or other fluids or as paper fill for cooling towers. Cooling tower fill consists of asbestos paper that is used as a cooling agent for liquids from industrial processes and air conditioning systems.
Flooring Felt	Flooring felt means an asbestos-containing product that is made of paper felt intended for use as an underlayer for floor coverings, or to be bonded to the underside of vinyl sheet flooring.

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~~New Uses *~~	~~The commercial uses of asbestos not identified in § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.~~

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Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

New Uses *	The commercial uses of asbestos not identified in § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

~~In this SNUR, a significant new use~~The purpose of the SNUR is to address the uses of asbestos ~~addresses multiple uses~~ that ~~were initiated on or before~~ began prior to August 25, 1989 ~~(such that the uses were not covered by the 1989 ban for uses initiated *for the first time after August 25, 1989*)~~, for which manufacturing (including importing) and processing are no longer ongoing in the United States~~. This SNUR is designed to complement the existing prohibitions on asbestos, not alter or displace these prohibitions~~ but are not prohibited under the 1989 partial ban under TSCA section 6.

In response to the confusion surrounding the ~~Asbestos~~ SNUR, EPA offers the following explanation ~~of a significant new use rule~~. EPA is including some of the explanation below to more clearly distinguish between "new use" and "significant new use," to clarify what the proposed SNUR discussed and avoid additional confusion.

Significant new use rules can be promulgated for existing chemicals and new chemicals. "Existing" chemical substances are chemicals that are on the TSCA Chemical Substance ~~Inventory[2]~~Inventory[2]. Any chemical substance that is not on the TSCA Chemical Substance Inventory is classified as a new chemical.

Asbestos is classified as an existing chemical, and SNURs for existing chemicals typically occur in three circumstances:

1. The chemical has been phased out or taken off the market for certain uses or has not been manufactured for a certain use before;
2. The chemical is no longer being manufactured or processed for any use; or
3. There is a potential or likely use that has not commenced.

EPA can promulgate an existing chemical SNUR to ensure that no company will be able to manufacture or process the chemical for a certain use (circumstance 1) or for any use (circumstance 2) without prior notification to EPA, and not before EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination, including prohibiting use.

Most asbestos products are not banned in the United States, although some uses of asbestos are prohibited. Such limited banned uses of asbestos include:

- Under TSCA – Manufacturing, importing, processing or distributing five asbestos-containing products (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989 (40 CFR Part 763, Subpart I; FRL-3269-8).
- Under the Clean Air Act (CAA) – Asbestos pipe insulation and asbestos block insulation

~~[2] Access the TSCA Chemical Substance Inventory https://www.epa.gov/tsca-inventory/how-access-tsca-inventory~~

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on facility components, such as boilers and hot water tanks, if the materials are either pre-formed (molded) and friable or wet-applied and friable after drying. Spray-on application of materials containing more than 1% asbestos on buildings, structures, pipes, and conduits unless certain conditions specified under 40 CFR 61, Subpart M are met.

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[2] Access the TSCA Chemical Substance inventory [HYPERLINK "https://www.epa.gov/tsca-inventory/how-access-tsca-inventory" \h]

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- Under the Consumer Product Safety Act (CPSA) – Asbestos in artificial fireplace embers and wall patching compounds (16 CFR 1500).
- ~~Under the Food and Drug Administration (FDA) – Asbestos-containing filters in pharmaceutical manufacturing, processing and packing (21 CFR 211.72).~~

Although the use of asbestos has declined significantly since EPA attempted a broad ban in 1989 under TSCA section 6, any not otherwise prohibited uses of asbestos can resume at any time. This SNUR targets uses of asbestos that are not already prohibited under TSCA and are not ongoing in the United States. In the absence of the Asbestos SNUR, manufacturing, importing, or processing of asbestos (including as part of an article) for the significant new uses identified in the rule may begin at any time and without prior notice to EPA.

Section 5(a)(2) of TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors. These factors include:

- The projected volume of manufacturing (including import) and processing of a chemical substance;
- The extent to which a use changes the type or form of exposure of humans or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of humans or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once a SNUR is issued to identify a significant new use, then under TSCA section 5(a)(1), a person desiring to manufacture or process for commercial purposes the chemical substance or mixtures containing it for a significant new use identified in the SNUR must notify EPA at least 90 days prior to initiating manufacture (including import) or processing for the significant new use [see 40 CFR §721.5(a)(1)]. For asbestos, EPA is lifting a general SNUR exemption for articles so that this requirement applies to asbestos as part of an article.

EPA is committed to protecting the public from asbestos risks and is concerned that the commencement of the manufacturing (including importing) or processing for the significant new uses of asbestos subject to the SNUR could increase the volume of manufacturing (including importing) and processing of asbestos as well as the magnitude and duration of exposure to humans over that which would otherwise exist currently. EPA has concluded that action on this chemical substance is warranted and therefore determined that any manufacturing (including importing) or processing of asbestos (including as part of an article), using the definition under Title II of TSCA, for any use identified in the SNUR is a significant new use.

2. Extend the comment period

EPA received several requests to extend the comment period for the proposed Asbestos SNUR (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-2767; EPA-HQ-OPPT-2018-0159-2924; EPA-HQ-OPPT-2018-0159-5647). However, these requests were submitted on the day the comment period ended or later, which did not provide sufficient time for the Agency to respond. Moreover, the requests to extend the comment period were largely based on the

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incorrect assertion that asbestos is entirely banned in the United States and that this regulation would allow otherwise banned uses of asbestos to begin again. ~~On the contrary, as explained above, the SNUR further regulates the use of asbestos by requiring notification of intended uses of asbestos subject to the rulemaking and by providing the Agency an opportunity to evaluate each intended use for potential risks to human health and the environment and take any necessary regulatory action to address risks, as appropriate.~~On the contrary, as explained

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above, the SNUR prohibits discontinued uses of asbestos from restarting without EPA having an opportunity to evaluate each intended use (i.e., significant new use) for potential risks to health and the environment and take any necessary regulatory action, which may include a prohibition.

3. Ban asbestos

The majority of commenters ~~(too numerous to cite individually)~~ called for an outright ban on asbestos. As discussed in the preamble of the proposed Asbestos SNUR and in section 1 above, on July 12, 1989, EPA issued a final rule under the TSCA Section 6(a) banning most asbestos-containing products. In 1991, this regulation was partially vacated and remanded to EPA by the Fifth Circuit Court of Appeals in New Orleans following a case brought by industry representatives. As a result of the Court's decision, most of the ban on asbestos-containing products were lifted. However, the following specific asbestos-containing products that were no longer manufactured or imported at the time of the 1989 rule remain banned: flooring felt, rollboard, and corrugated, commercial, or specialty paper. In addition, the regulation continues to ban "new uses" of asbestos, which the rule defines to mean uses where the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

Under TSCA section 6, EPA cannot immediately issue a ban as envisioned by some commenters. Rather, TSCA section 6 provides a specific process for risk evaluation and risk management that EPA must follow prior to taking any risk managment action for a chemical, such as a "ban." As part of the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act amendments, TSCA section 6(b)(4) requires EPA to establish a risk evaluation process. In performing risk evaluations for existing chemicals, EPA is directed to "determine whether a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator under the conditions of use."

In December of 2016, EPA published a list of 10 chemical substances that are the subject of the Agency's initial chemical risk evaluations as required by TSCA section 6(b)(2)(A). Asbestos was one of these chemicals. EPA subsequently published the scope of the risk evaluation to be conducted for asbestos in June 2017 as per TSCA section 6(b)(4)(D). In this scope document, EPA identified asbestos conditions of use that would be included within the scope of the asbestos risk evaluation. In June 2018, EPA issued a problem formulation document which refined the conditions of use, exposures and hazards presented in the scope of the risk evaluation for asbestos and presented refined conceptual models and analysis plans that describe how EPA expects to evaluate the risk for asbestos.

Per statute, the first ten risk evaluations must be completed within three years of initiation, with a possible extension of six months. If EPA determines from the asbestos risk evaluation that the conditions of use of asbestos present an unreasonable risk of injury to health or the environment, then regulation would be pursued under TSCA section 6(a), which authorizes EPA to issue regulations requiring one or more of the following actions to the extent necessary so that the chemical substance no longer presents an unreasonable risk:

- Prohibit or otherwise restrict the manufacturing, processing, or distribution in commerce of such substances (§ 6(a)(1)).

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- Prohibit or otherwise restrict manufacturing, processing, or distribution in commerce of such substances for particular uses or for uses in excess of a specified concentration (§ 6(a)(2)).
- Require minimum warning labels and instructions (§ 6(a)(3)).
- Require record keeping or testing (§ 6(a)(4)).
- Prohibit or regulate any manner or method of commercial use (§ 6(a)(5)).
- Prohibit or otherwise regulate any manner or method of disposal (§ 6(a)(6)).
- Direct manufacturers and processors to give notice of the determination to distributors and the public and replace or repurchase substances (§ 6(a)(7)).'

EPA must issue these regulations within specific timelines and in accordance with additional requirements laid out in TSCA section 6(c) (15 U.S.C. §2605).

4. Explain EPA's review process of Significant New Use Notices (SNUNs)

The Agency received several comments requesting more explanation regarding the review process of significant new use notices (SNUNs) (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-3224) and the opportunity for public comment on submitted SNUN applications, if any, as well as the Agency's significant new use determinations, if any, for asbestos (EPA-HQ-OPPT-2018-0159-4021; EPA-HQ-OPPT-2018-0159-1270; EPA-HQ-OPPT-2018-0159-5889).

In response to concerns about the review process of a significant new use notice, the Agency is including additional explanation in the final rule. Anyone who plans to manufacture, import, or process asbestos (including as part of an article) for a significant new use identified in the rule is required by Section 5 of TSCA to provide EPA with notice at least 90 days before initiating the activity. A SNUN submission follows the same process as a premanufacture notice (PMN) for new chemicals, as described in 40 CFR 721.25. Upon receipt of a significant new use notice, EPA is required by TSCA Section 5(d)(2) to publish notification of the intended significant new use in the Federal Register. For transparency purposes, in addition, EPA intends to take public comment on any intended significant new use following that public notification. ~~Under TSCA section 5(g), the Agency must also publish notice in the Federal Register of a TSCA section 5(a)(3)(C) determination that a significant new use is not likely to present an unreasonable risk of injury to health or the environment.~~

In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. In addition, EPA requires that the following information be submitted with the notice: any health and environmental information in the possession or control of the submitter, parent company or affiliates, and a description of any other applicable information known to or reasonably ascertainable by the submitter (see 40 CFR 720.45 and 40 CFR 720.50 for specific requirements). EPA risk assessors consider all of this information during the EPA significant new use review process and conduct a detailed analysis with the ultimate goal of identifying and controlling unreasonable risks. EPA uses an integrated approach that draws on knowledge and experience across ~~disciplinary and organizational lines~~disciplines to identify and evaluate concerns regarding human health and environmental effects, exposure and release and ~~economic~~ impacts. EPA has developed assessment methods, databases, and predictive tools to ~~help~~ evaluate what happens to chemicals when they are used

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and released to the environment and how workers, citizens, and the environment might be exposed to and affected by these chemicals. These tools ~~may be~~are helpful when laboratory studies or monitoring data are not available or need to be-

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supplemented. The Agency can take a range of actions, including prohibition, to ensure the use of the chemical does not present an unreasonable risk to human health or the environment.

For asbestos, the final rule also explains that the submitter must include with the notice adequate documentation or supporting information in the submitter's possession or control that the intended use is not subject to the prohibitions identified in 40 CFR. part 763, subpart I. In particular this would include documentation in the submitter's possession or control that the manufacture, importation or processing for the intended use had been initiated for the first time before August 25, 1989.

SNUNs are reported using the standard electronic PMN form, which allows manufacturers of TSCA chemical substances to use the Internet through EPA's Central Data Exchange (CDX), to submit TSCA section 5 notices to EPA (instructions available at [HYPERLINK "https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn"]).[HYPERLINK "https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn" \h] [HYPERLINK "https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn" \h]). SNUNS are subject to a 90-day review process similar to that for a PMN. When submitting a SNUN, the submitter should include a cover letter that provides the Code of Federal Regulations citation of the SNUR and identifies the specific significant new use(s) for which the SNUN is being submitted. The fee for each SNUN is $16,000, except for small businesses the fee is $2,800 (see 40 CFR 700.45).

Under TSCA, once EPA receives and reviews a significant new use notice, the Agency must make one of the following determinations:

- "Not likely to present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(C)) – In cases where EPA determines that a significant new use is not likely to present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including unreasonable risk to a potentially exposed or susceptible subpopulation under the conditions of use, EPA will notify the submitter of its decision under TSCA section 5(a)(3)(C) and the submitter may commence manufacture or processing for the significant new use notwithstanding any remaining portion of the 90-day review period. EPA will publish its findings in a statement in the Federal Register pursuant to TSCA section 5(g).
- "Insufficient Information" Determinations (See TSCA section 5(a)(3)(B)(i)) – In cases where EPA determines that the available information is insufficient to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing distribution in commerce, use or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements.
- "May present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(B)(ii)(I)) – In cases where EPA determines that in the absence of sufficient information to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, the manufacture, processing, distribution in commerce, use, or disposal of the chemical may present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must issue an order under section 5(e) of

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TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk,

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and may include testing requirements. Most TSCA section 5(e) orders issued by EPA are consent orders that are negotiated with the submitter of the SNUN.

- "Exposure-based" Determinations (See TSCA section 5(a)(3)(B)(ii)(II)) – In cases where EPA determines that the chemical substance is or will be produced in substantial quantities and either enters or may reasonably be anticipated to enter the environment in substantial quantities or there is or may be significant or substantial human exposure to the substance, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk and may include testing requirements.
- "Presents an unreasonable risk" Determinations (See TSCA section 5(a)(3)(A)) – In cases where EPA determines that the significant new use presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must take action under section 5(f) to protect against the unreasonable risk. Pursuant to section 5(f), EPA may propose a rule under section 6(a) or may issue an order to prohibit or limit the manufacture, processing, or distribution in commerce of the substance.

Upon making a determination, the Agency must notify the SNUN submitter.

5. Provide Clarification: Recycling and Disposal

One commenter (EPA-HQ-OPPT-2018-0159-0437) posits, "the SNUR is silent on the use of legacy materials that may be manufactured into new products. For example, a scrapped vehicle that may contain asbestos components (e.g., brake linings) will be recycled into new materials for the production of other products, including vehicles. Another example would be products manufactured with recycled building demolition materials (e.g., metal, gypsum wallboard) and how these materials and products would be evaluated under the proposed SNUR to ensure the protection of human health and the environment."

The Agency provides the following explanation in the preamble of the final rule: EPA interprets ~~recycling~~recyling to be ~~part of~~ processing under TSCA ~~Therefore,~~, and recycling of any asbestos-containing material for a significant new use of asbestos subject to ~~the SNUR would require~~this rulemaking requires a ~~significant new use notice.~~ SNUN. For example, recycling asbestos building material, such as roofing tiles, for reuse is prohibited without notification, review, and, as necessary, regulation by EPA.

Another commenter (EPA-HQ-OPPT-2018-0159-4066) requested EPA "make clear that the scope of this rulemaking *does not* in any way regulate or otherwise impede the (1) the continued use of asbestos-containing products from manufacturing/processing activities that occurred *prior* to June 1, 2018 (the proposed cutoff date for determining the applicability of the SNUR to new manufacturing/processing activities); or (2) the removal from service for disposal of asbestos-containing materials, including where such disposal activities may involve the incidental 'processing' of asbestos as part of the asbestos disposal process (as such processing is not being conducted for a commercial purpose)."

The Agency does not interpret the disposal of ~~legacy materials~~ asbestos-containing ~~asbestos~~materials to be processing for a significant new use; therefore, such activity does not

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require a significant new use notice under this final rule. Additionally, the SNUR does not prohibit any ongoing uses of asbestos-containing products from manufacturing/ processing activities that were initiated prior to June 1, 2018; more-

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specifically the conditions of use of asbestos subject to the current asbestos risk evaluation under TSCA section 6 are not subject to this SNUR.

6. Broaden the scope of the SNUR

The Agency received numerous suggestions to broaden the scope of the significant new use rule to address mining, export notification for asbestos articles, and to include additional significant new uses of asbestos. These comments are addressed by topic in the following section.

a. Include mining

Some commenters (EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886) suggested that mining be subject to the significant new use rule because it is no longer ongoing in the United States. Asbestos mining in the United States ceased in 2002.

The Agency interprets mining to be *production* under the TSCA definition of *manufacture*. Therefore, mining asbestos for a significant new use as identified in the final rule would require a SNUN. Mining for ongoing uses of asbestos would not require a SNUN.

b. Require 12(b) export notification for articles

The Agency received several comments recommending that the export notification requirement under TSCA section 12(b) apply to exported articles that contain asbestos (EPA-HQ-OPPT-2018-0159-0469; EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886).

Raw asbestos is subject to the export notification requirement at Section 12(b) of TSCA. One of the purposes of a significant new use rule for an existing chemical is to require notification from anyone who intends to resume uses that have been identified as no longer ongoing. Should anyone intend to resume such uses as identified in a SNUR, the Agency would review the significant new use notice submitted to the Agency, evaluate the associated risks, hazards, and exposures based on the conditions of use, make a determination on the notice under Section 5(a)(3), and take such actions as are required in association with that determination.

Based on the research conducted in support of the ongoing TSCA section 6 risk evaluation, the Agency identified uses of asbestos (including as part of an article) that are no longer ongoing. The Agency has found no evidence to suggest that asbestos is used for any of the activities subject to the SNUR, and therefore, does not believe that an export notification is required for articles containing asbestos that are neither manufactured (including imported) nor processed in the United States. The commenters have not indicated that any of the uses of asbestos (including as part of an article) subject to the SNUR are currently ongoing nor have the commenters provided a persuasive argument as to why the Agency should require export notification for articles that are not manufactured, imported, or processed in the United States. Therefore, EPA assumes that applying an export requirement for asbestos-containing products that no longer exist in the U.S. marketplace would ~~provide no meaningful benefit because the Agency would not receive any such export~~

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provide no meaningful benefit because the Agency would not receive any such export notifications.

In the event that anyone would be interested in using asbestos for any of the uses subject to the SNUR, EPA would receive notification through a SNUN, which would include information about the conditions of use, including distribution. Review of that SNUN would provide an opportunity for the Agency to require TSCA section 12(b) export notification if a discontinued use for a particular article were to be resumed.

As for the conditions of use of asbestos that are currently undergoing risk evaluation, if an unreasonable risk determination is made, the Agency will at that time evaluate what appropriate risk management options and tools should be used to address the risk and requiring a TSCA section 12(b) export notification would be part of that evaluation.

c. Revise the SNUR to include every use of asbestos that is no longer ongoing

EPA received several comments suggesting that the SNUR be revised to include all uses of asbestos that are no longer ongoing and some suggest targeting all uses of asbestos except ongoing uses currently under consideration for the asbestos risk evaluation (EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-1271; EPA-HQ-OPPT-2018-0159-5755; EPA-HQ-OPPT-2018-0159-5886).

After further review and consideration, the Agency agrees with this comment and is revising the regulatory text to include any use of asbestos that is no longer ongoing and not currently banned under TSCA which is captured in the following category: *(xviii) Any other use of asbestos*

In light of that revision, the Agency is also adding two exceptions to the final rule to account for the ongoing uses of chrysotile (paragraph (3)(i)) and the remaining prohibitions from the 1989 Asbestos Ban and Phaseout rule discussed above (paragraph (3)(ii)):

(3) Exceptions.
(i) ~~(i)~~ The significant new use identified in (a)(2) of this section does not include manufacturing (including importing) or processing for the following uses of the asbestiform variety of chrysotile (serpentine) asbestos:
(A) ~~(A)~~ Diaphragms for use in chorine and sodium hydroxide production;
(B) ~~(B)~~ Sheet gaskets for use in chemical manufacturing;
(C) ~~(C)~~ Brake blocks in oil drilling equipment;
(D) ~~(D)~~ Aftermarket automotive brakes/linings;
(E) ~~(E)~~ Other vehicle friction products; or
(F) ~~(F)~~ Other gaskets.

(ii) ~~(ii)~~ The significant new use does not include the manufacture (including importation) or processing of the asbestos-containing products identified in § 763.165, which continue to be prohibited pursuant to 40 C.F.R. part 763, subpart I.

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The specific uses of chrysotile carved out by paragraph (3)(i) account for uses EPA believes to be ongoing and thus outside of the Agency's SNUR authority. These uses are currently under consideration as conditions of use in the TSCA section 6 asbestos risk evaluation.

General provisions for SNURs appear under 40 CFR part 721, subpart A. These provisions describe persons subject to the rule, recordkeeping requirements, and exemptions to reporting requirements. General exemptions for SNURs appear under 40 CFR 721.45. While commenters requested the scope of the SNUR be broadened, one commenter (EPA-HQ-OPPT-2018-0159-4066) supported the general exemption for impurities and no commenter suggested lifting the impurities exemption.

7. Economic Analysis

The Agency received two comments regarding the Economic Analysis for the Asbestos SNUR. One commenter states "[w]ith the past negative effects of asbestos, this proposed policy appears to be too weak. $10,000 appears to be much too little to do a thorough analysis" (EPA-HQ-OPPT-2018-0159-4163). To clarify, $10,000 was the estimated cost to a business submitting a SNUN. According to the EA, the cost that EPA is expected to incur reviewing a SNUN is $41,000. Since publication of the proposed Asbestos SNUR, the fees have been updated and are now $16,000 per SNUN submission for large businesses and $2,800 for small businesses. The updated estimate of the total cost of submitting a SNUN is approximately $10,000 for a small business and $23,000 for a large business.

Another commenter suggests, "only the cost of submitting and [preparing] the SNUN and a user fee are included. It is foreseeable any SNUN for asbestos could go through extensive follow-up investigation due to the health concern of the material and public perception of the asbestos use. The overall economic cost for business should include additional data gathering, testing, and health study of using asbestos in the proposed categories" (EPA-HQ-OPPT-2018-0159-0010). In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. Testing, investigation, and study are not required for the SNUN submission, and therefore, EPA's cost estimates are based on reasonably ascertainable information gathering activities. However, Section 3.2.8 of EPA's Economic Analysis ("Article Importation and Processing") includes a discussion of the types of costs that firms may incur if they choose to undertake additional activities to assure themselves that they are not undertaking a new use.

EPA addressed the commenter's concern about follow-up costs in Section 3.5 ("Potential for Subsequent Regulatory Actions") of the Economic Analysis of the proposed rule, where the Agency explained that "The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the

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SNUN is being reviewed). Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions."

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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 3/29/2019 3:08:05 PM
To: Mottley, Tanya [Mottley.Tanya@epa.gov]
CC: Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]
BCC: Altieri, Sonia [Altieri.Sonia@epa.gov]
Subject: FW: Early Preview: Asbestos SNUR
Attachments: Asbestos SNUR Press Release 3.28.19 ls RC2.docx

Importance: High

Good Morning Tanya- Linda kept in place most of what we did, which was great. She had some edits (some of which were not accurate regarding restrictions on new uses which I corrected her on and she is fine with). Erik and I just talked over the phone and we are good with this version. Please let us know me if this works or if you have edits.

Linda wants us to send to Susanna (who is sitting in for Alison) to share with Mark and then into Alex's packet for the weekend in advance of the Monday am OCSPP management meeting. I am going to have Steve sign off too. Thanks!

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Strauss, Linda
Sent: Friday, March 29, 2019 10:47 AM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Subject: FW: Early Preview: Asbestos SNUR
Importance: High

Got it, thanks. I believe Susanna is covering for Alison so just send to her after NPCD signs off.
Linda

From: Courtnage, Robert
Sent: Friday, March 29, 2019 10:43 AM
To: Strauss, Linda <Strauss.Linda@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>
Cc: Pierce, Alison <Pierce.Alison@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>
Subject: RE: Early Preview: Asbestos SNUR
Importance: High

Linda- Glad you liked what I did ☺

As discussed, one correction I changed in the attached is that new uses (I know, it's confusing) are NOT convered in this action in the context you used it—only discontinued uses. The prohibition on new uses is under the 1989 partial ban.

Robert T. Courtnage
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From: Strauss, Linda
Sent: Friday, March 29, 2019 10:25 AM
To: Winchester, Erik <Winchester.Erik@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Pierce, Alison <Pierce.Alison@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: FW: Early Preview: Asbestos SNUR

NPCD – I think Alison is out today. Here are my thoughts.
Linda

From: Strauss, Linda
Sent: Friday, March 29, 2019 10:23 AM
To: Pierce, Alison <Pierce.Alison@epa.gov>
Cc: Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: RE: Early Preview: Asbestos SNUR

Alison, here are my thoughts.

Linda

From: Pierce, Alison
Sent: Thursday, March 28, 2019 5:25 PM
To: Strauss, Linda <Strauss.Linda@epa.gov>
Subject: Early Preview: Asbestos SNUR

Linda – Per discussion, I'm sharing this one with you informally so we can help out on the messaging end. I'd like to get our collective informal feedback back to NPCD by Monday morning so we can run through OGC and the OPPT IO, and then back up to your shop more formally. Sound plan like? If so, could you share your comments with me by COB Friday?

