Per- and Polyfluoroalkyl Substances (PFAS): EPA Regulatory and Voluntary Activities under the Toxic Substances Control Act (TSCA)

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State/EPA Region 10 PFAS Call

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Outline

- PFAS Background
- PFAS Activities Under TSCA
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PFAS Background

- EPA working on PFAS since late 1990s
- EPA's initial work was primarily on perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), rather than the broader group of PFAS
- Over time, EPA has broadened its work to include PFAS Categories
  - Long-chain PFAS
    - Carboxylic acids (PFCAs) with eight or more carbons, including PFOA
    - Perfluoroalkane sulfonates (PFSAs) with six or more carbons, including PFOS and perfluorohexane sulfonic acid (PFHxS)
  - Short-chain PFAS
    - Perfluoroether acids (e.g., GenX) and related compounds

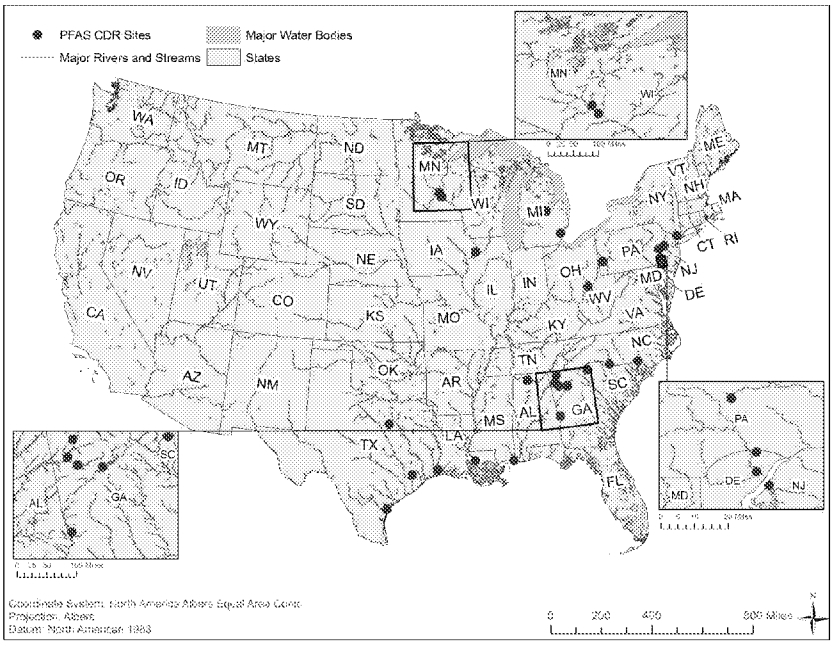
PFAS Background (continuation)

- PFAS are widely used
  - Consumer (e.g., textiles) and commercial (e.g., electronics)
  - Industrial (e.g., processing aids for polymer production)
  - Fire fighting foams
  - Many other, diverse uses
- Widespread, persistent, and biomagnify
  - PFAS found world-wide in the environment, in wildlife, and in humans
  - Biomagnification potential, as evidenced by greater concentrations of PFAS in higher trophic-level organisms
  - Long-chain PFAS have long half-life in humans (years)
- Toxicity
  - Reproductive, developmental, and systemic effects in laboratory animals
  - C8 Health Project: The C8 Science Panel concluded that there is a "probable link" between PFOA and diagnosed high cholesterol, kidney cancer, testicular cancer, thyroid disease, pregnancy-induced hypertension/preeclampsia, and ulcerative colitis (www.c8sciencepanel.org/c8health.html)

PFAS Background (continuation)

Parent Companies Reporting PFAS in the 2016 CDR
Parent Company
3M COMPANY
AGC CHEMICALS AMERICAS, INC.
ATOTECH USA, INC.
DAIKIN AMERICA, INC.
DOW CORNING CORPORATION
FORD MOTOR COMPANY
HONEYWELL INTERNATIONAL INC
LANXESS CORPORATION
LINDE NORTH AMERICA, INC
PEACH STATE LABS INC
SOLVAY SPECIALTY POLYMERS USA, LLC
SUMITOMO CORPORATION OF AMERICAS
THE CHEMOURS CO
TYCO FIRE PRODUCTS LP

PFAS Background (continuation)



PFAS Background (continuation)

Summary of PFAS Uses and Applications	
Use Category	**Example(s)**
Adhesive, paint, and coating additive	Nonstick coating in cookware
Chemical manufacturing	Chemical intermediate; polymerization aid
Component of a photoresist substance	Semiconductors
Component of electronic products	Cables and wiring; insulating tape; "solder sleeves"; smudge-resistant touch screens
Component of firefighting foams	Aqueous film-forming foams (AFFFs)
Component of rubber compounds	Hose, tubing, and piping; rubber and plumbing fluxing agents
Foam additive	Flame-retardant insulation in soft furnishings
Lubricant and lubricant additive	Automotive manufacturing
Specialized industrial chemical	Improved mold release for pneumatic tires; liquid crystal displays; wetting agents
Mechanical components	Conveyor belting; low-friction bearings and seals; coating/surfactant on semiconductors, wiring, tubing, seals, etc.
Clothing, footwear, and textiles	Protection against oil, water, and soil; wind and rain barrier; firefighting clothing
Scientific and medical instruments	Photographic film; x-ray film; artificial body parts; medical product packaging
Wetting agent	Floor polishes; metal plating

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PFAS Activities Under TSCA (continuation)

- PFOS Phaseout
  - EPA worked with industry to phase out production of PFOS and related chemicals between 2000 to 2002
- 2010/2015 PFOA Stewardship Program
  - In 2006, EPA, in cooperation with eight major companies that manufactured and/or processed long-chain PFAS, launched the 2010/2015 PFOA Stewardship Program with the goal of eliminating long-chain PFAS from emissions and products by 2015
    - Arkema, Asahi Glass Company, BASF Corporation (formerly Ciba Specialty Chemicals Corporation), Clariant, Daikin, 3M/Dyneon, Chemours (formerly DuPont), and Solvay Solexis
  - All participating companies have met the PFOA Stewardship Program goals
  - Some companies that were not part of the PFOA Stewardship Program continue to produce/import and use PFOA and other long-chain PFAS that were phased out by others under the program

PFAS Activities Under TSCA (continuation)

- Significant New Use Rules
  - EPA has authority to designate particular uses of an