Thanks much,
Alison

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Restrictions on Discontinued Uses of Asbestos; Significant New Use Rule
Response to Comments
RIN 2070-AK45
April 16, 2019

Overview

The U.S. Environmental Protection Agency received a total of 17,912 comments related to the proposed *Asbestos; Significant New Use Rule* (SNUR) under docket identification (ID) number EPA-HQ-OPPT-2018-0159. The public comment period began on June 11, 2018 and ended August 10, 2018. Of the 17,912 public comments received, 11,732 are part of a mass mail campaign, 240 are from a second mass mail campaign, 67 are not posted due to inappropriate language, and 5,873[1] individual comments are identified by ID number, posted in the docket, and available to view on regulations.gov at https://www.regulations.gov/docket?D=EPA-HQ-OPPT-2018-0159. Over 90% (5,386) of the individual comments received on the Asbestos SNUR are anonymous.

Upon careful review, EPA identified seven general themes throughout the public comments on the proposed Asbestos SNUR. The majority of the comments are not germane to the purpose and requirements of the proposed rule, as explained below. Comments are addressed in this document according to the following main topics areas:

1. Purpose of the proposed Asbestos SNUR
2. Extend the comment period
3. Ban asbestos
4. Explain EPA's review process of Significant New Use Notices (SNUNs)
5. Provide clarification: Recycling and disposal
6. Broaden the scope of the SNUR
    a. Include mining
    b. Require 12(b) export notification for articles
    c. Revise the SNUR to include every use of asbestos that is no longer ongoing
7. Economic Analysis

EPA received thousands of comments pertaining to the purpose of the proposed Asbestos SNUR as well as the request that EPA ban the use of asbestos in the United States. Due to the overwhelming number of comments on these two topics, the Agency does not cite each relevant comment by ID number in the following discussion. As for the other public comment topics of the proposed rule listed above, the Agency specifically cites 17 substantive comments, which may address multiple aspects of the proposed rule.

1. Purpose of the proposed Asbestos SNUR

Most commenters expressed concern that the proposed rule would allow otherwise prohibited asbestos products to be reintroduced into U.S. commerce, which is not the case. Instead, this action will prevent any discontinued uses of asbestos (that are not already prohibited under the 1989 partial ban under Toxic Substances Control Act (TSCA) section 6 from restarting without EPA having an opportunity to evaluate each intended use for potential risks to human health and the environment and take any necessary regulatory action, which may include a prohibition.

[1] 5,893 comments are reported in regulations.gov, but 18 of those comments have been withdrawn due to inappropriate language and are accounted for in this summary as part of the 67 not posted.

The final SNUR does not provide any means by which prohibited uses under the 1989 partial ban under TSCA section 6 can return to the marketplace. The SNUR keeps all prior asbestos prohibitions in place and would not amend them in any way. The action ensures that otherwise unregulated uses of asbestos undergo EPA review, and, as necessary, regulation by EPA.

EPA is focused on protecting the public from exposure to asbestos and as such, persons subject to the SNUR may not undertake any of these activities; they are required to notify EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The SNUR ensures that manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

The SNUR also complements the TSCA section 6 risk evaluation for ongoing uses of asbestos by ensuring that any discontinued use of asbestos not already prohibited (that could otherwise resume at any time) cannot restart without prior notice, review, and, as necessary, regulation by EPA. A further discussion of what a SNUR is and the relationship of this action to past and current Agency actions is provided in the following paragraphs.

Under the 1989 rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL-3476-2)*, any "new use" of asbestos – defined by that rule as uses for which the manufacture, importation or processing would be initiated *for the first time* after August 25, 1989 – are banned in the United States. However, after the court's decision in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), that 1989 rule did not ban uses of asbestos that began on or before August 25, 1989 and then were subsequently discontinued voluntarily after August 25, 1989. Recognizing the inherent confusion between what is covered as a "new use" as defined and banned by the 1989 rule and a "significant new use" at issue in the current rulemaking, the Agency attempted to make this distinction in Unit III.A. of the proposed Asbestos SNUR:

> "In 1989, EPA published a final rule *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions* (54 FR 29460, July 12, 1989) (FRL-3476-2), which was intended "to prohibit, at staged intervals, the future manufacture, importation, processing and distribution in commerce of asbestos in almost all products, as identified in the rule . . ." and to "reduce the unreasonable risks presented to human health by exposure to asbestos during activities involving these products." The 1989 final rule applied to the asbestos product categories identified in the *Regulatory Impact Analysis of Controls on Asbestos and Asbestos Products,* which was conducted in support of the rule (Ref. 20). However, the ban against most of the asbestos product categories was overturned by the Fifth Circuit Court of Appeals in 1991. In addition to the asbestos products that remain banned after the court ruling, which are identified in Table 1 below, any new use of asbestos was also banned. The prohibition on any new uses of asbestos is for uses initiated for the first time after August 25, 1989. As a point of clarification, in this proposed rulemaking, a significant new use of asbestos addresses multiple uses that were

initiated prior to August 25, 1989, for which manufacturing and processing are no longer ongoing in the United States."

After the court's ruling in *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991), only the specific asbestos products identified in Table 1 below as reflected in the preamble of the proposed rule, and new uses of asbestos initiated for the first time after August 25, 1989, remained banned. The new SNUR keeps these prohibitions in place and does not amend them in any way; in other words, the new SNUR does not provide a means by which these prohibited uses can return to the marketplace.

Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

Product Category	**Definition (40 CFR 763.163)**
Corrugated Paper	Corrugated paper means an asbestos-containing product made of corrugated paper, which is often cemented to a flat backing, may be laminated with foils or other materials, and has a corrugated surface. Major applications of asbestos corrugated paper include: Thermal insulation for pipe coverings; block insulation; panel insulation in elevators; insulation in appliances; and insulation in low-pressure steam, hot water, and process lines.
Rollboard	Rollboard means an asbestos-containing product made of paper that is produced in a continuous sheet, is flexible, and is rolled to achieve a desired thickness. Asbestos rollboard consists of two sheets of asbestos paper laminated together. Major applications of this product include: Office partitioning; garage paneling; linings for stoves and electric switch boxes; and fire-proofing agent for security boxes, safes, and files.
Commercial Paper	Commercial paper means an asbestos-containing product that is made of paper intended for use as general insulation paper or muffler paper. Major applications of commercial papers are insulation against fire, heat transfer, and corrosion in circumstances that require a thin, but durable, barrier.
Specialty Paper	Specialty paper means an asbestos-containing product that is made of paper intended for use as filters for beverages or other fluids or as paper fill for cooling towers. Cooling tower fill consists of asbestos paper that is used as a cooling agent for liquids from industrial processes and air conditioning systems.
Flooring Felt	Flooring felt means an asbestos-containing product that is made of paper felt intended for use as an underlayer for floor coverings, or to be bonded to the underside of vinyl sheet flooring.

Table 1—Asbestos Containing Product Categories Banned Under TSCA Section 6

New Uses *	The commercial uses of asbestos not identified in § 763.165 the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

The purpose of the SNUR is to address the uses of asbestos that began prior to August 25, 1989, for which manufacturing (including importing) and processing are no longer ongoing in the United States but are not prohibited under the 1989 partial ban under TSCA section 6.
In response to the confusion surrounding the SNUR, EPA offers the following explanation. EPA is including some of the explanation below to more clearly distinguish between "new use" and "significant new use," to clarify what the proposed SNUR discussed and avoid additional confusion.

Significant new use rules can be promulgated for existing chemicals and new chemicals. "Existing" chemical substances are chemicals that are on the TSCA Chemical Substance Inventory[2]. Any chemical substance that is not on the TSCA Chemical Substance Inventory is classified as a new chemical.

Asbestos is classified as an existing chemical, and SNURs for existing chemicals typically occur in three circumstances:

1. The chemical has been phased out or taken off the market for certain uses or has not been manufactured for a certain use before;
2. The chemical is no longer being manufactured or processed for any use; or
3. There is a potential or likely use that has not commenced.

EPA can promulgate an existing chemical SNUR to ensure that no company will be able to manufacture or process the chemical for a certain use (circumstance 1) or for any use (circumstance 2) without prior notification to EPA, and not before EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination, including prohibiting use.

Most asbestos products are not banned in the United States, although some uses of asbestos are prohibited. Such limited banned uses of asbestos include:

- Under TSCA – Manufacturing, importing, processing or distributing five asbestos-containing products (corrugated paper, rollboard, commercial paper, specialty paper, and flooring felt) and new uses initiated for the first time after August 25, 1989 (40 CFR Part 763, Subpart I; FRL-3269-8).
- Under the Clean Air Act (CAA) – Asbestos pipe insulation and asbestos block insulation on facility components, such as boilers and hot water tanks, if the materials are either pre-formed (molded) and friable or wet-applied and friable after drying. Spray-on application of materials containing more than 1% asbestos on buildings, structures, pipes, and conduits unless certain conditions specified under 40 CFR 61, Subpart M are met.

[2] Access the TSCA Chemical Substance Inventory https://www.epa.gov/tsca-inventory/how-access-tsca-inventory

- Under the Consumer Product Safety Act (CPSA) – Asbestos in artificial fireplace embers and wall patching compounds (16 CFR 1500).

Although the use of asbestos has declined significantly since EPA attempted a broad ban in 1989 under TSCA section 6, any not otherwise prohibited uses of asbestos can resume at any time. This SNUR targets uses of asbestos that are not already prohibited under TSCA and are not ongoing in the United States. In the absence of the Asbestos SNUR, manufacturing, importing, or processing of asbestos (including as part of an article) for the significant new uses identified in the rule may begin at any time and without prior notice to EPA.

Section 5(a)(2) of TSCA, as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, authorizes EPA to determine that a use of a chemical substance is a "significant new use." EPA must make this determination by rule after considering all relevant factors. These factors include:

- The projected volume of manufacturing (including import) and processing of a chemical substance;
- The extent to which a use changes the type or form of exposure of humans or the environment to a chemical substance;
- The extent to which a use increases the magnitude and duration of exposure of humans or the environment to a chemical substance; and
- The reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.

Once a SNUR is issued to identify a significant new use, then under TSCA section 5(a)(1), a person desiring to manufacture or process for commercial purposes the chemical substance or mixtures containing it for a significant new use identified in the SNUR must notify EPA at least 90 days prior to initiating manufacture (including import) or processing for the significant new use [see 40 CFR §721.5(a)(1)]. For asbestos, EPA is lifting a general SNUR exemption for articles so that this requirement applies to asbestos as part of an article.

EPA is committed to protecting the public from asbestos risks and is concerned that the commencement of the manufacturing (including importing) or processing for the significant new uses of asbestos subject to the SNUR could increase the volume of manufacturing (including importing) and processing of asbestos as well as the magnitude and duration of exposure to humans over that which would otherwise exist currently. EPA has concluded that action on this chemical substance is warranted and therefore determined that any manufacturing (including importing) or processing of asbestos (including as part of an article), using the definition under Title II of TSCA, for any use identified in the SNUR is a significant new use.

2. Extend the comment period

EPA received several requests to extend the comment period for the proposed Asbestos SNUR (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-2767; EPA-HQ-OPPT-2018-0159-2924; EPA-HQ-OPPT-2018-0159-5647). However, these requests were submitted on the day the comment period ended or later, which did not provide sufficient time for the Agency to respond. Moreover, the requests to extend the comment period were largely based on the incorrect assertion that asbestos is entirely banned in the United States and that this regulation would allow otherwise banned uses of asbestos to begin again. On the contrary, as explained

above, the SNUR prohibits discontinued uses of asbestos from restarting without EPA having an opportunity to evaluate each intended use (i.e., significant new use) for potential risks to health and the environment and take any necessary regulatory action, which may include a prohibition.

3. Ban asbestos

The majority of commenters called for an outright ban on asbestos. As discussed in the preamble of the proposed Asbestos SNUR and in section 1 above, on July 12, 1989, EPA issued a final rule under the TSCA Section 6(a) banning most asbestos-containing products. In 1991, this regulation was partially vacated and remanded to EPA by the Fifth Circuit Court of Appeals in New Orleans following a case brought by industry representatives. As a result of the Court's decision, most of the ban on asbestos-containing products were lifted. However, the following specific asbestos-containing products that were no longer manufactured or imported at the time of the 1989 rule remain banned: flooring felt, rollboard, and corrugated, commercial, or specialty paper. In addition, the regulation continues to ban "new uses" of asbestos, which the rule defines to mean uses where the manufacture, importation or processing of which would be initiated for the first time after August 25, 1989.

Under TSCA section 6, EPA cannot immediately issue a ban as envisioned by some commenters. Rather, TSCA section 6 provides a specific process for risk evaluation and risk management that EPA must follow prior to taking any risk managment action for a chemical, such as a "ban." As part of the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act amendments, TSCA section 6(b)(4) requires EPA to establish a risk evaluation process. In performing risk evaluations for existing chemicals, EPA is directed to "determine whether a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator under the conditions of use."

In December of 2016, EPA published a list of 10 chemical substances that are the subject of the Agency's initial chemical risk evaluations as required by TSCA section 6(b)(2)(A). Asbestos was one of these chemicals. EPA subsequently published the scope of the risk evaluation to be conducted for asbestos in June 2017 as per TSCA section 6(b)(4)(D). In this scope document, EPA identified asbestos conditions of use that would be included within the scope of the asbestos risk evaluation. In June 2018, EPA issued a problem formulation document which refined the conditions of use, exposures and hazards presented in the scope of the risk evaluation for asbestos and presented refined conceptual models and analysis plans that describe how EPA expects to evaluate the risk for asbestos.

Per statute, the first ten risk evaluations must be completed within three years of initiation, with a possible extension of six months. If EPA determines from the asbestos risk evaluation that the conditions of use of asbestos present an unreasonable risk of injury to health or the environment, then regulation would be pursued under TSCA section 6(a), which authorizes EPA to issue regulations requiring one or more of the following actions to the extent necessary so that the chemical substance no longer presents an unreasonable risk:

- Prohibit or otherwise restrict the manufacturing, processing, or distribution in commerce of such substances (§ 6(a)(1)).

- Prohibit or otherwise restrict manufacturing, processing, or distribution in commerce of such substances for particular uses or for uses in excess of a specified concentration (§ 6(a)(2)).
- Require minimum warning labels and instructions (§ 6(a)(3)).
- Require record keeping or testing (§ 6(a)(4)).
- Prohibit or regulate any manner or method of commercial use (§ 6(a)(5)).
- Prohibit or otherwise regulate any manner or method of disposal (§ 6(a)(6)).
- Direct manufacturers and processors to give notice of the determination to distributors and the public and replace or repurchase substances (§ 6(a)(7)).'

EPA must issue these regulations within specific timelines and in accordance with additional requirements laid out in TSCA section 6(c) (15 U.S.C. §2605).

4. Explain EPA's review process of Significant New Use Notices (SNUNs)

The Agency received several comments requesting more explanation regarding the review process of significant new use notices (SNUNs) (EPA-HQ-OPPT-2018-0159-0437; EPA-HQ-OPPT-2018-0159-3224) and the opportunity for public comment on submitted SNUN applications, if any, as well as the Agency's significant new use determinations, if any, for asbestos (EPA-HQ-OPPT-2018-0159-4021; EPA-HQ-OPPT-2018-0159-1270; EPA-HQ-OPPT-2018-0159-5889).

In response to concerns about the review process of a significant new use notice, the Agency is including additional explanation in the final rule. Anyone who plans to manufacture, import, or process asbestos (including as part of an article) for a significant new use identified in the rule is required by Section 5 of TSCA to provide EPA with notice at least 90 days before initiating the activity. A SNUN submission follows the same process as a premanufacture notice (PMN) for new chemicals, as described in 40 CFR 721.25. Upon receipt of a significant new use notice, EPA is required by TSCA Section 5(d)(2) to publish notification of the intended significant new use in the Federal Register. For transparency purposes, in addition, EPA intends to take public comment on any intended significant new use following that public notification.

In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. In addition, EPA requires that the following information be submitted with the notice: any health and environmental information in the possession or control of the submitter, parent company or affiliates, and a description of any other applicable information known to or reasonably ascertainable by the submitter (see 40 CFR 720.45 and 40 CFR 720.50 for specific requirements). EPA risk assessors consider all of this information during the EPA significant new use review process and conduct a detailed analysis with the ultimate goal of identifying and controlling unreasonable risks. EPA uses an integrated approach that draws on knowledge and experience across disciplines to identify and evaluate concerns regarding human health and environmental effects, exposure and release and impacts. EPA has developed assessment methods, databases, and predictive tools to evaluate what happens to chemicals when they are used and released to the environment and how workers, citizens, and the environment might be exposed to and affected by these chemicals. These tools are helpful when laboratory studies or monitoring data are not available or need to be

supplemented. The Agency can take a range of actions, including prohibition, to ensure the use of the chemical does not present an unreasonable risk to human health or the environment.

For asbestos, the final rule also explains that the submitter must include with the notice adequate documentation or supporting information in the submitter's possession or control that the intended use is not subject to the prohibitions identified in 40 CFR. part 763, subpart I. In particular this would include documentation in the submitter's possession or control that the manufacture, importation or processing for the intended use had been initiated for the first time before August 25, 1989.

SNUNs are reported using the standard electronic PMN form, which allows manufacturers of TSCA chemical substances to use the Internet through EPA's Central Data Exchange (CDX), to submit TSCA section 5 notices to EPA (instructions available at https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/how-submit-e-pmn). SNUNS are subject to a 90-day review process similar to that for a PMN. When submitting a SNUN, the submitter should include a cover letter that provides the Code of Federal Regulations citation of the SNUR and identifies the specific significant new use(s) for which the SNUN is being submitted. The fee for each SNUN is $16,000, except for small businesses the fee is $2,800 (see 40 CFR 700.45).

Under TSCA, once EPA receives and reviews a significant new use notice, the Agency must make one of the following determinations:

- "Not likely to present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(C)) – In cases where EPA determines that a significant new use is not likely to present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including unreasonable risk to a potentially exposed or susceptible subpopulation under the conditions of use, EPA will notify the submitter of its decision under TSCA section 5(a)(3)(C) and the submitter may commence manufacture or processing for the significant new use notwithstanding any remaining portion of the 90-day review period. EPA will publish its findings in a statement in the Federal Register pursuant to TSCA section 5(g).
- "Insufficient Information" Determinations (See TSCA section 5(a)(3)(B)(i)) – In cases where EPA determines that the available information is insufficient to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing distribution in commerce, use or disposal to the extent necessary to protect against an unreasonable risk, and may include testing requirements.
- "May present an unreasonable risk" Determinations (See TSCA section 5(a)(3)(B)(ii)(I)) – In cases where EPA determines that in the absence of sufficient information to allow EPA to make a reasoned evaluation of the health and environmental effects of the significant new use, the manufacture, processing, distribution in commerce, use, or disposal of the chemical may present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk,

and may include testing requirements. Most TSCA section 5(e) orders issued by EPA are consent orders that are negotiated with the submitter of the SNUN.

- "Exposure-based" Determinations (See TSCA section 5(a)(3)(B)(ii)(II)) – In cases where EPA determines that the chemical substance is or will be produced in substantial quantities and either enters or may reasonably be anticipated to enter the environment in substantial quantities or there is or may be significant or substantial human exposure to the substance, EPA must issue an order under section 5(e) of TSCA. A section 5(e) order must prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal to the extent necessary to protect against an unreasonable risk and may include testing requirements.
- "Presents an unreasonable risk" Determinations (See TSCA section 5(a)(3)(A)) – In cases where EPA determines that the significant new use presents an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the EPA Administrator under the conditions of use, EPA must take action under section 5(f) to protect against the unreasonable risk. Pursuant to section 5(f), EPA may propose a rule under section 6(a) or may issue an order to prohibit or limit the manufacture, processing, or distribution in commerce of the substance.

Upon making a determination, the Agency must notify the SNUN submitter.

5. Provide Clarification: Recycling and Disposal

One commenter (EPA-HQ-OPPT-2018-0159-0437) posits, "the SNUR is silent on the use of legacy materials that may be manufactured into new products. For example, a scrapped vehicle that may contain asbestos components (e.g., brake linings) will be recycled into new materials for the production of other products, including vehicles. Another example would be products manufactured with recycled building demolition materials (e.g., metal, gypsum wallboard) and how these materials and products would be evaluated under the proposed SNUR to ensure the protection of human health and the environment."

The Agency provides the following explanation in the preamble of the final rule: EPA interprets recyling to be processing under TSCA, and recycling of any asbestos-containing material for a significant new use of asbestos subject to this rulemaking requires a SNUN. For example, recycling asbestos building material, such as roofing tiles, for reuse is prohibited without notification, review, and, as necessary, regulation by EPA.
Another commenter (EPA-HQ-OPPT-2018-0159-4066) requested EPA "make clear that the scope of this rulemaking *does not* in any way regulate or otherwise impede the (1) the continued use of asbestos-containing products from manufacturing/processing activities that occurred *prior* to June 1, 2018 (the proposed cutoff date for determining the applicability of the SNUR to new manufacturing/processing activities); or (2) the removal from service for disposal of asbestos-containing materials, including where such disposal activities may involve the incidental 'processing' of asbestos as part of the asbestos disposal process (as such processing is not being conducted for a commercial purpose)."

The Agency does not interpret the disposal of asbestos-containing materials to be processing for a significant new use; therefore, such activity does not require a significant new use notice under this final rule. Additionally, the SNUR does not prohibit any ongoing uses of asbestos-containing products from manufacturing/ processing activities that were initiated prior to June 1, 2018; more

specifically the conditions of use of asbestos subject to the current asbestos risk evaluation under TSCA section 6 are not subject to this SNUR.

6. Broaden the scope of the SNUR

The Agency received numerous suggestions to broaden the scope of the significant new use rule to address mining, export notification for asbestos articles, and to include additional significant new uses of asbestos. These comments are addressed by topic in the following section.

a. Include mining

Some commenters (EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886) suggested that mining be subject to the significant new use rule because it is no longer ongoing in the United States. Asbestos mining in the United States ceased in 2002.

The Agency interprets mining to be *production* under the TSCA definition of *manufacture.* Therefore, mining asbestos for a significant new use as identified in the final rule would require a SNUN. Mining for ongoing uses of asbestos would not require a SNUN.

b. Require 12(b) export notification for articles

The Agency received several comments recommending that the export notification requirement under TSCA section 12(b) apply to exported articles that contain asbestos (EPA-HQ-OPPT-2018-0159-0469; EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-4023; EPA-HQ-OPPT-2018-0159-5886).

Raw asbestos is subject to the export notification requirement at Section 12(b) of TSCA. One of the purposes of a significant new use rule for an existing chemical is to require notification from anyone who intends to resume uses that have been identified as no longer ongoing. Should anyone intend to resume such uses as identified in a SNUR, the Agency would review the significant new use notice submitted to the Agency, evaluate the associated risks, hazards, and exposures based on the conditions of use, make a determination on the notice under Section 5(a)(3), and take such actions as are required in association with that determination.

Based on the research conducted in support of the ongoing TSCA section 6 risk evaluation, the Agency identified uses of asbestos (including as part of an article) that are no longer ongoing. The Agency has found no evidence to suggest that asbestos is used for any of the activities subject to the SNUR, and therefore, does not believe that an export notification is required for articles containing asbestos that are neither manufactured (including imported) nor processed in the United States. The commenters have not indicated that any of the uses of asbestos (including as part of an article) subject to the SNUR are currently ongoing nor have the commenters provided a persuasive argument as to why the Agency should require export notification for articles that are not manufactured, imported, or processed in the United States. Therefore, EPA assumes that applying an export requirement for asbestos-containing products that no longer exist in the U.S. marketplace would

provide no meaningful benefit because the Agency would not receive any such export notifications.

In the event that anyone would be interested in using asbestos for any of the uses subject to the SNUR, EPA would receive notification through a SNUN, which would include information about the conditions of use, including distribution. Review of that SNUN would provide an opportunity for the Agency to require TSCA section 12(b) export notification if a discontinued use for a particular article were to be resumed.

As for the conditions of use of asbestos that are currently undergoing risk evaluation, if an unreasonable risk determination is made, the Agency will at that time evaluate what appropriate risk management options and tools should be used to address the risk and requiring a TSCA section 12(b) export notification would be part of that evaluation.

c. Revise the SNUR to include every use of asbestos that is no longer ongoing

EPA received several comments suggesting that the SNUR be revised to include all uses of asbestos that are no longer ongoing and some suggest targeting all uses of asbestos except ongoing uses currently under consideration for the asbestos risk evaluation (EPA-HQ-OPPT-2018-0159-1269; EPA-HQ-OPPT-2018-0159-1271; EPA-HQ-OPPT-2018-0159-5755; EPA-HQ-OPPT-2018-0159-5886).

After further review and consideration, the Agency agrees with this comment and is revising the regulatory text to include any use of asbestos that is no longer ongoing and not currently banned under TSCA which is captured in the following category: *(xviii) Any other use of asbestos*

In light of that revision, the Agency is also adding two exceptions to the final rule to account for the ongoing uses of chrysotile (paragraph (3)(i)) and the remaining prohibitions from the 1989 Asbestos Ban and Phaseout rule discussed above (paragraph (3)(ii)):

(3) Exceptions.
(i) The significant new use identified in (a)(2) of this section does not include manufacturing (including importing) or processing for the following uses of the asbestiform variety of chrysotile (serpentine) asbestos:
(A) Diaphragms for use in chorine and sodium hydroxide production;
(B) Sheet gaskets for use in chemical manufacturing;
(C) Brake blocks in oil drilling equipment;
(D) Aftermarket automotive brakes/linings;
(E) Other vehicle friction products; or
(F) Other gaskets.

(ii) The significant new use does not include the manufacture (including importation) or processing of the asbestos-containing products identified in § 763.165, which continue to be prohibited pursuant to 40 C.F.R. part 763, subpart I.

The specific uses of chrysotile carved out by paragraph (3)(i) account for uses EPA believes to be ongoing and thus outside of the Agency's SNUR authority. These uses are currently under consideration as conditions of use in the TSCA section 6 asbestos risk evaluation.

General provisions for SNURs appear under 40 CFR part 721, subpart A. These provisions describe persons subject to the rule, recordkeeping requirements, and exemptions to reporting requirements. General exemptions for SNURs appear under 40 CFR 721.45. While commenters requested the scope of the SNUR be broadened, one commenter (EPA-HQ-OPPT-2018-0159-4066) supported the general exemption for impurities and no commenter suggested lifting the impurities exemption.

7. Economic Analysis

The Agency received two comments regarding the Economic Analysis for the Asbestos SNUR. One commenter states "[w]ith the past negative effects of asbestos, this proposed policy appears to be too weak. $10,000 appears to be much too little to do a thorough analysis" (EPA-HQ-OPPT-2018-0159-4163). To clarify, $10,000 was the estimated cost to a business submitting a SNUN. According to the EA, the cost that EPA is expected to incur reviewing a SNUN is $41,000. Since publication of the proposed Asbestos SNUR, the fees have been updated and are now $16,000 per SNUN submission for large businesses and $2,800 for small businesses. The updated estimate of the total cost of submitting a SNUN is approximately $10,000 for a small business and $23,000 for a large business.

Another commenter suggests, "only the cost of submitting and [preparing] the SNUN and a user fee are included. It is foreseeable any SNUN for asbestos could go through extensive follow-up investigation due to the health concern of the material and public perception of the asbestos use. The overall economic cost for business should include additional data gathering, testing, and health study of using asbestos in the proposed categories" (EPA-HQ-OPPT-2018-0159-0010). In general, TSCA section 5 notices require that all reasonably ascertainable information on chemical identity, production volume, byproducts, use, environmental release, disposal practices, and human exposure be included in the notice. Testing, investigation, and study are not required for the SNUN submission, and therefore, EPA's cost estimates are based on reasonably ascertainable information gathering activities. However, Section 3.2.8 of EPA's Economic Analysis ("Article Importation and Processing") includes a discussion of the types of costs that firms may incur if they choose to undertake additional activities to assure themselves that they are not undertaking a new use.

EPA addressed the commenter's concern about follow-up costs in Section 3.5 ("Potential for Subsequent Regulatory Actions") of the Economic Analysis of the proposed rule, where the Agency explained that "The Agency recognizes that if submission of a SNUN does result from a SNUR, the Agency may take additional regulatory actions under TSCA. These additional regulatory actions might be necessary to further evaluate an intended new use and associated activities, or to prohibit or limit that activity before it occurs to prevent unreasonable risk of injury to human health or the environment. It is not known what specific subsequent regulatory actions, if any, the Agency may determine are necessary after reviewing a SNUN. Any such actions are highly dependent on the circumstances surrounding the individual SNUN (e.g., available information and scientific understanding about the chemical and its risks at the time the

SNUN is being reviewed). Should the Agency's review of the SNUN result in further regulatory actions, the Agency will initiate and follow the appropriate procedures for taking those actions. Included in those procedures would be an assessment of the costs and benefits of those actions."

EPA Finalizes Rule to Prohibit Former Asbestos Uses from Restarting

WASHINGTON–The U.S. Environmental Protection Agency (EPA) issued a final rule to ensure that discontinued, but not banned, uses of asbestos cannot restart without undergoing risk evaluation by the Agency and necessary restrictions taken.

"Today's important action prevents former asbestos uses not currently banned in the U.S. from unknowingly returning to the marketplace," said EPA Acting Administrator Andrew Wheeler.

"This TSCA action compliments the asbestos risk evaluation already underway for ongoing asbestos uses. Although that risk evaluation is not yet completed, today's action addressing former asbestos uses provides a valuable safeguard," said EPA Office of Chemical Safety and Pollution Prevention Assistant Administrator Alexandra Dapolito Dunn.

Today's final action, a so-called "significant new use rule," under TSCA section 5, will not impact asbestos uses already banned but would require any person who intends to restart the manufacture, import or processing of discontinued but not banned asbestos uses to notify EPA at least 90 days before commencing. Manufacturing (including importing) or processing of these former asbestos uses is prohibited until EPA conducts a thorough review of the notice, makes an appropriate determination, and takes such actions as are required in association with that determination, including prohibiting use.

EPA is separately conducting a risk evaluation for asbestos uses that are still ongoing in the U.S. In December of 2016, EPA designated asbestos as one of the first 10 chemical substances subject to the Agency's chemical risk evaluation rule. Once that risk evaluation is complete, EPA is able to restrict or ban ongoing asbestos uses, if unreasonable risk is found.

The former uses that are subject to the final significant new use rule include: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; certain friction materials; high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; certain woven products; any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Once published, the final significant new use rule and supporting documents will be available in the Federal Register docket at: [HYPERLINK "https://www.regulations.gov/"] and by searching for EPA-HQ-OPPT-XXXX

Learn more about asbestos [HYPERLINK "http://www.epa.gov/asbestos"]

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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 3/29/2019 2:43:18 PM
To: Strauss, Linda [Strauss.Linda@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]
CC: Pierce, Alison [Pierce.Alison@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]
BCC: Altieri, Sonia [Altieri.Sonia@epa.gov]
Subject: RE: Early Preview: Asbestos SNUR
Attachments: Asbestos SNUR Press Release 3.28.19 ls RC.docx

Importance: High

Linda- Glad you liked what I did ☺

As discussed, one correction I changed in the attached is that new uses (I know, it's confusing) are NOT convered in this action in the context you used it—only discontinued uses. The prohibition on new uses is under the 1989 partial ban.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Strauss, Linda
Sent: Friday, March 29, 2019 10:25 AM
To: Winchester, Erik <Winchester.Erik@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Pierce, Alison <Pierce.Alison@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: FW: Early Preview: Asbestos SNUR

NPCD – I think Alison is out today. Here are my thoughts.
Linda

From: Strauss, Linda
Sent: Friday, March 29, 2019 10:23 AM
To: Pierce, Alison <Pierce.Alison@epa.gov>
Cc: Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: RE: Early Preview: Asbestos SNUR

Alison, here are my thoughts.

Linda

From: Pierce, Alison
Sent: Thursday, March 28, 2019 5:25 PM
To: Strauss, Linda <Strauss.Linda@epa.gov>
Subject: Early Preview: Asbestos SNUR

Linda – Per discussion, I'm sharing this one with you informally so we can help out on the messaging end. I'd like to get our collective informal feedback back to NPCD by Monday morning so we can run through OGC and the OPPT IO, and then back up to your shop more formally. Sound plan like? If so, could you share your comments with me by COB Friday?

Thanks much,
Alison

ALISON PIERCE
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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 2/19/2019 9:55:48 PM
To: Price, Michelle [Price.Michelle@epa.gov]; Groeneveld, Thomas [Groeneveld.Thomas@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Shannon, Julie [Shannon.Julie@EPA.GOV]; Edmonds, Marc [Edmonds.Marc@epa.gov]
CC: Leonard, Darlene [Leonard.Darlene@epa.gov]
Subject: RE: DRAFT -- NPCD General Agenda (02/21/2019) [***EXPEDITE***]
Attachments: 2019-02-21_NPCD General_TRACKED lhmib FOB.docx

With FOBs edits on top of LHMIB's.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
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From: Price, Michelle
Sent: Tuesday, February 19, 2019 2:48 PM
To: Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Shannon, Julie <Shannon.Julie@EPA.GOV>; Edmonds, Marc <Edmonds.Marc@epa.gov>
Cc: Leonard, Darlene <Leonard.Darlene@epa.gov>
Subject: RE: DRAFT -- NPCD General Agenda (02/21/2019) [***EXPEDITE***]

Tom – see attached for LHMIB's edits. Thanks.

Michelle Price
Chief, Lead, Heavy Metals and Inorganics Branch
National Program Chemicals Division (7404T)
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
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From: Groeneveld, Thomas
Sent: Tuesday, February 19, 2019 9:29 AM
To: Price, Michelle <Price.Michelle@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Shannon, Julie <Shannon.Julie@EPA.GOV>; Edmonds, Marc <Edmonds.Marc@epa.gov>
Cc: Leonard, Darlene <Leonard.Darlene@epa.gov>
Subject: DRAFT -- NPCD General Agenda (02/21/2019) [***EXPEDITE***]
Importance: High

As discussed during management meeting, this is quick turnaround.

Please get me edits by COB – THANKS!

Thomas M. Groeneveld
U.S. Environmental Protection Agency
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Room 5213J
Washington, DC 20460
P: (202) 566-1188
F: (202) 566-0470
E: groeneveld.thomas@epa.gov

From: Groeneveld, Thomas
Sent: Thursday, July 19, 2018 9:20 AM
To: Price, Michelle <Price.Michelle@epa.gov>; Tierney, Meghan <Tierney.Meghan@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Shannon, Julie <Shannon.Julie@EPA.GOV>
Subject: FW: NPCD General Agenda (07/19/2018)

Hearing that this has not made it onto the meeting invite yet. Here's the agenda for today's general.

Thomas M. Groeneveld
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Washington, DC 20460
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E: groeneveld.thomas@epa.gov

From: Groeneveld, Thomas
Sent: Wednesday, July 18, 2018 1:07 PM
To: Clark, Sharon <Clark.Sharon@epa.gov>; Blunck, Christopher <Blunck.Chris@epa.gov>; Scheifele, Hans <Scheifele.Hans@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Ortiz, Julia <Ortiz.Julia@epa.gov>
Cc: Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>
Subject: NPCD General Agenda (07/19/2018)

Please find attached the agenda for tomorrow's general.

Thomas M. Groeneveld
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E: groeneveld.thomas@epa.gov

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/16/2019 9:42:58 PM
To: 'Pierce, Alison' [Pierce.Alison@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Blair, Susanna [Blair.Susanna@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Groeneveld, Thomas [Groeneveld.Thomas@epa.gov]
Subject: Action Memo: Final SNUR FRN Pre-Pub
Attachments: Asbestos SNUR Action Memo 20190416.docx

Importance: High

Alison- Please find attached for Jeff's (or DOD) signature the Action memo related to the Asbestos FRN now with RICS. I understand that Alex will sign the rule in the morning before the press calls. Thanks.

-Robert

Robert T. Courtnage
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From: Courtnage, Robert
Sent: Tuesday, April 16, 2019 5:31 PM
To: Hofmann, Angela <Hofmann.Angela@epa.gov>
Cc: Smith, Peterj <Smith.Peterj@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: Final SNUR FRN Pre-Pub
Importance: High

Angela- We worked with Peter this afternoon and incorporated the final approved OCSPP IO changes into the RICS master copy on the your SP site. It should be ready to go in preparation for Alex's signature. Please let us know of any questions.

Best,

-Robert

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: Restrictions on Discontinued Uses of Asbestos; Significant New Use Rule (Final Rule) (Tier 3; SAN 6677; RIN 2070-AK45; EPA-HQ-OPPT-2018-0159) – **ACTION MEMORANDUM**

FROM: Jeffery T. Morris, Director
Office of Pollution Prevention and Toxics (7401M)

TO: Alexandra Dapolito Dunn, Esq.
Assistant Administrator (7101M)

PURPOSE
Attached for your signature is a Federal Register notice for a final significant new use rule (SNUR) for asbestos under Section 5(a)(2) of the Toxic Substances Control Act.

DEADLINE
No statutory or court-ordered deadlines apply to this action; however, the final SNUR is intended to be published in the Federal Register on or before April 29, 2019.

OVERVIEW
Authority
Section 5(a)(2) of TSCA (15 U.S.C. 2604(a)(2)) authorizes the EPA to determine that a use of a chemical substance is a "significant new use." The EPA must make this determination by rule after considering all relevant factors, including those listed in TSCA section 5(a)(2). Once the EPA determines that a use of a chemical substance is a significant new use, TSCA section 5(a)(1) requires persons to submit a significant new use notice (SNUN) to the EPA at least 90 days before manufacturing (including importing) or processing the chemical substance for that intended activity (15 U.S.C. 2604(a)(1)(B)(i)). TSCA prohibits the manufacturing (including importing) or processing from commencing until the EPA has conducted a review of the notice, made a determination on the notice, and taken such actions as are required in association with that determination (15 U.S.C. 2604(a)(1)(B)(ii)). Those actions could include a prohibition on a use of that chemical substance. Additionally, Section 5(a)(5) of TSCA (15 U.S.C. 2604(a)(5)) authorizes the EPA to require notification for the import or processing of a chemical substance as part of an article or category of articles under TSCA section 5(a)(1) (15 U.S.C. 2604(a)(1)(A)(ii)), if the EPA makes an affirmative finding in a rule under TSCA section 5(a)(2) (15 U.S.C. 2604(a)(2)) that the reasonable potential for exposure to the chemical substance through the article or category of articles subject to the rule justifies notification. General SNUR provisions are found at 40 CFR part 721, subpart A.

Summary of the Final Action
The EPA is finalizing a significant new use rule for asbestos as defined under the Asbestos Hazard Emergency Response Act (TSCA Title II, Section 202); the "asbestiform varieties of six fiber types –

chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, tremolite or actinolite." The significant new use of asbestos (including as part of an article) is manufacturing (including importing) or processing for uses that are neither ongoing nor already prohibited under TSCA. The agency found no information indicating that the following uses are ongoing, and therefore, the following uses are subject to the SNUR: adhesives, sealants, and roof and non-roof coatings; arc chutes; beater-add gaskets; cement products; extruded sealant tape and other tape; filler for acetylene cylinders; friction materials (with certain exceptions); high-grade electrical paper; millboard; missile liner; packings; pipeline wrap; reinforced plastics; roofing felt; separators in fuel cells and batteries; vinyl-asbestos floor tile; woven products; any other building material; and any other use of asbestos that is neither ongoing nor already prohibited under TSCA.

Persons subject to the SNUR may not undertake any of these activities; they are required to notify the EPA at least 90 days before commencing any manufacturing (including importing) or processing of asbestos (including as part of an article) for a significant new use. The required SNUN provides the EPA the opportunity to evaluate the new use and, if necessary, take action to prohibit or limit the activity. Manufacturing (including importing) and processing (including as part of an article) for the significant new use may not commence until the EPA has conducted a review of the notice, made an appropriate determination on the notice, and taken such actions as are required in association with that determination.

SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

The EPA issued the proposed asbestos SNUR on June 11, 2018, which opened a 60-day public comment period that closed on August 10, 2018. Of the 17,912 public comments received, 11,732 are part of a mass mail campaign, 240 are from a second mass mail campaign, 67 are not posted in the public docket due to inappropriate language, and 5,873 individual comments are identified by ID number. However, the majority of commenters misunderstood the action to be bringing back banned uses of asbestos and are not germane to the scope and intent of the rule. Overall, the agency received approximately 30 germane comments, half of which are substantive. Of the substantive comments, most suggested broadening the scope of the SNUR. In response to public comments, the agency is revising the final rule to provide clarifications and ensure all discontinued uses of asbestos are subject to the rulemaking.

Based on public comments received, the EPA is clarifying the following issues in the final rule:

- The distinction between a "new use" under the existing partial ban and a "significant new use rule"
- The agency's review process of significant new use notices
- Whether and how mining for asbestos is subject to the SNUR
- Whether and how recycling of legacy asbestos-containing material is subject to the SNUR

After consideration of the public comments, in addition to the 14 significant new uses identified in the proposed rule, in the final rule the EPA is broadening the scope of regulated significant new uses of asbestos (including as part of an article) to include:

- Cement products
- Friction Materials (with some exception)
- Packings
- Woven products
- Any other use of asbestos that is neither ongoing nor already prohibited under TSCA

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Two issues raised in public comment that the agency is not addressing in this final SNUR are 1) to require TSCA section 12(b) export notification for all asbestos-containing articles; and 2) to require a significant new use notice for *any* asbestos mining in the United States. The agency views including these two issues as actions to go beyond the intended focus of the SNUR. The EPA is currently evaluating options for how these issues might be addressed in the future. For the first issue (export notification for articles), the agency believes this would impact ongoing uses of asbestos, not just uses that have been discontinued as identified in the SNUR. The EPA believes that this issue would be more appropriately addressed during consideration of any potential risk management actions following completion of the EPA's risk evaluation for asbestos, pursuant to TSCA section 6(b)(4), in the event of an unreasonable risk determination. For the second issue (a notice for *any* asbestos mining beyond mining for the significant new uses), the EPA believes, if addressed, that further opportunity for public comment would be useful prior to a final action.

Background

In 2016, the Frank R. Lautenberg Chemical Safety for the 21st Century Act (Pub. L. 114-182, 130 Stat. 448) amended TSCA and included statutory requirements related to the risk evaluations of conditions of use for existing chemicals. In December of 2016, the EPA designated asbestos as one of the first 10 chemical substances subject to the agency's initial chemical risk evaluations (81 FR 91927), pursuant to TSCA section 6(b)(2)(A) (15 U.S.C. 2605(b)(2)(A)). The TSCA section 6 risk evaluation focuses on the ongoing conditions of use of asbestos: the circumstances under which asbestos is intended, known, or reasonably foreseen to be manufactured (including imported), processed, distributed in commerce, used, or disposed of in the United States. The ongoing uses are not considered significant new uses and would not require a significant new use notification submission to the agency. The significant new use rule for asbestos serves to complement the risk evaluation by ensuring that any discontinued use of asbestos not otherwise already prohibited (that can resume at any time) must be reviewed and approved by the EPA prior to commencing.

Regardless of the outcome of the risk evaluation pursuant to TSCA section 6(b)(4)(A), the EPA is concerned about the potential for adverse health effects of asbestos based on established sound scientific data indicating that asbestos is a known carcinogen. Since its peak usage, the national consumption of asbestos has declined approximately 99 percent, and asbestos has not been mined or otherwise produced in the United States since 2002. The EPA believes any significant new use of asbestos (including as part of an article) could increase the duration and magnitude of human and environmental exposure to the substance, reverse the declining trend of national import volumes of the substance, and reintroduce exposure scenarios that have become obsolete over the past several decades. Thus, it is imperative that the EPA be notified of any intended significant new use of asbestos (including as part of an article) and be provided the opportunity to evaluate such intended new use.

ANTICIPATED PUBLIC AND STAKEHOLDER RESPONSE

The final rule will be of interest to multiple stakeholders including industry, government agencies, non-governmental organizations, academia, public health organizations, environmental groups, and the general public who are interested in asbestos regulations and/or are concerned about human and environmental exposures to asbestos.

The EPA expects industry groups to be supportive of the regulation and does not anticipate adverse reaction. National trends have shown a consistent and large decline in the use of asbestos in commerce. Based on extensive agency research of ongoing uses of asbestos and considering the availability of safer

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and affordable alternatives, the EPA believes industry is continuing to voluntarily phase out the manufacturing (including importing) and processing of asbestos (including as part of an article).

The tribal, state, and local government reactions are expected to be generally positive as is the reaction of non-governmental, environmental, academic, and public health organizations. The general public will also likely be supportive of the final rule when the purpose and impact of the rule are clearly communicated by the EPA directly to the media. Based on public comments received over the past year regarding the uses of asbestos and the scope of the risk evaluation, the EPA expects interest in agency actions related to asbestos to continue.

INTERNAL DEVELOPMENT AND REVIEW PROCESS

This action was developed with participation from the Office of General Counsel, Office of Policy, Office of Research and Development, Office of Enforcement and Compliance Assurance, Office of Air, and Office of Water.

OMB TRANSACTION

On March 20, 2019, the Office of Management and Budget determined that this final rule is not a significant regulatory action under Executive Orders 12866 and 13563. As such, this final rule was not reviewed by OMB.

IMPACTS

Potentially Regulated Entities

Potentially affected entities may include, but are not limited to the following list of industries identified by North American Industrial Classification System codes:

- Construction (NAICS code 23)
- Manufacturing (NAICS codes 31 – 33)
- Wholesale Trade (NAICS code 42)
- Transportation (NAICS code 48)

Economic Impacts

In the event that a SNUN is submitted, costs, included user fees, are estimated to be approximately $23,000 per SNUN submission for large business submitters and about $10,000 for small business submitters. Asbestos is already subject to TSCA section 6(a) rules (40 CFR part 763, subparts G and I) that trigger the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20), and the agency is not requiring export notifications for articles containing asbestos as articles are generally excluded from the TSCA section 12(b) export notification requirements. Therefore, the EPA assumes no additional costs under TSCA section 12(b) for this rule.

Small Entity Impacts

Analysis supporting the rulemaking indicates that this action would not have a significant adverse economic impact on a substantial number of small entities.

Recordkeeping and Reporting Impacts

The information collection requirements associated with existing chemical SNURs are already approved under OMB control number 2070-0038 (EPA ICR No. 1188) and the information collection activities associated with export notifications are already approved under OMB control number 2070-0030 (EPA ICR No. 0795). If an entity were to submit a SNUN to the agency, the annual burden is estimated to be less than 100 hours per response, and the burden is estimated to be reduced for submitters who have

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already registered to use the electronic submission system. Since asbestos is already subject to a TSCA section 6(a) rule (40 CFR part 763, subpart I) that triggers the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b); see also 40 CFR 721.20) and because the EPA is not proposing to require export notifications for articles, the EPA assumes there is no cost or burden associated with export notifications under the final rule.

Governmental Impacts

The EPA has determined that the final rule will not significantly or uniquely affect state, local, or tribal governments.

STAKEHOLDER INVOLVEMENT

Stakeholder input was obtained through public comment on the proposed *Asbestos Significant New Use Rule* issued in June 2018. Additionally, this action was informed by the related outreach conducted in 2016 and 2017 during the early stages of the TSCA section 6 risk evaluation for asbestos, which involved numerous meetings and consultations with the American Chemistry Council, stakeholders from the chemical manufacturing industry (including the chlor-alkali industry), the International Association of Drilling Contractors, the Motor and Equipment Manufacturers Association, federal government agencies, non-government organizations, environmental groups, and public citizens. The agency also sought and received public comment on the *Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos*, released in February 2017, the *Scope of the Risk Evaluation for Asbestos*, released in June 2017 and the *Problem Formulation of the Risk Evaluation for Asbestos* released in June 2018.

PEER REVIEW

There were no major scientific or technical products supporting this action as defined by the EPA's Peer Review Handbook. Therefore, no support documents were submitted for peer review.

CONTACT

Please direct any questions regarding the Federal Register notice to the final rule workgroup lead, Robert Courtnage at 202-566-1081 or Courtnage.Robert@epa.gov.

RECOMMENDATION

I recommend that you sign the attached Federal Register notice.

Attachments

ED_005636_00006863-00005

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/5/2019 5:48:25 PM
To: Pierce, Alison [Pierce.Alison@epa.gov]; Blair, Susanna [Blair.Susanna@epa.gov]
CC: Symmes, Brian [Symmes.Brian@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]
Subject: RE: SNUR Comms.
Attachments: Asbestos web 04 05 19 .docx; ASBESTOS SNUR TICK TOCK 4 3 19.docx; Asbestos Backpocket Questions 4-5-19.docx

As promised. . .

Note, OECA has not responded on the enforcement Q&A. For the time being, I've the answered verbatim from the draft preamble. We don't have anything to add to the tick tock. . .reaching out to ADAO as Alex has done in the past may be fruitful (or not), but I leave that to her.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Courtnage, Robert
Sent: Friday, April 05, 2019 10:47 AM
To: Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Cc: Symmes, Brian <Symmes.Brian@epa.gov>; Mottley, Tanya <Mottley.Tanya@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Strauss, Linda <Strauss.Linda@epa.gov>
Subject: SNUR Comms.
Importance: High

We will be sending up shortly the NPCD-approved and OGC reviewed comms so they can be included in Alex's weekend packet. We have some minor suggestions to Cheryl's web edits (OGC flagged a couple things too). Thank you Cheryl for jumping in—it's very much appreciated!

Linda already did the tic toc and has the pen on the press release, so it's just going to be the internal Q&As and suggestions for the web edits. As discussed, we are not planning to send the FRN up until Monday (along with the response to comments) so that we can re-read for flow and clarity. We didn't get comments on the response to comments from the principals but will be making it consistent with the FRN.

Robert T. Courtnage
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ASBESTOS SNUR TICK TOCK

Release Date: April 17 AM

April 12: Send OPA key messages for Alex Interview

April 16:

- **Alex Interview / Exclusive** (Cheryl/OPA)
- FR Signed by Tala or Jeff (Susanna)
- RCS Creates Pre-Pub (Angela)
- Pre-pub to Cheryl (Angela)

April 17

- OCIR political head's up calls to Hill (OCIR)
- Other Heads up to Linda R, etc.? (Alex?)
- Web up (Cheryl)
- Press Release out (Linda)
- Hill Notifications (Sven)
- OPPT listserv out (Alison)
- Tweets (Cheryl)
- Fast Turn-Around Press responses

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/16/2019 12:56:01 PM
To: Anderson, Steve [Anderson.Steve@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]; Kaczmarek, Chris [Kaczmarek.Chris@epa.gov]; Fisher, Bethany [fisher.bethany@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Blair, Susanna [Blair.Susanna@epa.gov]; Pierce, Alison [Pierce.Alison@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]
BCC: Altieri, Sonia [Altieri.Sonia@epa.gov]
Subject: RE: OGC quick review please FW: Latest press release from OPA
Attachments: Asbestos SNUR Press Release 04 15 19 3 PM_AD_CB sma.docx

Thank you, Steve. Copying my management, our IO and Linda/ Cheryl. . .I understand Cheryl is sitting in for Linda today. . .

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
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202.740.2993 (Mobile)

From: Anderson, Steve
Sent: Tuesday, April 16, 2019 8:43 AM
To: Winchester, Erik <Winchester.Erik@epa.gov>
Cc: Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Kaczmarek, Chris <Kaczmarek.Chris@epa.gov>; Fisher, Bethany <fisher.bethany@epa.gov>
Subject: RE: OGC quick review please FW: Latest press release from OPA

Attached are a few suggested edits – I don't expect any to be a problem

Steve Anderson | 202.564.3137
Attorney-Advisor | Pesticides and Toxic Substances Law Office
U.S. EPA Office of General Counsel | anderson.steve@epa.gov

From: Winchester, Erik
Sent: Monday, April 15, 2019 5:37 PM
To: Anderson, Steve <Anderson.Steve@epa.gov>
Cc: Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Carmichael, Lea <Carmichael.Lea@epa.gov>
Subject: OGC quick review please FW: Latest press release from OPA

Steve please let us know of any edits/comments ASAP in AM. Thank you

---

From: Strauss, Linda
Sent: Monday, April 15, 2019 5:31 PM
To: Hartman, Mark <Hartman.Mark@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Symmes, Brian <Symmes.Brian@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Winchester, Erik <Winchester.Erik@epa.gov>

Cc: Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: Latest press release from OPA

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 9/10/2018 1:51:19 PM
To: Semeniuk, Michael [Semeniuk.Michael@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]
Subject: Safer Chemicals Healthy Families Comment on SNUR EPA-HQ-OPPT-2018-0159
Attachments: Safer Chemicals Healthy Familes Comments.pdf

Michael- I can't find the SCHF comment in either regulations.gov or FDMS. Do you have a record of it anywhere?

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Comments on Proposed Significant New Use Rule for Asbestos under Section 5(a)(2) of the Amended Toxic Substances Control Act

Submitted via Regulations.gov (August 10, 2018)

Docket ID EPA-HQ-OPPT-2018-0159

Safer Chemicals Healthy Families and the undersigned groups submit these comments on EPA's June 11, 2018 proposal to designate manufacture and importation of certain asbestos-containing products as "significant new uses" of asbestos requiring notification under section 5(a)(2) of the Toxic Substances Control Act (TSCA). 83 Federal Register 26922. The commenters are public health and environmental organizations committed to assuring the safety of chemicals used in our homes, workplaces and the many products to which our families and children are exposed each day. They took a leadership role during the TSCA legislative process, advocating the most protective and effective legislation possible to reduce the risks of toxic chemicals in use today.

These comments make three recommendations:

1. While a SNUR is one tool to track and potentially restrict or ban discontinued unsafe products before they re-enter commerce, the overwhelming evidence of asbestos' dangers to public health dictates that the best long-term course is to address such products in EPA's ongoing risk evaluation for asbestos. This would enable EPA to determine that current and former uses present an unreasonable risk of injury and then to ban them permanently under section 6 of TSCA, consistent with the extensive risk analysis supporting EPA's 1989 asbestos ban rule. For substances like asbestos, a SNUR will create needless uncertainty in the marketplace and fail to protect public health because it merely requires notice of the reintroduction of discontinued uses and offers no assurance that these uses will be prohibited despite their demonstrated risks to exposed populations. We believe that EPA's TSCA section 6 authority extends to discontinued uses of unsafe products in appropriate cases like this one.
2. EPA's SNUR should be finalized solely as a stopgap measure to prevent reintroduction of unsafe products while EPA completes its risk evaluation and subsequent risk management rulemaking. The scope of the SNUR should be broadened beyond the specific products identified in EPA's proposal to cover *all* asbestos uses except those that EPA has determined are ongoing in its asbestos problem formulation. Mining of asbestos in the US should be designated as a significant new use because there is no legal restriction on its resumption.
3. By failing to require export notification for asbestos-containing articles under section 12(b), the proposal would deprive countries receiving export shipments from the US of any meaningful information about the exposure of their citizens to asbestos. The final rule should

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reverse this approach and provide that section 12(b) requirements apply to asbestos-containing articles.

I. PUBLIC HEALTH WILL BE BEST SERVED IF EPA INCLUDES PREVIOUSLY MANUFACTURED ASBESTOS PRODUCTS IN ITS ONGOING RISK EVALUATION AND DETERMINES THAT THEY PRESENT AN UNREASONABLE RISK RATHER THAN LEAVING THE DOOR OPEN TO THEIR RE-INTRODUCTION UNDER A SNUR

Along with nine other substances, asbestos is the subject of an ongoing risk evaluation under section 6(b) of TSCA. If EPA determines in that evaluation that asbestos presents an unreasonable risk of injury, the uses addressed by this determination would need to be banned or restricted through a rule under TSCA section 6(a).

For asbestos and other chemicals, EPA's recent problem formulations exclude all discontinued products and uses from the scope of the ongoing risk evaluations. This means that EPA will not address their risks under section 6(b) and will lack the immediate ability to regulate them under section 6(a). As a result, there will be no legal barriers to reintroduction of these products and uses in the future. Where EPA has determined that ongoing uses of a chemical present an unreasonable risk and should be restricted, the absence of equivalent restrictions on discontinued products and uses could pose a serious risk to public health should they re-enter commerce.

A significant new use rule (SNUR) under TSCA section 5(a)(2) is one vehicle for tracking and potentially restricting the resumption of chemical uses that have been phased out. However, SNURs have drawbacks compared to risk evaluations and rulemaking under section 6. SNURs do not include findings of unreasonable risk. They are also fundamentally notification requirements. The activities they define as "significant new uses" are not prohibited. Companies seeking to conduct these activities must notify EPA at least 90 days before initiating them. The Agency can then determine that the notified uses may or do present an unreasonable risk and should be restricted using EPA's authorities under section 5(e) or section 5(f). However, EPA has discretion under these provisions and may or may not take regulatory action. Importantly, EPA's review of significant new use notices (SNUNs) and decisions to invoke sections 5(e) and 5(f) lack the elements of openness and accountability that apply during section 6 risk evaluations and rulemakings. Decisions EPA makes to prohibit or allow particular uses under section 5 receive limited public and judicial review.

Contrary to EPA's understanding, discontinuance of a previously widespread use does not automatically place it beyond the reach of section 6 risk evaluation and management authorities. Under section 6(b)(4)(A), EPA risk evaluations must examine whether a chemical presents an unreasonable risk of injury under "the conditions of use." As defined in section 3(4), this term includes not simply intended or known uses but the "circumstances under which a chemical substance is . . . reasonably foreseen to be manufactured, processed, distributed in commerce, used or disposed of." In appropriate cases, it will be "reasonably foreseen" that long-standing and significant uses of a chemical that have been phased out may re-enter commerce if there is no legal bar against undertaking these activities.

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Although the 2016 TSCA amendments removed the phrase "will present" from section 6(a), the statement of Democratic sponsors at the time of enactment makes clear that this change --

> …does not reflect an intent on the part of Congressional negotiators to remove EPA's authority to consider future or reasonably anticipated risks in evaluating whether a chemical substance or mixture presents an unreasonable risk to health or the environment. In fact, a new definition added to TSCA explicitly provides such authority and a mandate for EPA to consider conditions of use that are not currently known or intended but can be anticipated to occur . . .

Cong. Record – Senate 3515 (June 7, 2016). Whether future resumption of a discontinued use can be "reasonably anticipated" will depend on a number of factors, including the nature of the use, how significant and widespread the use was and the evidence documenting the level of exposure and risk anticipated if the use returns to the marketplace.

There are several compelling reasons why discontinued asbestos uses should be addressed through the section 6 risk evaluation and management process rather than solely through a SNUR.

As EPA emphasizes in its proposal, "[t]here is a strong causal association between asbestos exposure and lung cancer and mesothelioma" and "other cancers, as well as non-cancer effects, such as respiratory and immune effects, have been associated with asbestos exposure." 83 FR 26925. According to the Agency, "the greatest exposure to asbestos occurs when the substance is in a friable state" and "testing has shown that non-friable asbestos can become friable during use . . . .Similarly, non-friable asbestos-containing building materials can release fibers if disturbed during building repair or demolition." Id.

There is overwhelming consensus in the scientific community that there is no safe level of exposure to asbestos.[1,2,3] Thus, as noted by the World Health Organization:

> Bearing in mind that there is no evidence for a threshold for the carcinogenic effect of asbestos, including chrysotile, and that increased cancer risks have been observed in populations exposed to very low levels, the most efficient way to eliminate asbestos-related diseases is to stop using all types of asbestos.[4]

Because of the high level of concern about asbestos, EPA in 1989 issued a rule under section 6(a) of TSCA prohibiting manufacture, importation, processing or distribution in commerce of asbestos in almost all products.[5] However, despite the comprehensive risk analysis supporting the rule, the Fifth Circuit Court of Appeals overturned the ban in 1991 for reasons unrelated to the dangers of

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[1] National Institute for Occupational Safety and Health. (2017) Current Intelligence Bulletin 68. NIOSH Chemical Carcinogen

[2] IARC (2012) IARC Monographs—Arsenic, Metals, Fibres, and Dusts, Volume 100 C. A Reviews of Human Carcinogens. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. International Agency for Research on Cancer, World Health Organization. http://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C.pdf

[3] Collegium Ramazzini. (2015). The Global Health Dimensions of Asbestos and Asbestos-related Diseases. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5356970/

[4] World Health Organization (2014). Chrysotile Asbestos. http://www.who.int/ipcs/assessment/public_health/chrysotile_asbestos_summary.pdf

[5] Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL–3476–2),

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asbestos.[6] The court decision later became the poster child for TSCA's failings. Concern that TSCA's high bar for regulation, in part due to the Fifth Circuit's restrictive interpretation, left EPA unable to protect the public from even the most hazardous substances led Congress to strengthen the law's provisions for chemical risk evaluation and regulation, resulting in the 2016 Frank R. Lautenberg Chemical Safety for the 21st Century Act (LCSA).

Many observers expected that the new law would enable EPA to reinstate the comprehensive ban on asbestos use it had imposed in 1989. However, EPA's proposed exclusion of discontinued asbestos products from the risk evaluation will preclude near-term regulation of these products under TSCA section 6(a), and thus make it impossible to reinstate a comprehensive ban on asbestos use in order to prevent their reintroduction into commerce.

The greater uncertainty of a SNUR as opposed to an outright ban under section 6 is particularly unwarranted for asbestos. Further review of the safety of specific asbestos products under the case-by-case SNUR approach is unnecessary. The large body of data and scientific findings on the lethal effects of asbestos and the detailed product-by-product risk evaluations supporting the 1989 rule amply demonstrate that these products present an "unreasonable risk of injury" to human health under TSCA. To suggest through a SNUR that EPA could reach a contrary conclusion and allow the resumption of asbestos use in the US will send a confusing and mixed message to industry and the public and undermine the broad consensus that all asbestos use is unsafe and should be permanently eliminated. This would put the US at odds with the many countries around the world that have banned asbestos.

We thus believe the asbestos products targeted by the proposed SNUR should be addressed in EPA's ongoing asbestos risk evaluation and then banned under section 6. It would still be appropriate to promulgate the SNUR for the limited purpose of identifying and banning any new asbestos products introduced while the evaluation and follow-up rulemaking are underway.

II. THE SNUR SHOULD BE BROADENED TO APPLY TO ALL ASBESTOS USES THAT DO NOT CURRENTLY EXIST

As proposed, the SNUR only applies to the specific product classes identified by EPA. Other asbestos-containing products could thus be manufactured, imported, processed or distributed in commerce without any notification to EPA and no possibility of restriction. There is no justification for this gap in coverage. Toys and other consumer products have been found to contain asbestos in small quantities[7] and these unsafe products should not escape scrutiny under a SNUR.

Other SNURs for discontinued chemicals have broadly applied to all new uses.[8] This is essentially the approach followed in EPA's 1989 asbestos ban rule, which prohibits any "commercial uses" of asbestos not identified in the rule and initiated for the first time after August 25, 1989.[9] EPA should frame its SNUR in the same manner, requiring notification for all asbestos uses except those

[6] *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991).
[7] http://bit.ly/2KxYali
[8] For example, EPA's SNUR for trichloroethylene (TCE) applied to all uses of this substance in consumer products, with a few specific exemptions for preexisting uses. 81 Federal Register 20535 (April 8, 2016).
[9] 40 C.F.R. §763.165. This new use prohibition was not overturned by the 1991 court decision and thus remains in effect.

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specifically identified as ongoing in its Problem Formulation. EPA should also designate mining of asbestos in the US as a significant new use since there is currently no legal bar to resuming domestic manufacture of raw asbestos.

III. EXPORT NOTIFICATION REQUIREMENTS UNDER SECTION 12(b) SHOULD APPLY TO ALL ASBESTOS-CONTAINING ARTICLES

The preamble to the proposal indicates that the Agency "is not proposing to require export notification for articles containing asbestos" under section 12(b) of TSCA. 83 FR 26923. No justification for this approach is provided. The purpose of section 12(b) notification is to alert foreign governments that they may be receiving export shipments from the US that contain unsafe chemicals. Since asbestos is no longer mined in the US, the only possible form in which it might be exported is as a component of a product and such products would almost certainly comprise "articles" as defined in TSCA. Given the risks of asbestos releases from these articles and the high level of asbestos regulation internationally, countries receiving export shipments from the US would have a strong interest in knowing that asbestos is entering their borders as an article component. Accordingly, EPA's final rule should provide that asbestos-containing articles are subject to export notification under section 12(b).

We appreciate the opportunity to submit these comments. Please contact SCHF Director Liz Hitchcock (lizhitchcock@saferchemicals.org) with any questions.

Respectfully submitted,

Alaska Community Action on Toxics
Alliance of Nurses for Healthy Environments
Asbestos Disease Awareness Organization
Breast Cancer Prevention Partners
Center for Environmental Health
Citizens' Environmental Coalition
Clean and Healthy New York
Clean Water Action
Clean Water Action California
Clean Water Action Connecticut
Connecticut Nurses Association
Earthjustice
Ecology Center
Environmental Health Strategy Center
Environmental Working Group
Great Neck Breast Cancer Coalition
Green Inside and Out
GreenCAPE
Healthy Building Network
Huntington Breast Cancer Action Coalition, Inc.
League of Conservation Voters
Natural Resources Defense Council
New York League of Conservation Voters
New York Public Interest Research Group (NYPIRG)
New York Sustainable Business Council
NYS American Academy of Pediatrics
Oregon Environmental Council
Safer Chemicals Healthy Families
Savvy Women's Alliance
Science and Environmental Health Network
Second Look
Toxic-Free Future
Toxics Action Center
U.S. PIRG
Union of Concerned Scientists
Vermont Public Interest Research Group (VPIRG)
WE ACT for Environmental Justice
Women for a Healthy Environment

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Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/10/2019 5:52:25 PM
To: Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]
Subject: RE: asbestos press release
Attachments: Asbestos SNUR Press Release 4 10 19_AD LS RC.docx

Importance: High

See attached.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
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U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Winchester, Erik
Sent: Wednesday, April 10, 2019 1:21 PM
To: Carmichael, Lea <Carmichael.Lea@epa.gov>
Cc: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Subject: RE: asbestos press release

Add/change to my edits & comments, thx

From: Winchester, Erik
Sent: Wednesday, April 10, 2019 1:16 PM
To: Carmichael, Lea <carmichael.lea@epa.gov>
Cc: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Subject: RE: asbestos press release

Robert/lea I'll send you edits/comments and you can review/add.

From: Strauss, Linda
Sent: Wednesday, April 10, 2019 1:03 PM
To: Winchester, Erik <Winchester.Erik@epa.gov>
Cc: Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Subject: RE: asbestos press release

Sorry, here.

From: Winchester, Erik
Sent: Wednesday, April 10, 2019 1:02 PM
To: Strauss, Linda <Strauss.Linda@epa.gov>
Cc: Courtnage, Robert <Courtnage.Robert@EPA.GOV>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Pierce, Alison

<Pierce.Alison@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>
Subject: Re: asbestos press release

Is there supposed to be an Attachment?

Sent from my iPhone

On Apr 10, 2019, at 12:59 PM, Strauss, Linda <Strauss.Linda@epa.gov> wrote:

> Any show-stoppers?

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 8/22/2018 8:10:06 PM
To: Winchester, Erik [Winchester.Erik@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]
Subject: RE: Proposed Asbestos SNUR Comments Overview OCSPP Brief 20180822.docx
Attachments: Proposed Asbestos SNUR Comments Overview OCSPP Brief 20180822 RC.docx

Just a few tweaks. I assume they will want it downstairs soon?

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Winchester, Erik
Sent: Wednesday, August 22, 2018 1:48 PM
To: Carmichael, Lea <Carmichael.Lea@epa.gov>; Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Subject: RE: Proposed Asbestos SNUR Comments Overview OCSPP Brief 20180822.docx

This is fine for now Lea unless Robert disagrees. Thx!

From: Carmichael, Lea
Sent: Wednesday, August 22, 2018 12:14 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>
Subject: Proposed Asbestos SNUR Comments Overview OCSPP Brief 20180822.docx

Robert,

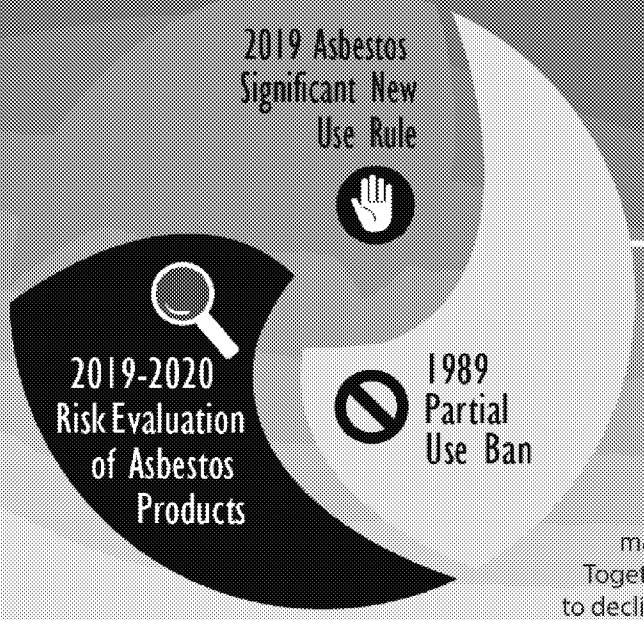
I am running out of time to add the parentheses for each commenter/topic. I don't want to hold this up.

Lea

EPA Actions to Protect the Public from the Health Impacts of Asbestos

The use of asbestos has dramatically declined since its peak in the 1970s. Today, there are few remaining asbestos products and asbestos is no longer mined in the United States.

There are three key actions that EPA has taken or is actively working on that address asbestos-containing products.



1989 Partial Use Ban

An EPA rule under the Toxic Substances Control Act banned the manufacture, import, processing and distribution of five broad categories of asbestos-containing products and any new products used for the first time after August 1989. These categories include: asbestos-containing flooring felt, rollboard, and commercial, corrugated, and specialty papers.

2019 Asbestos Significant New Use Rule

The final rule prohibits unregulated asbestos products from being reintroduced into the United States marketplace without EPA's review and evaluation.

2019-2020 Risk Evaluation of Asbestos Products

This process is required by law to evaluate whether current asbestos products present an unreasonable risk of injury to health or the environment. This process must be completed before EPA is able to restrict or ban any of those products.

EPA also has a wide range of guidance and tools at available online to help homeowners, schools, building managers, and remediation professionals safely manage, clean-up and dispose of asbestos-containing products. Together EPA's actions are ensuring public health is protected as the use of asbestos in the United States continues to decline.

EPA

www.epa.gov/asbestos

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 8/22/2018 2:36:05 PM
To: Carmichael, Lea [carmichael.lea@epa.gov]
Subject: FW: Please print 5 of these.
Attachments: Proposed Asbestos SNUR Comments Overview.docx

Thanks!

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Courtnage, Robert
Sent: Wednesday, August 22, 2018 9:20 AM
To: Coleman, Todd <coleman.todd@epa.gov>
Subject: Please print 5 of these.

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 4/11/2019 6:52:25 PM
To: Kaczmarek, Chris [Kaczmarek.Chris@epa.gov]
CC: Fisher, Bethany [fisher.bethany@epa.gov]; Anderson, Steve [Anderson.Steve@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Altieri, Sonia [Altieri.Sonia@epa.gov]; 'Pierce, Alison' [Pierce.Alison@epa.gov]; Drinkard, Andrea [Drinkard.Andrea@epa.gov]; Blair, Susanna [Blair.Susanna@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]
Subject: RE: Asbestos SNUR Infographic
Attachments: Asbestos Infographic Horizontal Layout_4.11.2019_v2-01.png; Asbestos Infographic 4-11-19.docx

Importance: High

Hi Chris- Please find attached for your review the draft SNUR infographic that alluded to this am. I've attached the image along with a Word Doc with just the text for ease of review, but I do think it is important to see it in the context of the infographic.

We've been asked to have this back to the AA COB so we have a quick turnaround. I appreciate your attention to this one. I will be running this concurrently through review with my managers at the division level but it would be great to get your input/concurrence on the legal end for OPPT IO review before routing to the OCSPP IO.

Also, I was in Richmond earlier but back in the office now and the rest of the afternoon. Let me know if you have any questions and feel free to call me to discuss as well.

Thanks so much!

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Courtnage, Robert
Sent: Thursday, April 11, 2019 9:07 AM
To: Kaczmarek, Chris <Kaczmarek.Chris@epa.gov>
Cc: Fisher, Bethany <fisher.bethany@epa.gov>; Anderson, Steve <Anderson.Steve@epa.gov>; Winchester, Erik <Winchester.Erik@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>; Altieri, Sonia <Altieri.Sonia@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Drinkard, Andrea <Drinkard.Andrea@epa.gov>; Blair, Susanna <Blair.Susanna@epa.gov>; Strauss, Linda <Strauss.Linda@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: Asbestos SNUR Infographic
Importance: High

Chris- I know Steve is out today and tomorrow. As such, we will need you or someone in OGC to review text that we are working directly with the OCSPP IO and the Administrator's Office on. Steve provided comment on previous iterations but we're updating the text based on OPA feedback/collaboration but it is important to have a legal eye for any flags. The text will be in plain language, at least that is the intent, as the purpose of the infographic is to communicate the action and how it relates to the risk evaluation and what remains of the 1989 ban in simple terms to the general public. The idea is that these two actions (SNUR, risk evaluation) and the remaining partial ban cover the universe of uses—

either it's banned or will go through EPA review. We'll soon be sharing that text. I appreciate your attention to this and I value your feedback.

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 8/24/2018 9:32:51 PM
To: Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]
Subject: FW: New Congressional on Asbestos
Attachments: 18-001-0207.pdf; Tester.asbestos.RC 8-24-18.docx

Note there is a singular "is" that needs to be changed to "are" in the last paragraph or "we" can be changed to "EPA."

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Courtnage, Robert
Sent: Friday, August 24, 2018 5:28 PM
To: Winchester, Erik <Winchester.Erik@epa.gov>; Carmichael, Lea <carmichael.lea@epa.gov>
Cc: Symmes, Brian <Symmes.Brian@epa.gov>; Groeneveld, Thomas <Groeneveld.Thomas@epa.gov>
Subject: FW: New Congressional on Asbestos

Here is a first draft for comment. We can throw it up on Sharepoint if you want. Note, I was silent on the comment period extension part. This came in a month and a half ago.

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
202.740.2993 (Mobile)

From: Ortiz, Julia
Sent: Friday, August 24, 2018 3:29 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Scheifele, Hans <Scheifele.Hans@epa.gov>
Subject: New Congressional on Asbestos

Hi all,

Please see the attached for an incoming Congressional on the SNUR and a template for our response. I'm hoping this will start trickling out. Since we have so much content for this topic, do you think I could get a draft by COB Wednesday? We're under a lot of pressure to turn ALs around faster. Thank you for your help!

Julia Q. Ortiz
U.S. Environmental Protection Agency
Office of Pollution Prevention and Toxics
202-564-1931 (o)
202-494-4849 (c)

JON TESTER
MONTANA

COMMITTEES:
APPROPRIATIONS
BANKING
COMMERCE
INDIAN AFFAIRS
VETERANS' AFFAIRS

United States Senate

SENATE HART BUILDING
SUITE 311
WASHINGTON, DC 20510
202-224-2644

INTERNET:
tester.senate.gov/contact

July 10, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave NW
Washington, D.C. 20460

Dear Acting Administrator Wheeler,

I write to express my deep concern about recent reports that the Environmental Protection Agency is enacting a Significant New Use Rule to relax asbestos regulations.

This new rule would allow the EPA to evaluate asbestos use on a case-by-case basis, opening the door to very subjective risk assessment of a known carcinogen. Knowingly allowing a deadly chemical into American homes and businesses is irresponsible, and will hurt children and families.

I have heard from Montanans, and they are concerned that this potential new rule could allow products containing asbestos into their towns. This threat hits especially close to home for many Montanans, because asbestos in the Libby vermiculite mines killed more than four hundred residents. This tragedy should serve as a loud reminder that asbestos is toxic, and its use should not be tolerated.

I urge you to reconsider the implementation of the Significant New Use Rule, and that you extend the public comment period 45 days. Folks deserve a good chance to make their voice heard, especially in regard to an important public health issue.

Sincerely,

Jon Tester

BOZEMAN (406) 586-4450 | BUTTE (406) 723-3277 | GLENDIVE (406) 365-2391 | GREAT FALLS (406) 452-9585 | HELENA (406) 449-5401 | KALISPELL (406) 257-3360
BILLINGS (406) 252-0550 | MISSOULA (406) 728-3003

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 8/21/2018 9:11:59 PM
To: Mottley, Tanya [Mottley.Tanya@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]
CC: Carmichael, Lea [carmichael.lea@epa.gov]; Groeneveld, Thomas [Groeneveld.Thomas@epa.gov]
Subject: Draft Summary for SNUR Pre-Meet
Attachments: Proposed Asbestos SNUR Comments Overview.docx

Importance: High

Tanya- As of this afternoon, there were still over 2,000 comments of the nearly 6,000 yet to be transferred over to regulations.gov. We haven't been able to assess the comments that haven't yet transferred over yet (with some noted exceptions in the summary—I am not sure how Lea, who is out today got those noted comments—I got ADAO's comments directly). It's very possible the comments will all be transferred over to regulations.gov before we meet with the DAA's Thursday afternoon and we'll add to the comment summary as they come in.

Attached is a high level summary of the comments reviewed that we can either hand to and/ or speak from when we meet with Jeff tomorrow at 9:30. We could just use the first page of the summary for our pre-brief.

Once we get Jeff's feedback on approach we can refine and add to the summary as more, if not all, of the comments transfer over.

-Robert

Robert T. Courtnage
Associate Chief
Fibers and Organics Branch
National Program Chemicals Division
Office of Pollution Prevention and Toxics/OCSPP
U.S. Environmental Protection Agency
202.566.1081 (Desk)
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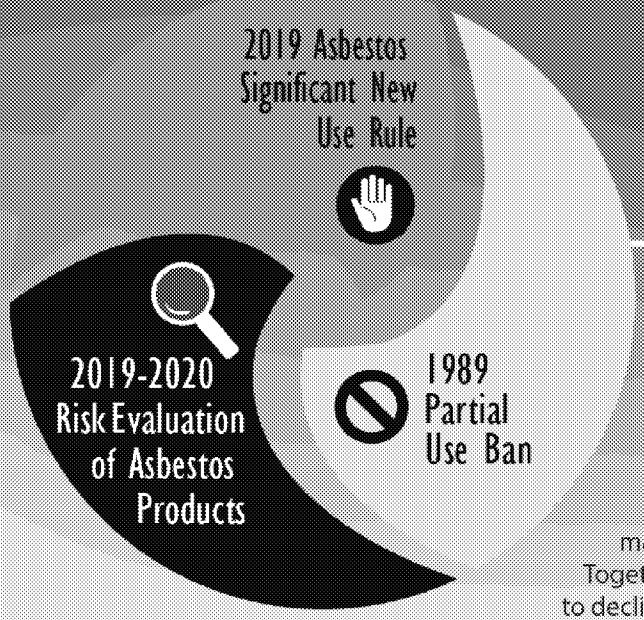
The use of asbestos has dramatically declined since its peak in the 1970s. Today, there are few remaining asbestos products and asbestos is no longer mined in the United States.

There are three key actions that EPA has taken or is actively working on that address asbestos-containing products.



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This process is required by law to evaluate whether current asbestos products present an unreasonable risk of injury to health or the environment. This process must be completed before EPA is able to restrict or ban any of those products.

EPA also has a wide range of guidance and tools at available online to help homeowners, schools, building managers, and remediation professionals safely manage, clean-up and dispose of asbestos-containing products. Together EPA's actions are ensuring public health is protected as the use of asbestos in the United States continues to decline.

EPA

www.epa.gov/asbestos

Message

From: Courtnage, Robert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0178328A90B644929CC8981CF34F5FAD-RCOURTNA]
Sent: 8/29/2018 4:34:52 PM
To: Symmes, Brian [Symmes.Brian@epa.gov]
CC: Winchester, Erik [Winchester.Erik@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]
Subject: Tester Congressional on Asbestos
Attachments: 18-001-0207.pdf; Tester.asbestos. 8-29-18.docx

Importance: High

Brian-

Erik looked at this draft response and provided edits. It's now ready for you to look at and edit as necessary. Julia asked for us to get this to her COB today. Thanks.

-Robert

From: Ortiz, Julia
Sent: Friday, August 24, 2018 3:29 PM
To: Courtnage, Robert <Courtnage.Robert@EPA.GOV>
Cc: Winchester, Erik <Winchester.Erik@epa.gov>; Carmichael, Lea <Carmichael.Lea@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>; Scheifele, Hans <Scheifele.Hans@epa.gov>
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Julia Q. Ortiz
U.S. Environmental Protection Agency
Office of Pollution Prevention and Toxics
202-564-1931 (o)
202-494-4849 (c)

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Jon Tester

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BILLINGS (406) 252-0550 | MISSOULA (406) 728-3003

Appointment

From: Morris, Jeff [Morris.Jeff@epa.gov]
Sent: 2/7/2019 7:24:13 PM
To: Morris, Jeff [Morris.Jeff@epa.gov]; Mottley, Tanya [Mottley.Tanya@epa.gov]; Price, Michelle [Price.Michelle@epa.gov]; Winchester, Erik [Winchester.Erik@epa.gov]; Shannon, Julie [Shannon.Julie@EPA.GOV]; Pierce, Alison [Pierce.Alison@epa.gov]; Symmes, Brian [Symmes.Brian@epa.gov]; Courtnage, Robert [Courtnage.Robert@EPA.GOV]; Hartman, Mark [Hartman.Mark@epa.gov]; Henry, Tala [Henry.Tala@epa.gov]
CC: Cantor, Doreen [Cantor.Doreen@epa.gov]; Tierney, Meghan [Tierney.Meghan@epa.gov]; Edmonds, Marc [Edmonds.Marc@epa.gov]

Subject: NPCD Managers Monthly General.
Attachments: 2019-03-25_NPCD General_FINAL.docx
Location: DCRoomEast3371A/DC-EPA-EAST-OCSPP-OPPT

Start: 3/25/2019 2:00:00 PM
End: 3/25/2019 3:00:00 PM
Show Time As: Busy

Recurrence: Weekly
every Thursday from 1:00 PM to 2:00 PM
Required Attendees: Mottley, Tanya; Price, Michelle; Winchester, Erik; Shannon, Julie; Pierce, Alison; Symmes, Brian (Symmes.Brian@epa.gov); Courtnage, Robert; Mark Hartman (Hartman.Mark@epa.gov); Henry, Tala
Optional Attendees: Cantor, Doreen; Tierney, Meghan; Edmonds, Marc

Revised agenda added 3/22/19. Please use this version

Please provide action item and agenda prior to the meeting date.

2019-03-25_NPCD General_FINAL....

Message

From: Miles, James [miles.james@epa.gov]
Sent: 12/4/2018 4:56:24 PM
To: Presler, Amos [presler.amos@epa.gov]; Seltzer, Mark [Seltzer.Mark@epa.gov]; Garvey, Mark [Garvey.Mark@epa.gov]
CC: Saenz, Diana [Saenz.Diana@epa.gov]; Werner, Jacqueline [Werner.Jacqueline@epa.gov]
Subject: FW: Requesting OECA's Views on E-Commerce Issue
Attachments: Asbestos SNUR Options for Final Rule.docx

Importance: High

Amos – can we talk about this at the CRREB General? I'm hopeful our experience with this on the formaldehyde rule will pay dividends in this context.

From: Sullivan, Greg
Sent: Tuesday, December 04, 2018 10:49 AM
To: Saenz, Diana <Saenz.Diana@epa.gov>; Miles, James <miles.james@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>
Subject: FW: Requesting OECA's Views on E-Commerce Issue
Importance: High

I think I flipped Tonya's earlier voicemail. I don't recall where Mark was on this. Can we discuss at WCED general today?

From: Mottley, Tanya
Sent: Tuesday, December 04, 2018 10:37 AM
To: Sullivan, Greg <Sullivan.Greg@epa.gov>
Subject: Requesting OECA's Views on E-Commerce Issue
Importance: High

Greg,
I just left you another voicemail message on this issue, but wanted to also follow-up via email. As I explained in my message, my staff has been working with Mark Garvey of your staff on the issue of ecommerce and how it relates to the formaldehyde rule. We'd like to add a new FAQ to the website to explain how we'll handle ecommerce entities. Attached is a background paper I'm using to brief up here. I'd appreciate you looking this over and letting me know the extent to which this FAQ has been briefed up in your office and your leadership is on board with this approach.

I was hoping to hear back from you this week so I can inform my leadership of where OECA's leadership is on this issue. Can you let me know where things stand on your end? I'm in the office the rest of today, as well as Thursday and Friday of this week. Thanks.

Tanya

Tanya Hodge Mottley, Director
National Program Chemicals Division
Office of Pollution Prevention and Toxics, OCSPP
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW (MC 7404T)
Washington, DC 20460
PH: (202) 564-3152

Message

From: Goldstein, Jessica [goldstein.jessica@epa.gov]
Sent: 11/14/2018 7:02:55 PM
To: Presler, Amos [presler.amos@epa.gov]
CC: Seltzer, Mark [Seltzer.Mark@epa.gov]; Gardner, Geraldine [Gardner.Geraldine@epa.gov]
Subject: RE: Asbestos section 21 denial draft response
Attachments: Draft email on Section 21 asbestos petition denial 111418.docx

Hi Amos,

Sorry for the multiple emails but here is the updated version with the last sentence in the first paragraph tweaked by my management.

Thanks,
Jess

Jessica B. Goldstein
Attorney-Advisor, Legal Counsel Division
Office of Criminal Enforcement, Forensics & Training
U.S. EPA
1200 Pennsylvania Ave. N.W.
WJC South Room 1202F (Mail Code: 2232A)
Washington, D.C. 20004
202-564-1493 (phone)
202-501-0579 (fax)

From: Goldstein, Jessica
Sent: Wednesday, November 14, 2018 1:23 PM
To: Presler, Amos <presler.amos@epa.gov>
Cc: Seltzer, Mark <Seltzer.Mark@epa.gov>; Gardner, Geraldine <Gardner.Geraldine@epa.gov>
Subject: Asbestos section 21 denial draft response

Hi Amos,

I've attached a draft response that Mark, Geraldine and I worked on. They are both out of the office today and asked me to pass this along to you for your review. I am also sending it to my management for review. I am planning on sending the email tomorrow.

I am around today if you would like to discuss it and look forward to your comments.

Thanks,
Jess

Jessica B. Goldstein
Attorney-Advisor, Legal Counsel Division
Office of Criminal Enforcement, Forensics & Training
U.S. EPA
1200 Pennsylvania Ave. N.W.
WJC South Room 1202F (Mail Code: 2232A)

Washington, D.C. 20004
202-564-1493 (phone)
202-501-0579 (fax)

Message

From: Goldstein, Jessica [goldstein.jessica@epa.gov]
Sent: 8/14/2018 2:58:02 PM
To: Seltzer, Mark [Seltzer.Mark@epa.gov]
Subject: comments
Attachments: Comment (2).pdf

This was the most substantive comment I found looking through the docket quickly.

Jess

Jessica B. Goldstein
Attorney-Advisor, Legal Counsel Division
Office of Criminal Enforcement, Forensics & Training
U.S. EPA
1200 Pennsylvania Ave. N.W.
WJC South Room 1202F (Mail Code: 2232A)
Washington, D.C. 20004
202-564-1493 (phone)
202-501-0579 (fax)

APHA | ENVIRONMENT SECTION

APHA | OCCUPATIONAL HEALTH AND SAFETY SECTION

August 10, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington DC, 20460

RE: Asbestos, Significant New Use Rule
Docket ID #: EPA–HQ–OPPT–2018–0159

Dear Acting Administrator Wheeler:

We write on behalf of the American Public Health Association's (APHA) Occupational Health and Safety (OHS) and Environment (ENV) Sections. APHA is a diverse community of public health professionals who champion the health of all people and communities. APHA's OHS and ENV Sections were established in 1914 and 1911, respectively, and are two of the oldest specialty groups in the association. Our members include epidemiologists, toxicologists, industrial hygienists, healthcare providers, educators, labor representatives and workers, lawyers, and others with expertise in practices and policies to prevent work-related and environment-associated injury, illness, disability, and death. We are writing to provide comments on EPA's proposal for a Significant New Use Rule for asbestos (83 *Federal Register* 26922 (June 11, 2018)).

We strongly oppose any and all new uses of asbestos and any resumption of uses that have been discontinued. In order to protect public health and prevent asbestos-related diseases, the EPA should not encourage, invite, authorize, or approve any new uses of asbestos, the reintroduction of phased-out uses or the import of any products that contain asbestos. In 2009, APHA adopted a policy statement calling for a ban on the manufacture, sale, export, and import of asbestos and asbestos-containing products and to adopt regulations to ensure that asbestos-containing materials (e.g., in homes and buildings) be identified and managed to eliminate exposure and prevent disease.[1]

EPA in 1989 issued a rule under section 6(a) of the Toxic Substances Control Act (TSCA) prohibiting manufacture, importation, processing or distribution in commerce of asbestos in almost all products.[2] However, despite the comprehensive risk analysis supporting the rule,

[1] American Public Health Association. Policy Statement No. 20096: Elimination of Asbestos.
[2] Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions (54 FR 29460, July 12, 1989) (FRL–3476–2).

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the Fifth Circuit Court of Appeals overturned the ban of most of the affected products in 1991 for reasons unrelated to the dangers of asbestos. [1] The asbestos court decision became a poster child for the TSCA's failings and led Congress to strengthen the law significantly in 2016.

These amendments to TSCA provide the best opportunity in decades to address the significant cancer and non-cancer risk for individuals exposed to asbestos. We urge EPA to use its full authority under the law to ban asbestos based on a complete evaluation of the risks of current and former products and exposures. We disagree with any policy that allows the continued manufacturing, importing, or processing of bulk asbestos or asbestos-containing materials. We have been concerned that EPA has omitted important exposure pathways and endpoints from its risk evaluation and have expressed these concerns in comments to EPA, including those on asbestos.

There is overwhelming consensus in the scientific community that there is no safe level of exposure to asbestos.[2,3,4,5] Specifically, asbestos causes mesothelioma and cancer of the lung, larynx, and ovary. Exposure to asbestos is also strongly associated with cancer of the pharynx, stomach, and colorectum.[3] Moreover, as noted by the World Health Organization:

> Bearing in mind that there is no evidence for a threshold for the carcinogenic effect of asbestos, including chrysotile, and that increased cancer risks have been observed in populations exposed to very low levels, the most efficient way to eliminate asbestos-related diseases is to stop using all types of asbestos.[5]

Thirty years ago, EPA's comprehensive risk analysis on asbestos established the foundation for the regulation that would have phased-out nearly all use of asbestos. Today, the evidence of adverse health effects from exposure to asbestos is even more robust. There is no safe level of exposure. Asbestos presents an unreasonable risk of injury and all use should be banned permanently. As noted in our previous comments to EPA and in comments from other public health experts, asbestos-containing materials, including those in existing building materials, should be addressed by EPA in its risk evaluation pursuant to the 2016 amendments to TSCA.

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[1] *Corrosion Proof Fittings v. EPA,* 947 F.2d 1201 (5th Cir. 1991).
[2] National Institute for Occupational Safety and Health. (2017) Current Intelligence Bulletin 68. NIOSH Chemical Carcinogen Policy. Cincinnati, OH: U.S. Dept. of Health and Human Services, Centers for Disease Control and Prevention, Publication No. 2017-100.
[3] IARC (2012) IARC Monographs—Arsenic, Metals, Fibres, and Dusts, Volume 100 C. A Reviews of Human Carcinogens. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. International Agency for Research on Cancer, World Health Organization.
[4] Collegium Ramazzini. (2015). The Global Health Dimensions of Asbestos and Asbestos-related Diseases. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5356970/
[5] World Health Organization (2014). Chrysotile Asbestos. http://www.who.int/ipcs/assessment/public_health/chrysotile_asbestos_summary.pdf

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To be clear, EPA's proposal for a Significant New Use Rule (SNUR) for asbestos is not a ban on asbestos but a notification requirement. Upon learning of a new use, EPA may or may not ban or restrict it. Because the hazards of asbestos are serious and well-established, a SNUR is not a suitable or sufficient intervention to address the risk of exposure to asbestos. It is contrary to public health to permit any new uses of asbestos, including the reintroduction of use of asbestos that has been discontinued. Therefore, we strongly urge EPA to address all discontinued uses in its risk evaluation, conclude that they present an unreasonable risk and ban them permanently. If EPA issues a SNUR, it should simply be as a stop-gap measure to make sure that any new use is identified while the EPA rulemaking and follow-up regulatory actions are underway.

In addition to opposing the SNUR, we want to comment on the information contained in EPA's notice. The agency lists eight conditions of use for which the SNUR would not apply. They are listed in the following table:

	Proposed SNUR would not apply to the following uses:	**Substantive Evidence of Current Condition of Use**
a	Raw chrysotile asbestos for chlorine and sodium hydroxide production	Yes
b	Asbestos sheet gaskets for use in titanium dioxide production	Yes
c	Asbestos brake blocks for use in oil field equipment	Yes
d	Aftermarket automotive brakes/linings	**No**
e	Other vehicle friction products	**No**
f	Cement products	**No**
g	Other gaskets and packing	**No**
h	Woven products	**No**

EPA provides evidence of current conditions of use for only three of the eight applications:

a) Raw bulk chrysotile asbestos for chlorine and sodium hydroxide production. Manufacturers in the chloralkali industry, including Olin Corporation and Axiall Corporation, confirm that they import chrysotile asbestos to fabricate diaphragms for use in chlorine and sodium hydroxide production.[6]

[6] See: EPA, Office of Chemical Safety and Pollution Prevention. "Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Asbestos," February 2017, at page 4: "For the 2016 Chemical Data Reporting (CDR) period, two companies reported importing asbestos in 2016. These companies, Axiall

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b) Asbestos sheet gaskets for use in titanium dioxide production.
Chemours and Branham Corporation reported to EPA on their production and use of asbestos gaskets in the manufacture of titanium dioxide.[7]

c) Asbestos brake blocks in oil field equipment.
American Friction met with EPA to provide information on their import and distribution of asbestos brake blocks for use in draw-works for the oil industry.[8]

For five of the eight uses, EPA provides NO substantive evidence of current use. The agency acknowledges the lack of evidence it the "Economic Analysis for the Proposed Significant New Use Rule for Asbestos":

> "EPA has not identified any firm manufacturing, importing, or processing asbestos (including as part of an article) for the uses listed above."[9]

EPA indicates its reason for including the five is consultation with USGS.

> "USGS believes that the asbestos-containing products that continue to be imported include ...asbestos brake linings, knitted fabrics (woven products), asbestos rubber sheets (i.e., sheet gaskets) and potentially asbestos cement."[9] [emphasis added]

As noted by EPA, all new uses of asbestos, including reintroduction of asbestos and asbestos-containing materials that have discontinued, will significantly increase the volume of manufacturing, importing, and processing of asbestos. New uses of asbestos will increase the public's risk of developing asbestos-related diseases.[10]
We agree with EPA that even when asbestos is contained in a product or article, it has the potential to become friable.[11] Recognizing the potential friability of asbestos, we oppose any and all new uses of asbestos and believe EPA should determine that any use of asbestos presents an unreasonable risk of injury and should be banned. Mining of asbestos in the US, which is now permitted, should be banned as well.

We urge EPA to require exporters of asbestos-containing articles to comply with TSCA Section 12(b) and the regulations at 40 CFR Part 707, Subpart D. We disagree with EPA's proposal to exempt exporters of asbestos-containing articles from TSCA's export notification requirements. As EPA acknowledges in the proposed SNUR:

Corporation and Olin Corporation, belong to the chloralkali industry." (Available at: EPA-HQ-OPPT-2016-0736-0005)
[7] See EPA memorandum on a March 30, 2017 meeting with representatives of the American Chemistry Council, Chemours, and Branham Corporation concerning the use of asbestos gaskets. (Available at: EPA-HQ-OPPT-2016-0736-0119)
[8] See EPA memorandum on an October 20, 2017 teleconference with American Friction. (Available at: EPA-HQ-OPPT-2016-0736-0118)
[9] EPA. Economic Analysis for the Proposed SNUR for Asbestos. May 2018.
[10] 83 *Federal Register* 26927 (June 11, 2018).
[11] 83 *Federal Register* 26925 (June 11, 2018).

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> "During use and over time, non-friable asbestos has the potential to become friable. ...Testing has shown that non-friable asbestos-containing material can become friable during use such as cutting, crumbling, and tearing, and as a result of such use, asbestos fibers can be released into the air."[12]

Give the significant cancer risk associated with exposure to asbestos, it is appropriate and necessary for the agency to require exporters of asbestos-containing articles to comply with TSCA Section 12(b) and the regulations at 40 CFR Part 707, Subpart D. EPA provides no explanation or justification for exempting exporters from the requirements of 40 CFR Part 707, Subpart D.

The U.S. Census Bureau reports that 47 tons of asbestos minerals were exported in 2012; 27 tons in 2013; 279 tons in 2014; 517 tons in 2015; and 980 tons in 2016.[13] Receiving countries and their citizens must be informed by the U.S. government that asbestos-containing materials are entering their nation.

On behalf of the American Public Health Association's (APHA) Occupational Health and Safety (OHS) Section we reiterate that the 2016 amendments to TSCA provide the best opportunity in decades to address the significant cancer risk for individuals exposed to asbestos. We urge EPA to use its full authority under the law to ban asbestos. We disagree with any policy that allows the continued manufacturing, importing, or processing of bulk asbestos or asbestos-containing materials.

Sincerely,

Homero Harari, ScD
Chair
Occupational Health and Safety Section

Jyotsna Jagai, MS, MPH, PhD
Chair
Environment Section

Mary Miller, RN, MSN
Co-Chair, Policy Committee
Occupational Health and Safety Section

Celeste Monforton, DrPH, MPH
Co-Chair, Policy Committee
Occupational Health and Safety Section
Correspondence: cmonfort@gwu.edu

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[12] RE: Asbestos, Significant New Use Rule, 83 Federal Register 26925
[13] USGS. Mineral Commodity Summaries, 2017.
https://minerals.usgs.gov/minerals/pubs/mcs/2017/mcs2017.pdf

ED_005636_00008357-00005

Message

From: Goldstein, Jessica [goldstein.jessica@epa.gov]
Sent: 8/2/2018 5:56:35 PM
To: Seltzer, Mark [Seltzer.Mark@epa.gov]
Subject: FW: R10 Memos
Attachments: 20180801_Asbestos Significant New Use Rule Region 10 Comments_new.docx; 20180801_Asbestos_Risk_Assessment_Comments_R10_draft.docx

FYI – there are the comments I mentioned that R10 is putting together and trying to get other Regions to sign on re: the asbestos risk evaluation and SNUR.

From: Wroble, Julie
Sent: Thursday, August 02, 2018 11:59 AM
To: Ramseyer, Fred <ramseyer@srcinc.com>; Aubrey Miller (aubreymk@niehs.nih.gov) <aubreymk@niehs.nih.gov>; Barrett, William <Barrett.Williamm@epa.gov>; Berry, David <Berry.David@epa.gov>; Schlieger, Brian <schlieger.brian@epa.gov>; Teichert, Candice <Teichert.Candice@epa.gov>; Gallo, Christopher <Gallo.Christopher@epa.gov>; Cuje, Jace <Cuje.Jace@epa.gov>; Fairchild, Susan <Fairchild.Susan@epa.gov>; follansbee@srcinc.com; Foster, Althea <Foster.Althea@epa.gov>; Foster, Stiven <Foster.Stiven@epa.gov>; Frederick, Tim <Frederick.Tim@epa.gov>; Fritz, Jason <Fritz.Jason@epa.gov>; Gilbert, Edward <Gilbert.Edward@epa.gov>; Voigt, Gregory <Voigt.Gregory@epa.gov>; Gwinn, Maureen <gwinn.maureen@epa.gov>; Januch, Jed <Januch.Jed@epa.gov>; Pritchard, Jeffrey <pritchard.jeffrey@epa.gov>; Goldstein, Jessica <goldstein.jessica@epa.gov>; azd9@cdc.gov; jzw1@cdc.gov; Kelly, Jack (R3 Phila.) <Kelly.Jack@epa.gov>; Kirk, Andrea <Kirk.Andrea@epa.gov>; Gaines, Linda <Gaines.Linda@epa.gov>; Lipson, Gary <Lipson.Gary@epa.gov>; Matzko, Kristine <Matzko.Kristine@epa.gov>; McAteer, Mike <mcateer.mike@epa.gov>; Burgess, Michele <Burgess.Michele@epa.gov>; Milburn, Anna <Milburn.Anna@epa.gov>; mkj5@cdc.gov; Nace, Charles <Nace.Charles@epa.gov>; Mazziotta, Nicholas <mazziotta.nicholas@epa.gov>; Nightingale, Elizabeth <nightingale.elizabeth@epa.gov>; OBrien, Wendy <OBrien.Wendy@epa.gov>; Shaw, Rebekha <rshaw@srcinc.com>; Schaefer, Joe <Schaefer.Joe@epa.gov>; Stralka, Daniel <Stralka.Daniel@epa.gov>; Strickland, Ann <Strickland.Ann@epa.gov>; Szabo, Les <Szabo.Les@epa.gov>; thayer@srcinc.com; Turner, Nardina <Turner.Nardina@epa.gov>; Vu, Chau <Vu.Chau@epa.gov>; Weis, Christopher (NIH/NIEHS) <christopher.weis@nih.gov>; Williams, David (R7) <Williams.Dave@epa.gov>
Subject: R10 Memos

All:
Attached are two sets of comments prepared by Julie Wroble, John Pavitt, and Richard Mednick of Region 10 that are responsive to the attached proposed asbestos rules developed by Headquarters. If you are interested in being on either or both of the lists of EPA employees who provide these comments to HQ, please let us know by no later than August 8, 2018. We would also like to include your title if you are on the comments list(s). Also, please forward to anyone we may have missed. Please let me know if you are planning to submit comments independently. Thank you.
Julie

Asbestos Problem Formulation
https://www.epa.gov/sites/production/files/2018-06/documents/asbestos_problem_formulation_05-31-18.pdf

Asbestos Significant New Use Rule
https://www.federalregister.gov/documents/2018/06/11/2018-12513/asbestos-significant-new-use-rule

Message

From: Seltzer, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=1F81D6FC209B46CC8403097548FC3930-SELTZER, MARK]
Sent: 11/2/2018 2:46:13 PM
To: Miles, James [miles.james@epa.gov]
Subject: Writeup for PARS [Rev 2]
Attachments: Seltzer-PARS Writeup 2018 -FINAL.docx

See you this afternoon. Here is another revision.

Mark Seltzer, Attorney Advisor
Chemical Risk and Reporting Enforcement Branch
Waste and Chemical Enforcement Division
Office of Civil Enforcement
US Environmental Protection Agency
Phone: 202-564-2901

From: Seltzer, Mark
Sent: Friday, November 02, 2018 9:02 AM
To: Miles, James <miles.james@epa.gov>
Subject: Writeup for PARS

Please find attached a writeup on activities during this FY.

I will print two copies for our discussion.

Mark Seltzer, Attorney Advisor
Chemical Risk and Reporting Enforcement Branch
Waste and Chemical Enforcement Division
Office of Civil Enforcement
US Environmental Protection Agency
Phone: 202-564-2901

Message

From: Seltzer, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=1F81D6FC209B46CC8403097548FC3930-SELTZER, MARK]
Sent: 11/2/2018 1:03:17 PM
To: Miles, James [miles.james@epa.gov]
Subject: Writeup for PARS
Attachments: Seltzer-PARS Writeup 2018 -FINAL.docx

Please find attached a writeup on activities during this FY.

I will print two copies for our discussion.

Mark Seltzer, Attorney Advisor
Chemical Risk and Reporting Enforcement Branch
Waste and Chemical Enforcement Division
Office of Civil Enforcement
US Environmental Protection Agency
Phone: 202-564-2901

Message

From: Smith, Peterj [Smith.Peterj@epa.gov]
Sent: 12/12/2018 7:32:52 PM
To: Cybulski, Walter [Cybulski.Walter@epa.gov]; Foster, Stiven [Foster.Stiven@epa.gov]; Gardner, Geraldine [Gardner.Geraldine@epa.gov]; Goldstein, Jessica [goldstein.jessica@epa.gov]; Seltzer, Mark [Seltzer.Mark@epa.gov]; Gsell, Alyssa [Gsell.Alyssa@epa.gov]; Wilber, Eric [Wilber.Eric@epa.gov]; Kirk, Andrea [Kirk.Andrea@epa.gov]; Libelo, Laurence [Libelo.Laurence@epa.gov]; Peffers, Mel [Peffers.Mel@epa.gov]
CC: OCSPP OPMO RICS [OCSPP_OPMO_RICS@epa.gov]; Layne, Arnold [Layne.Arnold@epa.gov]; Berkley, Bruce [Berkley.Bruce@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]; Tyree, JamesN [tyree.jamesn@epa.gov]; Hanley, Mary [Hanley.Mary@epa.gov]; Keller, Kaitlin [keller.kaitlin@epa.gov]; Morris, Jeff [Morris.Jeff@epa.gov]; Henry, Tala [Henry.Tala@epa.gov]; Hartman, Mark [Hartman.Mark@epa.gov]; Blunck, Christopher [Blunck.Chris@epa.gov]; Pierce, Alison [Pierce.Alison@epa.gov]; Scheifele, Hans [Scheifele.Hans@epa.gov]; Blair, Susanna [Blair.Susanna@epa.gov]; Schmit, Ryan [schmit.ryan@epa.gov]; Lintner, Colby [Lintner.Colby@epa.gov]; Wormell, Lance [Wormell.Lance@epa.gov]; Vendinello, Lynn [Vendinello.Lynn@epa.gov]; Canavan, Sheila [Canavan.Sheila@epa.gov]; Carmichael, Lea [carmichael.lea@epa.gov]; Gorder, Chris [Gorder.Chris@epa.gov]; Hall, Franklyn [Hall.Franklyn@epa.gov]; Kramek, Niva [kramek.niva@epa.gov]; Lloyd, Tyler [Lloyd.Tyler@epa.gov]; Wolf, Joel [Wolf.Joel@epa.gov]; Forbes, Thomas [Forbes.Thomas@epa.gov]; Mojica, Andrea [Mojica.andrea@epa.gov]; Pfahles-Hutchens, Andrea [Pfahles-Hutchens.Andrea@epa.gov]; Scarano, Louis [Scarano.Louis@epa.gov]; Sharkey, Susan [Sharkey.Susan@epa.gov]; Sherlock, Scott [Sherlock.Scott@epa.gov]; Silagi, William [Silagi.William@epa.gov]; Taylor, Jeffrey [Taylor.Jeffrey@epa.gov]; Burden, Susan [Burden.Susan@epa.gov]; Watkins, Stephen [watkins.stephen@epa.gov]; Cogliano, Gerain [Cogliano.Gerain@epa.gov]; Noggle, William [Noggle.William@epa.gov]; Bartlett, Keith [Bartlett.Keith@epa.gov]; Simons, Andrew [Simons.Andrew@epa.gov]; Cole, Joseph E. [cole.josephe@epa.gov]; Grant, Brian [Grant.Brian@epa.gov]; Kaczmarek, Chris [Kaczmarek.Chris@epa.gov]; Corrales, Mark [Corrales.Mark@epa.gov]; Curry, Bridgid [Curry.Bridgid@epa.gov]; Nickerson, William [Nickerson.William@epa.gov]
Subject: RESPONSES DUE 12/14: Final Workgoup Review - Asbestos; TSCA Section 21 Rulemaking Petition; Reasons for Agency Response (Tier 4, SAN 7083)
Attachments: San7083_WG-Closure_TSCA 21_Asbestos-CDR_EPA Response_2018-12-12.docx; San7083_WG-Closure_TSCA 21_Asbestos-CDR_FR Document_2018-12-12.docx; San7083_WG-Closure_TSCA 21_Asbestos-CDR_ActionInfo_2018-12-12.docx; San7083_WG-Closure_TSCA 21_Asbestos-CDR_ActionMemo_2018-12-12.docx

Final comments are due no later than COB, December 14th.

Attached is the petition response team's final review package for the following action:

Asbestos; TSCA Section 21 Petition; Reasons for Agency Response
(Tier 4; SAN 7083)

Who is Representing My Office on OCSPP's Tier 4 Petition Response Team?

The offices participating on the TSCA section 21 petition response team are represented by:

OECA: Geraldine Gardner, Jessica Goldstein, Mark Seltzer
OGC: Alyssa Gsell, Eric Wilbur
OLEM: Stiven Foster, Andrea Kirk, Laurence Libelo
OP: Mel Peffers
ORD: Walter Cybulski

When is My Response Due to OCSPP?

This is **your final opportunity to review these documents and provide comments.** OCSPP is providing a short, final review opportunity to close out this response to a rulemaking petition. Please provide any comments in response to this final review opportunity by COB on **December 14th.**

(Special Note to OCSPP IO Staff: This is also the opportunity for the IO Staff to review these documents and provide comments. If you have any questions, let us know.)

Who Needs to Sign-Off on My Response?

In general, the designated level of management sign-off is your supervisor. This is petition response is not subject to the EPA Action Development Process, so an AA-level sign-off is not expressly required. However, you should follow any applicable sign-off procedures established by your office.

Who Should Receive My Response?

Please direct your responses to Angela Hofmann, and cc: the petition manager (Tyler Lloyd), Peter Smith ("Smith, Peterj" in the Outlook Directory; although I am sure he would be fascinated, please don't sent your response to PeterL Smith out in Ann Arbor!), and anyone in your office who should receive a copy. If your response is misdirected, we may not receive it in time to address any comments before moving to the next step in the process.

What Is Included in this Workgroup Closure Package?

The workgroup closure package for this action consists of the following draft documents:

- **Draft Response Letter to Petitioner**
- **Draft Federal Register Document (reasons for petition denial)**
- **Draft Action Memorandum**
- **Draft Action Information Form**

What Happens Next?

OCSPP will make any appropriate revisions and prepare this petition response and related Federal Register document that sets forth the Agency's reasons for denying the petition, and present them for signature. After signature, OCSPP will promptly send the Agency's response to the petitioners and submit, via the Office of Policy, the signed Federal Register document to the Office of the Federal Register for publication. Pursuant to TSCA section 21(b)(4), with 60 days of the Agency's denial of the petition, the petitioner may commence a civil action in a district court of the United States to compel the Agency to initiate a rulemaking proceeding as requested in the petition.

Questions?

Please contact me at 564-0262 or the petition manager, Tyler Lloyd, at 566-4016.

****

NOTICE: *If this electronic communication explains, justifies, or documents an official action or decision, it may be subject to federal records requirements. Federal employees should evaluate the contents of this message before deleting it.*

****

Peter J. Smith | U.S. EPA | Office of Chemical Safety and Pollution Prevention

1200 Pennsylvania Ave., NW | Washington, DC 20460 | phone 202/564-0262 | email smith.peterj@epa.gov

Message

From: Andrew Goldberg [andrew@agoragov.com]
Sent: 9/5/2018 4:29:44 PM
To: Wheeler, Andrew [wheeler.andrew@epa.gov]
CC: Wooden-Aguilar, Helena [Wooden-Aguilar.Helena@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; 'Christina Mason' [christina@agoragov.com]
Subject: Letter to Acting Administrator Wheeler re: Asbestos SNUR
Attachments: Letter to Andrew Wheeler 9 5 18.FINAL.pdf

Dear Administrator Wheeler:

Attached please find a letter signed by more than 240 companies and associations in the building industry urging the EPA to rescind its recent SNUR on asbestos.

If you have any questions, please feel free to have your staff contact me.

Sincerely,

Andrew Goldberg
Principal
Agora

1032 15th Street, NW, Suite 302
Washington, DC 20005
andrew@agoragov.com
(202) 321-1877
www.agoragov.com

September 5, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Wheeler:

We, the undersigned companies and organizations representing thousands of design and construction industry professionals, urge you to rescind the Agency's recent Significant New Use Rule (SNUR) that could pave the way for increased use of asbestos in our nation's buildings.

The design and construction industry works every day to create spaces that are safe, vibrant and sustainable. We recognize the dangers that toxic substances used in the manufacture of building materials pose to the public, and we are committed to reducing exposure to toxic chemicals through greater transparency and identifying safer alternative materials.

The dangers of asbestos are well-known. The federal government has classified asbestos as a known human carcinogen, and it has been banned by more than 50 countries. According to the Asbestos Disease Awareness Organization, nearly 40,000 people die each year for causes related to asbestos, including asbestosis, lung cancer and mesothelioma.

Although recently enacted reforms to the Toxic Substances Control Act (TSCA) authorize the EPA to re-evaluate the safety of various chemicals, we are deeply concerned that the methodology that EPA is using neglects to consider the well-known risks of asbestos to both those who work directly with the material and those who come into contact with it. Worse, EPA is ignoring the impacts of asbestos on the broader environment, despite the considerable data demonstrating its threats to the public when its particles become airborne.

The Agency's rule places many of our fellow workers in the construction trades at risk of greater exposure to asbestos. According to the National Institutes of Health, "It has been estimated that approximately 1.3 million workers in construction and general industry potentially are being exposed to asbestos during maintenance activities or remediation of buildings containing asbestos." The last thing we need to do is create additional danger for these workers by allowing for increased use of asbestos.

It is particularly troubling that the Agency seeks to make asbestos more readily available at a time when the number of asbestos substitutes on the market is on the rise. We should be accelerating research and development into such products instead of turning back the clock to a time when the widespread use of asbestos imperiled the public's health and safety.

For these reasons, we urge the EPA to rescind its Significant New Use Rule and work with the design and construction industry to advance safer and healthier buildings.

Sincerely,

A.Bondi Architects
ABA Studio
Agora
Ahearn & Kwock Architects, Inc.
AIA Chicago
AIA New Orleans
Alvin Dunaisky, AIA, AICP Architect Planner
Alyssa Brook
Andrea Mango, Architect
Anthony Abbate Architect PA
ARCHENTASIS
Architectural Nexus
Architectural Resource Team
Architecture Is Fun, Inc.
Arrowstreet
atelierjones LLC
Ayers Saint Gross
Aztec Architects, LLC
B+AC, LLC
Badger and Associates, Inc.
BAR Architects
Barbara L Hall PE Inc.
Bassetti Architects
BC Architects, Inc.
Bergmeyer
Bestor Architecture
Bill Spaulding, Architect
BKV Group
Bl Makepeace
blue point architecture
BNIM
Bohlin Cywinski Jackson
Bora Architects
Borrero Architecture
jdai Studio
Jeff Oberdorfer FAIA
Joe Snider Consulting
John Friedman Alice Kimm Architects
John Harrison Jones, Architect, AIA
JR Frank Design LLC
Kari Richardson Architect
Katerra
Kipnis Architecture + Planning
Kirksey Architecture
Kittner & Pate Design Associates
KLZAIA
Koning Eizenberg Architecture
Krueck+Sexton Architects
L. E. Martin, AIA Architect
Lake|Flato Architects
Lance Jay Brown, FAIA A + UD
Leddy Maytum Stacy Architects
Levin & Associates
Lighthouse Investments, LLC
livinghomes
Long Green Specs
Lord Aeck Sargent, A Katerra Company
Lyndan, Inc.
M.C. Harry & Associates
Mahlum Architects
Melissa Kite Desigsn
MG2
Michael P Dolce AIA Architect
Michael Singer Studio
Michelle F. Gillette-Murphy, AIA
Miller Dyer Spears
Mithun
Moore Ruble Yudell Architects and Planners

Bright Common
Brooks + Scarpa Architects, Inc.
Browning Day Mullins Dierdorf
Brummitt Energy Associates Inc.
Brush Architects llc
CallisonRTKL
CambridgeSeven
Campbell Coyle Real Estate
CannonDesign
Catherine Lee Doar Design
Celeste Allen Novak Architect
Christner Architects
Christner, Inc.
Chu + Gooding Architects
Civil Design, Inc.
CO Architects
Coalition for a Sustainable Built Environment
Colley Architects, P.C.
Colorspace Architecture & Urban Design
Commonwealth Architects
COOKFOX Architects
Cowart Group Architects
Cuningham Group Architecture, Inc.
Curtis + Ginsberg Architects LLP
D+FORM
Daniel Villa Architect, LLC
David Baker Architects
Davis Partnership Architects
Debra Hakimi
Derek Rubinoff, Architect
Design Team, LLC
Designs for Life llc
Development Management Associates, LLC
DF Swoboda Architecture
DIALOG
Dietz & Company Architects, Inc.
DLB Architect
DLR Group
DOSU studio architecture
Mosaic Architecture
Moseley Architects
MSR Design
Nat Crosby
National Community Renaissance
NBBJ
Northern Enviromental Group
OPN Architects
Opsis Architecture
organicARCHITECT
ORLI+
Overland Partners Architects
PAD designs
Palms Hawaii Architecture
Paul J. Levine, Architect
Payette
PBS/AAD Schooleydesign
Pelli Clarke Pelli Architects
Pepper Construction Group
Perkins Eastman
Perkins+Will
Peter J. Arsenault, Architect
pHdesign
Phi Architects
Pickard Chilton
Placetailor
Plan-it Green
Plant Prefab
Porter Architecture Construction
Pulitzer/Bogard & Associates
Pyatok Architects
Quist Design Works LLC
R+D Architecture
Reiter Collaborative Services
Rice-Stromgren Architects
Rob Walker Architects, LLC
Robert S. Walker Architect
Rocco Ceo AIA
Roslyn Consultants, LLC

Dreyfuss Construction
DSH // architecture
Ecoimpact Consulting
Ellenzweig
Ennead Architects
ESG Architects
Eskew+Dumez+Ripple
EvaDale Trading
EwingCole
EYPAE
Falk Liggett Design
Farr Associates
Felici Labs PLLC
Fithian Architecture
Formation Architecture
Frank Bostrom AIA
Frederick + Frederick Architects
Frederick Fisher & Partners, Architects
Furman + Keil Architects
FXCollaborative Architects LLP
G!LL!S
Gail Flynn Architects
Goody Clancy
Gould Evans
Green Building Center - NJ
Green Leaf Architecture & Specification Support
Gregory John Burke | ARCHITECT, PA
Gwynne Pugh Urban Studio
Hacker Architects
Halliday Architects
Harvard University, School of Public Health
HD Architecture PLLC
Heather Gardner, Architect
HED
Hellmuth + Bicknese Architects
HERA, Inc.
HERNANDEZ-BAUZA, PSC, ARCHITECTS
HGA Architects
HKS
Ross Schonder Sterzinger Cupcheck PC
SD Atelier Architecture, LLC
SERA Architectects
Sevan Design LLC.
SGA Design Group
Sidney L. Delson FAIA Architect
Siegel & Strain Architects
Silverman Trykowski Associates, Inc
Simply Stated Architecture, PC
Smith+ Associates Architects, LLC
SoL Harris/Day Architecture
SPACE Architects + Planners
SRG Partnership, Inc
Stantec Architecture Inc
Steffen+Schwerin Architects, Ltd.
Steven Fichtel Architects
Stirling/Brown Architects, Inc.
STRATAap, Inc.
Stuart Architecture
Studio 401 Architecture, LLC
Studio G Architects
Studio Ma
Sustainable IQ
SWBR
SYNCRO Architecture Studio
Tao + Lee Associates
TDSi - The Design Studio, inc.
Tenant Improvement Management Experts, Inc.
The American Society of Interior Designers
The McIntosh Group, LLC
The Miller Hull Partnership
Thornton Tomasetti
Tyler Mason, AIA
UIC
Viridis Sustainable Building Consultancy LLC
VMDO Architects
Wauters Design Group, LLC
Weber Thompson
West Star Development

HMFH Architects
höffnerdesignstudio
HOK
I & I Design
ICON
Innovative Design
James Archer Architect, AIA
James J. Malanaphy AIA
Jan Hird Pokorny Architects PC
WFA
Whitlock Design Group
Wight & Company
Wilson Architects
WRNS Studio
yoshino architecture
YouthBuild Boston, Inc.
ZGF Architects LLP

Message

From: Hewitt, James [hewitt.james@epa.gov]
Sent: 8/8/2018 9:02:17 PM
To: Abboud, Michael [abboud.michael@epa.gov]; Beach, Christopher [beach.christopher@epa.gov]; Bennett, Tate [Bennett.Tate@epa.gov]; Bodine, Susan [bodine.susan@epa.gov]; Cory, Preston (Katherine) [Cory.Preston@epa.gov]; Falvo, Nicholas [falvo.nicholas@epa.gov]; Frye, Tony (Robert) [frye.robert@epa.gov]; Gordon, Stephen [gordon.stephen@epa.gov]; Grantham, Nancy [Grantham.Nancy@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hanson, Paige (Catherine) [hanson.catherine@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Konkus, John [konkus.john@epa.gov]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Letendre, Daisy [letendre.daisy@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]; Palich, Christian [palich.christian@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]; Rodrick, Christian [rodrick.christian@epa.gov]; Ross, David P [ross.davidp@epa.gov]; Shimmin, Kaitlyn [shimmin.kaitlyn@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Yamada, Richard (Yujiro) [yamada.richard@epa.gov]; Molina, Michael [molina.michael@epa.gov]; Morgan, Ashley [morgan.ashley@epa.gov]; Kundinger, Kelly [kundinger.kelly@epa.gov]; adm15.arwheeler.email [adm15.arwheeler.email@epa.gov]; Block, Molly [block.molly@epa.gov]
Subject: EPA News Highlights 8.8.18
Attachments: EPA News Highlights 8.8.18.docx

EPA News Highlights 8.8.18

ABC News: EPA officials say rule would close the door on asbestos

The Environmental Protection Agency is moving forward on a proposal that would require companies to get EPA approval to manufacture and import asbestos, a move that officials say would "close the door" on uses for asbestos that could resume at any time under the current law. A rule proposed by the EPA says the agency has identified several areas where asbestos is no longer used, such as roofing materials, and would require that any company that wants to manufacture or import asbestos for that purpose has to notify the agency at least 90 days in advance. The uses for asbestos that the rule covers are not illegal. The EPA has banned some uses for asbestos, like spray-on insulation, but a ban on most products that contain asbestos proposed in 1989 was later overturned by a federal appeals court.

The Hill: EPA pushes back on asbestos criticisms

The Trump administration is pushing back against a rash of criticism that new Environmental Protection Agency (EPA) policies could lead to the import or manufacturing of asbestos. The controversy stems from a June 1 proposal that sought to require companies to notify the EPA if they planned to import or manufacture various out-of-date uses of asbestos, like roofing felt and floor tile. It led this week to a firestorm, with news stories, denunciations and well-known figures like Chelsea Clinton and Sen. Brian Schatz (D-Hawaii) charging that the EPA is opening the door to asbestos — something the agency strongly refutes.

CNN: EPA says it's strengthening asbestos regulation, not gutting it

The Environmental Protection Agency says that, contrary to recent reports, it is moving to close a loophole on asbestos, rather than expand the ways the deadly chemical can be used. An agency official pointed to two asbestos-related policy announcements made by the agency this summer -- including a rarely-used process called "significant new use rule," or SNUR -- and said they create "a regulatory backstop where none has existed before." "The SNUR is really a good news story for public health protection," said Nancy Beck, a scientist and the deputy assistant administrator for EPA's chemical program. Critics of the agency's move say it could have done more, including an outright ban on the use and importation of asbestos.

KRDO: EPA hosts forum about contaminated water in Security-Widefield

he Environmental Protection Agency held a forum Tuesday night to discuss the per-fluorinated chemicals (PFC's) contaminating the water in Security-Widefield and Fountain. It's thought the chemicals came from years of firefighting training at Peterson Air Force Base. This is the third forum held by the EPA across the country in recent weeks. The idea is to learn about the impact PFC's are having in affected communities and how the agency can help better address the problem. "What we learn today will be developed into a national action plan which will outline what changes may happen next," said Sarah Bahram, the EPA's director of safe drinking water.

The Daily Caller: EPA Calls Freakout Over Asbestos Rule Fake News
The EPA is pushing back against numerous "inaccurate" media reports claiming the agency is etching out new rules effectively legalizing all forms of asbestos production. Multiple reports suggesting the agency is giving manufacturers the go-ahead with asbestos production appears to be grossly overblown, according to the federal registry. The EPA is tightening regulatory scrutiny on new uses of the chemical, which is heavily restricted but not banned in the U.S. "The press reports on this issue are inaccurate," EPA spokesman James Hewitt told The Daily Caller News Foundation. "Without the proposed Significant New Use Rule (SNUR) EPA would not have a regulatory basis to restrict manufacturing and processing for the new asbestos uses covered by the rule."

The Argus Observer: EPA to oversee state's injection wells program
Idaho's oil and gas industry may soon have a lower-cost option for disposing of production wastewater. On July 30, the Environmental Protection Agency issued its final rule transferring primacy for Idaho's Class II Underground Injection Control (UIC) program to EPA. Idaho formally requested the transfer last year. Until now, Idaho producers have been unable to apply for a permit to inject their wastewater, which typically involves utilizing a well that was drilled for gas and oil production. After the state legislature removed a ban on Class II injection wells in 2013, the Idaho Department of Water Resources failed to receive EPA approval of the state's program for Class II wells. Finally, IDWR asked EPA to assume that regulatory role for Idaho.

National News Highlights 8.8.18

Reuters: U.S. Congressman Collins, son charged with insider trading
Christopher Collins, a Republican U.S. congressman from New York who was one of President Donald Trump's earliest supporters, was criminally charged on Wednesday with taking part in an insider trading scheme involving an Australian biotechnology company on whose board he served. The indictment came as Collins, 68, was seeking a fourth two-year term in November's elections, where Democrats hope to recapture the House of Representatives. "These charges are a reminder that this is a nation of laws, and that everybody stands equal before the bar of justice," U.S. Attorney Geoffrey Berman said at a news conference in Manhattan.

Politico: U.S. sanctions Russia over nerve agent poisoning
The Trump administration will hit Russia with new sanctions over the attempted assassination in Britain of a former Kremlin spy. The State Department made the announcement Wednesday after concluding on Aug. 6 that Russia used a banned nerve agent, Novichok, to try and kill the ex-spy, Sergei Skripal, according to spokeswoman Heather Nauert. Nauert said a U.S. investigation found Moscow had "used chemical or biological weapons in violation of international law or has used lethal chemical or biological weapons against its own nationals." Skripal, a retired Russian military intelligence officer, and his daughter, Yulia Skripal, were found unconscious in the English city of Salisbury on March 4. United Kingdom authorities said the two had been poisoned with a nerve agent that they believed was produced in Russia.

ABC News

EPA officials say rule would close the door on asbestos
https://abcnews.go.com/US/activists-epa-rule-ban-asbestos/story?id=57090547
By Stephanie Ebbs, 8/8/2018

The Environmental Protection Agency is moving forward on a proposal that would require companies to get EPA approval to manufacture and import asbestos, a move that officials say would "close the door" on uses for asbestos that could resume at any time under the current law.

A rule proposed by the EPA says the agency has identified several areas where asbestos is no longer used, such as roofing materials, and would require that any company that wants to manufacture or import asbestos for that purpose has to notify the agency at least 90 days in advance.

The uses for asbestos that the rule covers are not illegal. The EPA has banned some uses for asbestos, like spray-on insulation, but a ban on most products that contain asbestos proposed in 1989 was later overturned by a federal appeals court.

Many companies voluntarily stopped using the products, but Nancy Beck, deputy assistant administrator in the EPA chemical safety office, said without the rule they could start using them again at any time.

"We're really closing the door on those uses that are not happening now, but there's nothing preventing them from starting," Beck told ABC News.

Beck said that even though asbestos is no longer used for things like floor tiles, wrapping pipe, or roofing materials there is nothing to stop companies from resuming using those materials that include asbestos at any time.

"If somebody wanted to start doing it there's nothing preventing them. So we wanted to sort of look at the whole landscape and make sure that if anyone started a use we would be able to evaluate it," she said.

But advocates say the rule still opens the door to give some companies that approval and that the EPA should ban asbestos completely because of the health risks.

Breathing asbestos can increase the risk of lung cancer, according to the Centers for Disease Control, and people who work with asbestos are even more likely to develop lung problems. A campaign by the Environmental Working Group says that between 12,000 and 15,000 Americans die from asbestos-related illnesses every year.

That group also pointed out last month that a Russian company that is one of the world's biggest asbestos producers stamped President Donald Trump's face on its palettes of asbestos and posted on Facebook thanking him and former EPA administrator Scott Pruitt for excluding some uses of asbestos from the agency's risk assessment. Melanie Benesh, legislative attorney for the Environmental Working Group, said the EPA is not considering the impact of exposure to asbestos from old buildings or health effects other than cancer in its analysis under the toxic chemicals law passed in 2016. She said the EPA is behind other developed countries by not banning asbestos and that its a "very big public health concern" if the agency is limiting the scope of its risk evaluation in a way that makes it more likely to find less risk associated with asbestos.

"Asbestos is a carcinogen regardless of whether it's in building material that was installed 40 years ago or whether it's in a newly manufactured product," she said. "Cancer doesn't distinguish between these two uses so when EPA is evaluating asbestos we think they should take a comprehensive look."

On Tuesday, Chelsea Clinton tweeted an article about the EPA proposal in The Architects Newspaper that reported the EPA rule allowed asbestos in construction materials, which EPA spokesman James Hewitt said was inaccurate, commenting that the Trump administration is "making asbestos great again."

Asbestos Disease Awareness Organization President Linda Reinstein tweeted that the proposal was "shocking" and "disgusting" and said it would increase asbestos imports to the U.S.

EPA officials pushed back on this criticism, saying that the chemical law passed in 2016 requires them to go through a risk evaluation process before they completely ban chemicals like asbestos. They said the rule does not encourage asbestos use at all but puts a rigorous review process in place where there previously wasn't any regulation.

"The uses that are covered in the significant new use rule can come to market prior to the SNUR being proposed at any time with no knowledge, no evaluation," Charlotte Bertrand, acting principal assistant administrator in the EPA chemical office told ABC News. "The SNUR prohibits that from happening, it cannot happen, and if somebody did want to go to market they have to notify the EPA and EPA evaluates the use that is being proposed for human health, public health, and environmental risk, and then it enables an opportunity to impose restrictions, prohibit, or limit a use that could happen now."

The full text of the EPA rule proposed on June 1 is available here for public comment until Aug. 10.

The Hill

EPA pushes back on asbestos criticisms
http://thehill.com/policy/energy-environment/400966-epa-pushes-back-on-asbestos-criticisms
By Timothy Cama, 8/8/2018

The Trump administration is pushing back against a rash of criticism that new Environmental Protection Agency (EPA) policies could lead to the import or manufacturing of asbestos.

The controversy stems from a June 1 proposal that sought to require companies to notify the EPA if they planned to import or manufacture various out-of-date uses of asbestos, like roofing felt and floor tile.

It led this week to a firestorm, with news stories, denunciations and well-known figures like Chelsea Clinton and Sen. Brian Schatz (D-Hawaii) charging that the EPA is opening the door to asbestos — something the agency strongly refutes.

The EPA is pushing back with a PR blitz through interviews, social media and a fact sheet.
Nancy Beck, a deputy associate administrator in the EPA's chemical safety office, characterized the proposal, dubbed a significant new use rule (SNUR), as a ban, since the EPA would evaluate the risk before any manufacturing or imports are allowed and stop it if needed.

"By doing the SNUR, if someone wants to start the manufacturing and processing, if we find risk, we can prevent it," said Beck, who worked at the American Chemistry Council, an industry group, before then-EPA head Scott Pruitt hired her last year.

Nonetheless, health advocates are concerned.

While they don't agree with news reports that have characterized the EPA as opening the floodgates to asbestos, they say that the agency's actions aren't as protective as they should be.

Alongside the June 1 proposal, the EPA proposed a list of uses for asbestos that would go through the risk evaluation process, which can lead to total bans. Advocates want the EPA to include the outdated uses in the risk evaluations, so that they could be banned as well — not just subject to the SNUR process that gives the EPA significant discretion.

"It's reasonably foreseen that a longstanding or significant use of a chemical that has been phased out could reenter commerce if there's no legal bar against it," said Liz Hitchcock, acting executive director of Safer Chemicals, Healthy Families, a coalition of groups advocating for stronger chemical regulation.

EPA's proposal to require notifications for reviving outdated uses is a "decent stopgap tool," Hitchcock said, but "it's not the permanent ban that we need to protect public health."

At the root of the issue is a deep distrust by environmentalists, health advocates and the left of the Trump administration's environmental policies. Former EPA head Scott Pruitt repeatedly sought to ease rules for regulated companies, and Andrew Wheeler, his successor, has pledged to continue the agenda.

It's possible past remarks by President Trump also fueled skepticism about the EPA's intentions.

"If we didn't remove incredibly powerful fire retardant asbestos & replace it with junk that doesn't work, the World Trade Center would never have burned down," he tweeted in 2012. In his 1997 book "Art of the Comeback," he speculated that the mob had led efforts to stop its use.

Asbestos is currently not banned by the federal government, although it is almost never used in ways that would expose people to it. Officials have known for decades that asbestos causes illnesses like lung cancer, mesothelioma and asbestosis.

The EPA tried to implement a sweeping ban in 1989 under the Toxic Substances Control Act. But the industry sued and a court overturned most of the ban.

Asbestos then became the poster child for federal inaction on dangerous chemicals, leading to the near-unanimous passage in 2016 of the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which, among other things, sought to make it easier for the EPA to ban known harmful chemicals.

Recent stories in Fast Company and Architects Newspaper claimed that the EPA's SNUR rule effectively approved the use of the carcinogenic mineral in manufacturing and imports.

"Experts who have looked at [the document] have said that in the end, it pretty much gives EPA discretion to do whatever it wants," Bill Walsh, board president of the Healthy Building Network, told Fast Company.

The reports went viral, spurring the commentary from Clinton, Schatz and others.

That's led the EPA to push back with a PR blitz through interviews, social media and a fact sheet.

The agency says what it's doing on asbestos is the most aggressive federal action against the chemical in decades, carrying out Congress's instructions to significantly reduce exposure to it and ban its uses.

"I'm completely confused by the press that thinks that there's something wrong here. But in many ways, this is a very good news story," said Beck.

As for the calls for more aggressive actions against out-of-date applications asbestos such as roofing and pipeline wrap, EPA argues that it doesn't have the authority to regulate legacy uses of chemicals like asbestos before it knows that they are coming back into use.

"If nobody is manufacturing asbestos for building materials, we have no authority to prohibit it," Beck said, as an example.

Environmental and health groups, led largely by the Environmental Defense Fund, have already filed lawsuits against the EPA over two regulations it wrote to implement the 2016 chemical rule, and they're likely to file more.

CNN

EPA says it's strengthening asbestos regulation, not gutting it
https://www.cnn.com/2018/08/08/politics/epa-asbestos-regulation/index.html
By Gregory Wallace and Sara Ganim, 8/8/2018

The Environmental Protection Agency says that, contrary to recent reports, it is moving to close a loophole on asbestos, rather than expand the ways the deadly chemical can be used.

An agency official pointed to two asbestos-related policy announcements made by the agency this summer -- including a rarely-used process called "significant new use rule," or SNUR -- and said they create "a regulatory backstop where none has existed before."

"The SNUR is really a good news story for public health protection," said Nancy Beck, a scientist and the deputy assistant administrator for EPA's chemical program.

Critics of the agency's move say it could have done more, including an outright ban on the use and importation of asbestos.

Beck's comments to CNN followed a series of reports -- including in a business news publication and an architectural trade newspaper -- that the agency was weakening protections on the chemical and was opening up a process for taking applications to use asbestos in more than a dozen ways, such as adhesive, roofing material and floor tile.

While the proposed rule does create that process, Beck pointed out those uses are currently legal -- meaning the regulation actually will restrict the allowable uses of asbestos.

Asbestos occurs naturally, and miners extract its long fibers that have been used to strengthen cement, filter chemicals like chlorine and hold together materials like insulation. Exposure and inhalation is linked to mesothelioma and other cancers. Centers for Disease Control and Prevention data from 2017 shows around 3,000 people die annually of mesothelioma.

EPA regulation of asbestos dates back to a 1970s chemical law and a series of regulations crafted by the agency and other governmental bodies. In 1989, EPA recognized the health hazards and largely banned asbestos, but grandfathered in ways the chemical was still being used at the time. That ban was largely overturned by a federal court. Over the last 30 years, industries -- seeing cancer deaths and the lawsuits that ensued -- largely phased asbestos out of their manufacturing and products.

A 2016 amendment to the 1970s chemical law required the EPA to periodically review chemicals and their hazards, and gave the agency new authority to restrict or ban chemicals. Agency officials then looked at the grandfathered exceptions, determined which are no longer in use and worked to close the loophole, Beck said.

"None of these uses are banned today ... but nothing prevents them from coming back to market," she said, explaining why the EPA took action.

Betsy Southerland, a former EPA scientist who resigned over the Trump administration's leadership of the agency, said the rule was intended to be broader when the bipartisan legislation was crafted during the Obama administration. "The original plan for the asbestos significant new use rule was for the rule to list the known ongoing uses of asbestos and then state that any other use an industry might want to initiate in the future" would require EPA review, she told CNN.

She said an "open ended" approach would better protect people, because "there is no way EPA can claim to know today every possible new use industry might want in the future."

The Environmental Working Group, which supports a full ban on asbestos, said the agency is not performing a strong enough assessment of the chemical's hazards.

"We're very concerned that EPA is taking a lot of shortcuts in that risk evaluation," said Melanie Benesh, a legislative attorney who works on toxic chemical issues at EWG.

"There is lots of asbestos still out in the environment, particularly in older homes and schools," she said, and the agency's assessment processes does not take into account those legacy uses.

KRDO

EPA hosts forum about contaminated water in Security-Widefield

https://www.krdo.com/news/colorado-springs/epa-hosts-forum-about-contaminated-water-in-security-widefield/778758857

By Stephanie Sierra, 8/7/2018

The Environmental Protection Agency held a forum Tuesday night to discuss the per-fluorinated chemicals (PFC's) contaminating the water in Security-Widefield and Fountain.

It's thought the chemicals came from years of firefighting training at Peterson Air Force Base.

This is the third forum held by the EPA across the country in recent weeks. The idea is to learn about the impact PFC's are having in affected communities and how the agency can help better address the problem.

"What we learn today will be developed into a national action plan which will outline what changes may happen next," said Sarah Bahram, the EPA's director of safe drinking water.

"I think we've heard clearly that folks want the EPA to regulate PFC's in drinking water," she said.

Bahram said regulating will require establishing a maximum contaminant limit.

Families from across the state filled the conference room at Hotel Elegante in Colorado Springs.

"I want them to fix whatever they did," said Steve Patterson, who used to live in Security.

Patterson said nearly 20 of his family members who lived in the affected areas now have cancer.

"Everybody in our family that lived in that area ended up with cancer, but everyone who lives outside that area did not," he said.

Unfortunately, Patterson's story is not uncommon. Which is why many people supported the request to regulate a maximum contaminant limit of PFC's in water.

"Water is our life line and once it's polluted ... it's very hard to clean up," said Patience Paisley.

The forum continues Wednesday at 4 p.m. at Hotel Elegante in Colorado Springs.

The Daily Caller

EPA Calls Freakout Over Asbestos Rule Fake News
http://dailycaller.com/2018/08/08/fake-news-epa-asbestos/
By Chris White, 8/8/2018

The EPA is pushing back against numerous “inaccurate” media reports claiming the agency is etching out new rules effectively legalizing all forms of asbestos production.

Multiple reports suggesting the agency is giving manufacturers the go-ahead with asbestos production appears to be grossly overblown, according to the federal registry. The EPA is tightening regulatory scrutiny on new uses of the chemical, which is heavily restricted but not banned in the U.S.

“The press reports on this issue are inaccurate,” EPA spokesman James Hewitt told The Daily Caller News Foundation. “Without the proposed Significant New Use Rule (SNUR) EPA would not have a regulatory basis to restrict manufacturing and processing for the new asbestos uses covered by the rule.”

He was referring to what is called a Significant New Use Rule (or SNUR), a rule forcing manufacturers to notify the EPA if they intend on producing a product with chemicals from asbestos. The industry could produce and use asbestos for any reason save for the SNUR, according to the agency.

Hewitt added: "The EPA action would prohibit companies from manufacturing, importing, or processing for these new uses of asbestos unless they receive approval from EPA." The agency's new administrator, Andrew Wheeler, responded Wednesday with a similar complaint on Twitter.

"There have been some inaccurate media reports regarding @EPA's actions on asbestos," Wheeler tweeted to his followers. "The facts are @EPA is proposing a new rule that would allow for the restriction of asbestos manufacturing and processing of new uses of asbestos."

Online media outlet Fastrack Company reported in a July 31 article that "Trump's EPA has made it easier for companies to begin using asbestos again." The publication's author, Aileen Kwun, went on to highlight what she believes to be a parade of horribles if the agency degrades rules limiting the use of asbestos.

The U.S. restricts the use of the material, but it remains one of few developed nations that has refrained from banning asbestos outright. Activists have long-sought for an outright ban, according to Competitive Enterprise Institute analyst Angela Logomasini.

"A lot of uses of the dangerous types of asbestos were banned," Logomasini told TheDCNF, adding that asbestos containing short-fibers are regularly used to make car brakes and other important products. "The risks of brake failures would be much higher were it not for certain types of asbestos."

She noted that the EPA's SNUR rule make sense considering the considerable risk. "What the EPA is saying is that if you are going to do a new use, you need to come to us to check if it is something that will need tighter restrictions," Logomasini said. "The ones that we use now are very short fibers – doesn't mean they are not dangerous. Just means you can manage their risks easier."

Argus Observer

EPA officials say rule would close the door on asbestos
https://www.argusobserver.com/news/epa-to-oversee-state-s-injection-wells-program/article_2ee8c6f6-9b28-11e8-8719-0bd39f8c1b4d.html
By Rob Ruth, 8/8/2018

Idaho's oil and gas industry may soon have a lower-cost option for disposing of production wastewater.

On July 30, the Environmental Protection Agency issued its final rule transferring primacy for Idaho's Class II Underground Injection Control (UIC) program to EPA. Idaho formally requested the transfer last year.

Until now, Idaho producers have been unable to apply for a permit to inject their wastewater, which typically involves utilizing a well that was drilled for gas and oil production. After the state legislature removed a ban on Class II injection wells in 2013, the Idaho Department of Water Resources failed to receive EPA approval of the state's program for Class II wells. Finally, IDWR asked EPA to assume that regulatory role for Idaho.

According to officials with Idaho's Oil & Gas Conservation Commission (OGCC), Alta Mesa, Idaho's only current producer, has been trucking its wastewater from Payette County to an evaporation facility in Kuna, costing Alta Mesa around $9 per barrel of wastewater.

At a July 18 town hall meeting in Payette hosted by OGCC, Payette County Commissioner Marc Shigeta, a member of the state oil and gas board, said the company still had plans for construction of its own evaporation facility in the local area.

Although EPA's final rule on the Class II UIC program was still unpublished on July 18, Mick Thomas, administrator for the Oil and Gas Division at the Idaho Department of Lands, told the audience that he believed that the transfer of primacy would indeed occur.

In answer to a question, Thomas and other oil and gas officials couldn't hazard a guess as to how quickly EPA would process applications for injection well permits, however.

EPA held a Jan. 8 public hearing in Boise on the proposed rule revision, a hearing the agency scheduled only in response to a formal request. Members of Citizens Allied for Integrity and Accountability (CAIA), a community group concerned with potential negative impacts from oil and gas drilling operations, were among those who raised issues at the hearing and during the public comment period.

With publication of its final rule, EPA reported having received "414 comments from 387 individual commenters,... Of these comments, only a minority were identified as containing material that was determined to be within the scope of the proposed rule revision," the agency stated.

Reuters

U.S. Congressman Collins, son charged with insider trading
https://www.reuters.com/article/us-usa-congressman-insidertrading/u-s-says-new-york-congressman-collins-indicted-for-insider-trading-idUSKBN1KT1NI
By Brendan Pierson, Jonathan Stempel 8/8/2018

Christopher Collins, a Republican U.S. congressman from New York who was one of President Donald Trump's earliest supporters, was criminally charged on Wednesday with taking part in an insider trading scheme involving an Australian biotechnology company on whose board he served.

The indictment came as Collins, 68, was seeking a fourth two-year term in November's elections, where Democrats hope to recapture the House of Representatives.

"These charges are a reminder that this is a nation of laws, and that everybody stands equal before the bar of justice," U.S. Attorney Geoffrey Berman said at a news conference in Manhattan.

Two lawyers for Collins, Jonathan Barr and Jonathan New, said in a statement that they were confident he would be "completely vindicated and exonerated."

The indictment charged Collins, his son Cameron, and Stephen Zarsky, the father of Cameron Collins' fiancée, with securities fraud, wire fraud and other crimes.

"We intend to mount a vigorous defense on behalf of our client," Tom Hanusik and Rebecca Ricigliano, lawyers for Cameron Collins, said in a statement. Amanda Bassen, a lawyer for Zarsky, declined to comment.

All three defendants pleaded not guilty on Wednesday before U.S. District Judge Vernon Broderick in Manhattan, and were expected to be released on bail.

The case relates to Innate Immunotherapeutics Ltd (IIL.AX), where Christopher Collins sat on the board and held a 16.8 percent stake.

Prosecutors said that in June 2017, while attending the congressional picnic at the White House, Collins learned in an email from Innate's chief executive that a trial for its proposed secondary multiple sclerosis drug MIS416 had failed.

According to the indictment, Collins immediately called his son and told him the news. Cameron Collins in turn told his fiancée, her parents and a friend, and Stephen Zarsky went on to tip his brother, his sister and a friend, the indictment said.

Christopher Collins did not trade his own Innate stock, which lost millions of dollars in value, according to the indictment. Prosecutors said the congressman was "virtually precluded" from trading in part because he already faced a congressional ethics probe over Innate.

However, prosecutors said others used the insider information to avoid more than $768,000 in losses when Innate's share price plunged on news of the drug trial's failure.

Sydney-based Innate did not immediately respond to a request for comment outside business hours.

Collins represents New York's solidly Republican 27th Congressional District, and nonpartisan analysts predict he will win re-election. The district includes areas surrounding Buffalo and Rochester.

Last October, the Office of Congressional Ethics reported that it had "substantial reason" to believe Collins may have used his office to help Innate.

It voted unanimously to send its case to the House Ethics Committee. Collins denied wrongdoing.

Politico

U.S. sanctions Russia over nerve agent poisoning
https://www.politico.com/story/2018/08/08/russia-sanctions-trump-nerve-agent-poisoning-767536
By Rebecca Morin, 8/8/2018

The Trump administration will hit Russia with new sanctions over the attempted assassination in Britain of a former Kremlin spy.

The State Department made the announcement Wednesday after concluding on Aug. 6 that Russia used a banned nerve agent, Novichok, to try and kill the ex-spy, Sergei Skripal, according to spokeswoman Heather Nauert.

Nauert said a U.S. investigation found Moscow had "used chemical or biological weapons in violation of international law or has used lethal chemical or biological weapons against its own nationals."

Skripal, a retired Russian military intelligence officer, and his daughter, Yulia Skripal, were found unconscious in the English city of Salisbury on March 4. United Kingdom authorities said the two had been poisoned with a nerve agent that they believed was produced in Russia.

Yulia Skripal was released from the hospital in April after being treated for the nerve agent attack. Her father was discharged in May.

The sanctions are expected to take effect on or around Aug. 22.

A State Department official said the Kremlin was notified on Wednesday afternoon about the sanctions, and U.S. allies have also been notified as well.

The conclusion of the U.S. investigation comes several months after U.K. authorities reached a similar conclusion, accusing the Kremlin in April of breaking an international ban on chemical weapons.

The White House has already expelled 60 Russian diplomats from the U.S. over the poisoning.

Wednesday's announcement come several weeks after President Donald Trump held a one-on-one summit with Russian leader Vladimir Putin. Trump was criticized for now pressing Putin aggressive on several issues, such as election meddling, during a press conference after the meeting.

In the weeks since, the Trump administration has organized a briefing of top national security officials to call out Russia's ongoing attempts to spread disinformation in America and the State Department

Trump himself, however, has remained relatively silent regarding Russia's online trolling and had not commented on Twitter as of late Wednesday afternoon about the latest sanctions targeting Russia.

James Hewitt
Environmental Protection Agency
Press Secretary
(202) 578-6141

EPA News Highlights 8.8.18

[HYPERLINK \l "_ABC_News"]
The Environmental Protection Agency is moving forward on a proposal that would require companies to get EPA approval to manufacture and import asbestos, a move that officials say would "close the door" on uses for asbestos that could resume at any time under the current law. A rule proposed by the EPA says the agency has identified several areas where asbestos is no longer used, such as roofing materials, and would require that any company that wants to manufacture or import asbestos for that purpose has to notify the agency at least 90 days in advance. The uses for asbestos that the rule covers are not illegal. The EPA has banned some uses for asbestos, like spray-on insulation, but a ban on most products that contain asbestos proposed in 1989 was later overturned by a federal appeals court.

[HYPERLINK \l "_The_Hill"]
The Trump administration is pushing back against a rash of criticism that new Environmental Protection Agency (EPA) policies could lead to the import or manufacturing of asbestos. The controversy stems from a June 1 proposal that sought to require companies to notify the EPA if they planned to import or manufacture various out-of-date uses of asbestos, like roofing felt and floor tile. It led this week to a firestorm, with news stories, denunciations and well-known figures like Chelsea Clinton and Sen. Brian Schatz (D-Hawaii) charging that the EPA is opening the door to asbestos — something the agency strongly refutes.

[HYPERLINK \l "_CNN"]
The Environmental Protection Agency says that, contrary to recent reports, it is moving to close a loophole on asbestos, rather than expand the ways the deadly chemical can be used. An agency official pointed to two asbestos-related policy announcements made by the agency this summer -- including a rarely-used process called "significant new use rule," or SNUR -- and said they create "a regulatory backstop where none has existed before." "The SNUR is really a good news story for public health protection," said Nancy Beck, a scientist and the deputy assistant administrator for EPA's chemical program. Critics of the agency's move say it could have done more, including an outright ban on the use and importation of asbestos.

[HYPERLINK \l "_KRDO"]
he Environmental Protection Agency held a forum Tuesday night to discuss the per-fluorinated chemicals (PFC's) contaminating the water in Security-Widefield and Fountain. It's thought the chemicals came from years of firefighting training at Peterson Air Force Base. This is the third forum held by the EPA across the country in recent weeks. The idea is to learn about the impact PFC's are having in affected communities and how the agency can help better address the problem. "What we learn today will be developed into a national action plan which will outline what changes may happen next," said Sarah Bahram, the EPA's director of safe drinking water.

[HYPERLINK \l "_The_Daily_Caller"]
The EPA is pushing back against numerous “inaccurate” media reports claiming the agency is etching out new rules effectively legalizing all forms of asbestos production. Multiple reports suggesting the agency is giving manufacturers the go-ahead with asbestos production appears to be grossly overblown, according to the federal registry. The EPA is tightening regulatory scrutiny on new uses of the chemical, which is heavily restricted but not banned in the U.S.
“The press reports on this issue are inaccurate,” EPA spokesman James Hewitt told The Daily Caller News Foundation. “Without the proposed Significant New Use Rule (SNUR) EPA would not have a regulatory basis to restrict manufacturing and processing for the new asbestos uses covered by the rule.”

[HYPERLINK \l "_Argus_Observer"]
Idaho’s oil and gas industry may soon have a lower-cost option for disposing of production wastewater. On July 30, the Environmental Protection Agency issued its final rule transferring primacy for Idaho’s Class II Underground Injection Control (UIC) program to EPA. Idaho formally requested the transfer last year. Until now, Idaho producers have been unable to apply for a permit to inject their wastewater, which typically involves utilizing a well that was drilled for gas and oil production. After the state legislature removed a ban on Class II injection wells in 2013, the Idaho Department of

Water Resources failed to receive EPA approval of the state's program for Class II wells. Finally, IDWR asked EPA to assume that regulatory role for Idaho.

National News Highlights 8.8.18

[HYPERLINK \l "_Reuters_1"]
Christopher Collins, a Republican U.S. congressman from New York who was one of President Donald Trump's earliest supporters, was criminally charged on Wednesday with taking part in an insider trading scheme involving an Australian biotechnology company on whose board he served. The indictment came as Collins, 68, was seeking a fourth two-year term in November's elections, where Democrats hope to recapture the House of Representatives. "These charges are a reminder that this is a nation of laws, and that everybody stands equal before the bar of justice," U.S. Attorney Geoffrey Berman said at a news conference in Manhattan.

[HYPERLINK \l "_Politico_1"]
The Trump administration will hit Russia with new sanctions over the attempted assassination in Britain of a former Kremlin spy. The State Department made the announcement Wednesday after concluding on Aug. 6 that Russia used a banned nerve agent, Novichok, to try and kill the ex-spy, Sergei Skripal, according to spokeswoman Heather Nauert. Nauert said a U.S. investigation found Moscow had "used chemical or biological weapons in violation of international law or has used lethal chemical or biological weapons against its own nationals." Skripal, a retired Russian military intelligence officer, and his daughter, Yulia Skripal, were found unconscious in the English city of Salisbury on March 4. United Kingdom authorities said the two had been poisoned with a nerve agent that they believed was produced in Russia.

ABC News

EPA officials say rule would close the door on asbestos
[HYPERLINK "https://abcnews.go.com/US/activists-epa-rule-ban-asbestos/story?id=57090547"]
By Stephanie Ebbs, 8/8/2018

The Environmental Protection Agency is moving forward on a proposal that would require companies to get EPA approval to manufacture and import asbestos, a move that officials say would "close the door" on uses for asbestos that could resume at any time under the current law.

A rule proposed by the EPA says the agency has identified several areas where asbestos is no longer used, such as roofing materials, and would require that any company that wants to manufacture or import asbestos for that purpose has to notify the agency at least 90 days in advance.

The uses for asbestos that the rule covers are not illegal. The EPA has banned some uses for asbestos, like spray-on insulation, but a ban on most products that contain asbestos proposed in 1989 was later overturned by a federal appeals court.

Many companies voluntarily stopped using the products, but Nancy Beck, deputy assistant administrator in the EPA chemical safety office, said without the rule they could start using them again at any time.

"We're really closing the door on those uses that are not happening now, but there's nothing preventing them from starting," Beck told ABC News.

Beck said that even though asbestos is no longer used for things like floor tiles, wrapping pipe, or roofing materials there is nothing to stop companies from resuming using those materials that include asbestos at any time.

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"If somebody wanted to start doing it there's nothing preventing them. So we wanted to sort of look at the whole landscape and make sure that if anyone started a use we would be able to evaluate it," she said.

But advocates say the rule still opens the door to give some companies that approval and that the EPA should ban asbestos completely because of the [HYPERLINK "https://abcnews.go.com/alerts/Obamacare" \t "_blank"] risks.

Breathing asbestos can increase the risk of lung cancer, according to the Centers for Disease Control, and people who work with asbestos are even more likely to develop lung problems. A campaign by the Environmental Working Group says that between 12,000 and 15,000 Americans die from asbestos-related illnesses every year.

That group also [HYPERLINK "https://www.ewg.org/release/russian-asbestos-giant-praises-trump-administration-actions-keep-deadly-carcinogen-legal" \l ".W2n8MDpKiUl" \t "_blank"] that a Russian company that is one of the world's biggest asbestos producers stamped President Donald Trump's face on its palettes of asbestos and posted on Facebook thanking him and former EPA administrator Scott Pruitt for excluding some uses of asbestos from the agency's risk assessment. Melanie Benesh, legislative attorney for the Environmental Working Group, said the EPA is not considering the impact of exposure to asbestos from old buildings or health effects other than cancer in its analysis under the toxic chemicals law passed in 2016. She said the EPA is behind other developed countries by not banning asbestos and that its a "very big public health concern" if the agency is limiting the scope of its risk evaluation in a way that makes it more likely to find less risk associated with asbestos.

"Asbestos is a carcinogen regardless of whether it's in building material that was installed 40 years ago or whether it's in a newly manufactured product," she said. "Cancer doesn't distinguish between these two uses so when EPA is evaluating asbestos we think they should take a comprehensive look."

On Tuesday, Chelsea Clinton tweeted an article about the EPA proposal [HYPERLINK "https://archpaper.com/2018/08/epa-asbestos-manufacturing/" \t "_blank"] that reported the EPA rule allowed asbestos in construction materials, which EPA spokesman James Hewitt said was inaccurate, commenting that the Trump administration is "making asbestos great again."

Asbestos Disease Awareness Organization President Linda Reinstein tweeted that the proposal was "shocking" and "disgusting" and said it would increase asbestos imports to the U.S.

EPA officials pushed back on this criticism, saying that the chemical law passed in 2016 requires them to go through a risk evaluation process before they completely ban chemicals like asbestos. They said the rule does not encourage asbestos use at all but puts a rigorous review process in place where there previously wasn't any regulation.

"The uses that are covered in the significant new use rule can come to market prior to the SNUR being proposed at any time with no knowledge, no evaluation," Charlotte Bertrand, acting principal assistant administrator in the EPA chemical office told ABC News. "The SNUR prohibits that from happening, it cannot happen, and if somebody did want to go to market they have to notify the EPA and EPA evaluates the use that is being proposed for human health, public health, and environmental risk, and then it enables an opportunity to impose restrictions, prohibit, or limit a use that could happen now."

The full text of the EPA rule proposed on June 1 [HYPERLINK "https://www.federalregister.gov/documents/2018/06/11/2018-12513/asbestos-significant-new-use-rule" \t "_blank"] for public comment until Aug. 10.

The Hill

EPA pushes back on asbestos criticisms
[HYPERLINK "http://thehill.com/policy/energy-environment/400966-epa-pushes-back-on-asbestos-criticisms"]

By Timothy Cama, 8/8/2018

The Trump administration is pushing back against a rash of criticism that new Environmental Protection Agency (EPA) policies could lead to the import or manufacturing of asbestos.

The controversy stems from a June 1 proposal that sought to require companies to notify the EPA if they planned to import or manufacture various out-of-date uses of asbestos, like roofing felt and floor tile.

It led this week to a firestorm, with news stories, denunciations and well-known figures like Chelsea Clinton and Sen. Brian Schatz (D-Hawaii) charging that the EPA is opening the door to asbestos — something the agency strongly refutes.

The EPA is pushing back with a PR blitz through interviews, social media and a fact sheet.
Nancy Beck, a deputy associate administrator in the EPA's chemical safety office, characterized the proposal, dubbed a significant new use rule (SNUR), as a ban, since the EPA would evaluate the risk before any manufacturing or imports are allowed and stop it if needed.

"By doing the SNUR, if someone wants to start the manufacturing and processing, if we find risk, we can prevent it," said Beck, who worked at the American Chemistry Council, an industry group, before then-EPA head Scott Pruitt hired her last year.

Nonetheless, health advocates are concerned.

While they don't agree with news reports that have characterized the EPA as opening the floodgates to asbestos, they say that the agency's actions aren't as protective as they should be.

Alongside the June 1 proposal, the EPA proposed a list of uses for asbestos that would go through the risk evaluation process, which can lead to total bans. Advocates want the EPA to include the outdated uses in the risk evaluations, so that they could be banned as well — not just subject to the SNUR process that gives the EPA significant discretion.

"It's reasonably foreseen that a longstanding or significant use of a chemical that has been phased out could reenter commerce if there's no legal bar against it," said Liz Hitchcock, acting executive director of Safer Chemicals, Healthy Families, a coalition of groups advocating for stronger chemical regulation.

EPA's proposal to require notifications for reviving outdated uses is a "decent stopgap tool," Hitchcock said, but "it's not the permanent ban that we need to protect public health."

At the root of the issue is a deep distrust by environmentalists, health advocates and the left of the Trump administration's environmental policies. Former EPA head Scott Pruitt repeatedly sought to ease rules for regulated companies, and Andrew Wheeler, his successor, has pledged to continue the agenda.

It's possible past remarks by President Trump also fueled skepticism about the EPA's intentions.

"If we didn't remove incredibly powerful fire retardant asbestos & replace it with junk that doesn't work, the World Trade Center would never have burned down," he tweeted in 2012. In his 1997 book "Art of the Comeback," he speculated that the mob had led efforts to stop its use.

Asbestos is currently not banned by the federal government, although it is almost never used in ways that would expose people to it. Officials have known for decades that asbestos causes illnesses like lung cancer, mesothelioma and asbestosis.

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The EPA tried to implement a sweeping ban in 1989 under the Toxic Substances Control Act. But the industry sued and a court overturned most of the ban.

Asbestos then became the poster child for federal inaction on dangerous chemicals, leading to the near-unanimous passage in 2016 of the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which, among other things, sought to make it easier for the EPA to ban known harmful chemicals.

Recent stories in Fast Company and Architects Newspaper claimed that the EPA's SNUR rule effectively approved the use of the carcinogenic mineral in manufacturing and imports.

"Experts who have looked at [the document] have said that in the end, it pretty much gives EPA discretion to do whatever it wants," Bill Walsh, board president of the Healthy Building Network, told Fast Company.

The reports went viral, spurring the commentary from Clinton, Schatz and others.

That's led the EPA to push back with a PR blitz through interviews, social media and a fact sheet.

The agency says what it's doing on asbestos is the most aggressive federal action against the chemical in decades, carrying out Congress's instructions to significantly reduce exposure to it and ban its uses.

"I'm completely confused by the press that thinks that there's something wrong here. But in many ways, this is a very good news story," said Beck.

As for the calls for more aggressive actions against out-of-date applications asbestos such as roofing and pipeline wrap, EPA argues that it doesn't have the authority to regulate legacy uses of chemicals like asbestos before it knows that they are coming back into use.

"If nobody is manufacturing asbestos for building materials, we have no authority to prohibit it," Beck said, as an example.

Environmental and health groups, led largely by the Environmental Defense Fund, have already filed lawsuits against the EPA over two regulations it wrote to implement the 2016 chemical rule, and they're likely to file more.

CNN

EPA says it's strengthening asbestos regulation, not gutting it
[HYPERLINK "https://www.cnn.com/2018/08/08/politics/epa-asbestos-regulation/index.html"]
By Gregory Wallace and Sara Ganim, 8/8/2018

The Environmental Protection Agency says that, contrary to recent reports, it is moving to close a loophole on asbestos, rather than expand the ways the deadly chemical can be used.

An agency official pointed to two asbestos-related policy announcements made by the agency this summer -- including a rarely-used process called "significant new use rule," or SNUR -- and said they create "a regulatory backstop where none has existed before."

"The SNUR is really a good news story for public health protection," said Nancy Beck, a scientist and the deputy assistant administrator for EPA's chemical program.

Critics of the agency's move say it could have done more, including an outright ban on the use and importation of asbestos.

Beck's comments to CNN followed a series of reports -- including in a business news publication and an architectural trade newspaper -- that the agency was weakening protections on the chemical and was opening up a process for taking applications to use asbestos in more than a dozen ways, such as adhesive, roofing material and floor tile.

While the proposed rule does create that process, Beck pointed out those uses are currently legal -- meaning the regulation actually will restrict the allowable uses of asbestos.

Asbestos occurs naturally, and miners extract its long fibers that have been used to strengthen cement, filter chemicals like chlorine and hold together materials like insulation. Exposure and inhalation is linked to mesothelioma and other cancers. Centers for Disease Control and Prevention data from 2017 shows around 3,000 people die annually of mesothelioma.

EPA regulation of asbestos dates back to a 1970s chemical law and a series of regulations crafted by the agency and other governmental bodies. In 1989, EPA recognized the health hazards and largely banned asbestos, but grandfathered in ways the chemical was still being used at the time. That ban was largely overturned by a federal court. Over the last 30 years, industries -- seeing cancer deaths and the lawsuits that ensued -- largely phased asbestos out of their manufacturing and products.

A 2016 amendment to the 1970s chemical law required the EPA to periodically review chemicals and their hazards, and gave the agency new authority to restrict or ban chemicals. Agency officials then looked at the grandfathered exceptions, determined which are no longer in use and worked to close the loophole, Beck said.

"None of these uses are banned today ... but nothing prevents them from coming back to market," she said, explaining why the EPA took action.

Betsy Southerland, a former EPA scientist who resigned over the Trump administration's leadership of the agency, said the rule was intended to be broader when the bipartisan legislation was crafted during the Obama administration. "The original plan for the asbestos significant new use rule was for the rule to list the known ongoing uses of asbestos and then state that any other use an industry might want to initiate in the future" would require EPA review, she told CNN.

She said an "open ended" approach would better protect people, because "there is no way EPA can claim to know today every possible new use industry might want in the future."

The Environmental Working Group, which supports a full ban on asbestos, said the agency is not performing a strong enough assessment of the chemical's hazards.

"We're very concerned that EPA is taking a lot of shortcuts in that risk evaluation," said Melanie Benesh, a legislative attorney who works on toxic chemical issues at EWG.

"There is lots of asbestos still out in the environment, particularly in older homes and schools," she said, and the agency's assessment processes does not take into account those legacy uses.

KRDO

EPA hosts forum about contaminated water in Security-Widefield
[HYPERLINK "https://www.krdo.com/news/colorado-springs/epa-hosts-forum-about-contaminated-water-in-security-

widefield/778758857"]
By Stephanie Sierra, 8/7/2018

The Environmental Protection Agency held a forum Tuesday night to discuss the per-fluorinated chemicals (PFC's) contaminating the water in Security-Widefield and Fountain.

It's thought the chemicals came from years of firefighting training at Peterson Air Force Base.

This is the third forum held by the EPA across the country in recent weeks. The idea is to learn about the impact PFC's are having in affected communities and how the agency can help better address the problem.

"What we learn today will be developed into a national action plan which will outline what changes may happen next," said Sarah Bahram, the EPA's director of safe drinking water.

"I think we've heard clearly that folks want the EPA to regulate PFC's in drinking water," she said.

Bahram said regulating will require establishing a maximum contaminant limit.

Families from across the state filled the conference room at Hotel Elegante in Colorado Springs.

"I want them to fix whatever they did," said Steve Patterson, who used to live in Security.

Patterson said nearly 20 of his family members who lived in the affected areas now have cancer.

"Everybody in our family that lived in that area ended up with cancer, but everyone who lives outside that area did not," he said.

Unfortunately, Patterson's story is not uncommon. Which is why many people supported the request to regulate a maximum contaminant limit of PFC's in water.

"Water is our life line and once it's polluted ... it's very hard to clean up," said Patience Paisley.

The forum continues Wednesday at 4 p.m. at Hotel Elegante in Colorado Springs.

The Daily Caller

EPA Calls Freakout Over Asbestos Rule Fake News
[HYPERLINK "http://dailycaller.com/2018/08/08/fake-news-epa-asbestos/"]
By Chris White, 8/8/2018

The EPA is pushing back against numerous “inaccurate” media reports claiming the agency is etching out new rules effectively legalizing all forms of asbestos production.

Multiple reports suggesting the agency is giving manufacturers the go-ahead with asbestos production appears to be grossly overblown, according to the federal registry. The EPA is tightening regulatory scrutiny on new uses of the chemical, which is heavily restricted but not banned in the U.S.

“The press reports on this issue are inaccurate,” EPA spokesman James Hewitt told The Daily Caller News Foundation. “Without the proposed Significant New Use Rule (SNUR) EPA would not have a regulatory basis to restrict manufacturing and processing for the new asbestos uses covered by the rule.”

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He was referring to what is called a Significant New Use Rule (or SNUR), a rule forcing manufacturers to notify the EPA if they intend on producing a product with chemicals from asbestos. The industry could produce and use asbestos for any reason save for the SNUR, according to the agency.

Hewitt added: "The EPA action would prohibit companies from manufacturing, importing, or processing for these new uses of asbestos unless they receive approval from EPA." The agency's new administrator, Andrew Wheeler, responded Wednesday with a similar complaint on Twitter.

"There have been some inaccurate media reports regarding @EPA's actions on asbestos," Wheeler tweeted to his followers. "The facts are @EPA is proposing a new rule that would allow for the restriction of asbestos manufacturing and processing of new uses of asbestos."

Online media outlet Fastrack Company reported in a July 31 article that "Trump's EPA has made it easier for companies to begin using asbestos again." The publication's author, Aileen Kwun, went on to highlight what she believes to be a parade of horribles if the agency degrades rules limiting the use of asbestos.

The U.S. restricts the use of the material, but it remains one of few developed nations that has refrained from banning asbestos outright. Activists have long-sought for an outright ban, according to Competitive Enterprise Institute analyst Angela Logomasini.

"A lot of uses of the dangerous types of asbestos were banned," Logomasini told TheDCNF, adding that asbestos containing short-fibers are regularly used to make car brakes and other important products. "The risks of brake failures would be much higher were it not for certain types of asbestos."

She noted that the EPA's SNUR rule make sense considering the considerable risk. "What the EPA is saying is that if you are going to do a new use, you need to come to us to check if it is something that will need tighter restrictions," Logomasini said. "The ones that we use now are very short fibers – doesn't mean they are not dangerous. Just means you can manage their risks easier."

Argus Observer

EPA officials say rule would close the door on asbestos
[HYPERLINK "https://www.argusobserver.com/news/epa-to-oversee-state-s-injection-wells-program/article_2ee8c6f6-9b28-11e8-8719-0bd39f8c1b4d.html"]
By Rob Ruth, 8/8/2018

Idaho's oil and gas industry may soon have a lower-cost option for disposing of production wastewater.

On July 30, the Environmental Protection Agency issued its final rule transferring primacy for Idaho's Class II Underground Injection Control (UIC) program to EPA. Idaho formally requested the transfer last year.

Until now, Idaho producers have been unable to apply for a permit to inject their wastewater, which typically involves utilizing a well that was drilled for gas and oil production. After the state legislature removed a ban on Class II injection wells in 2013, the Idaho Department of Water Resources failed to receive EPA approval of the state's program for Class II wells. Finally, IDWR asked EPA to assume that regulatory role for Idaho.

According to officials with Idaho's Oil & Gas Conservation Commission (OGCC), Alta Mesa, Idaho's only current producer, has been trucking its wastewater from Payette County to an evaporation facility in Kuna, costing Alta Mesa around $9 per barrel of wastewater.

At a July 18 town hall meeting in Payette hosted by OGCC, Payette County Commissioner Marc Shigeta, a member of the state oil and gas board, said the company still had plans for construction of its own evaporation facility in the local area.

Although EPA's final rule on the Class II UIC program was still unpublished on July 18, Mick Thomas, administrator for the Oil and Gas Division at the Idaho Department of Lands, told the audience that he believed that the transfer of primacy would indeed occur.

In answer to a question, Thomas and other oil and gas officials couldn't hazard a guess as to how quickly EPA would process applications for injection well permits, however.

EPA held a Jan. 8 public hearing in Boise on the proposed rule revision, a hearing the agency scheduled only in response to a formal request. Members of Citizens Allied for Integrity and Accountability (CAIA), a community group concerned with potential negative impacts from oil and gas drilling operations, were among those who raised issues at the hearing and during the public comment period.

With publication of its final rule, EPA reported having received "414 comments from 387 individual commenters,... Of these comments, only a minority were identified as containing material that was determined to be within the scope of the proposed rule revision," the agency stated.

Reuters

U.S. Congressman Collins, son charged with insider trading
[HYPERLINK "https://www.reuters.com/article/us-usa-congressman-insidertrading/u-s-says-new-york-congressman-collins-indicted-for-insider-trading-idUSKBN1KT1NI"]
By Brendan Pierson, Jonathan Stempel 8/8/2018

Christopher Collins, a Republican U.S. congressman from New York who was one of President Donald Trump's earliest supporters, was criminally charged on Wednesday with taking part in an insider trading scheme involving an Australian biotechnology company on whose board he served.

The indictment came as Collins, 68, was seeking a fourth two-year term in November's elections, where Democrats hope to recapture the House of Representatives.

"These charges are a reminder that this is a nation of laws, and that everybody stands equal before the bar of justice," U.S. Attorney Geoffrey Berman said at a news conference in Manhattan.

Two lawyers for Collins, Jonathan Barr and Jonathan New, said in a statement that they were confident he would be "completely vindicated and exonerated."

The indictment charged Collins, his son Cameron, and Stephen Zarsky, the father of Cameron Collins' fiancée, with securities fraud, wire fraud and other crimes.

"We intend to mount a vigorous defense on behalf of our client," Tom Hanusik and Rebecca Ricigliano, lawyers for Cameron Collins, said in a statement. Amanda Bassen, a lawyer for Zarsky, declined to comment.

All three defendants pleaded not guilty on Wednesday before U.S. District Judge Vernon Broderick in Manhattan, and were expected to be released on bail.

The case relates to Innate Immunotherapeutics Ltd (IIL.AX), where Christopher Collins sat on the board and held a 16.8 percent stake.

Prosecutors said that in June 2017, while attending the congressional picnic at the White House, Collins learned in an email from Innate's chief executive that a trial for its proposed secondary multiple sclerosis drug MIS416 had failed.

According to the indictment, Collins immediately called his son and told him the news. Cameron Collins in turn told his fiancée, her parents and a friend, and Stephen Zarsky went on to tip his brother, his sister and a friend, the indictment said.

Christopher Collins did not trade his own Innate stock, which lost millions of dollars in value, according to the indictment. Prosecutors said the congressman was "virtually precluded" from trading in part because he already faced a congressional ethics probe over Innate.

However, prosecutors said others used the insider information to avoid more than $768,000 in losses when Innate's share price plunged on news of the drug trial's failure.

Sydney-based Innate did not immediately respond to a request for comment outside business hours.

Collins represents New York's solidly Republican 27th Congressional District, and nonpartisan analysts predict he will win re-election. The district includes areas surrounding Buffalo and Rochester.

Last October, the Office of Congressional Ethics reported that it had "substantial reason" to believe Collins may have used his office to help Innate.

It voted unanimously to send its case to the House Ethics Committee. Collins denied wrongdoing.

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Yulia Skripal was released from the hospital in April after being treated for the nerve agent attack. Her father was discharged in May.

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The conclusion of the U.S. investigation comes several months after U.K. authorities reached a similar conclusion, accusing the Kremlin in April of breaking an international ban on chemical weapons.

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Wednesday's announcement come several weeks after President Donald Trump held a one-on-one summit with Russian leader Vladimir Putin. Trump was criticized for now pressing Putin aggressive on several issues, such as election meddling, during a press conference after the meeting.

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Trump himself, however, has remained relatively silent regarding Russia's online trolling and had not commented on Twitter as of late Wednesday afternoon about the latest sanctions targeting Russia.

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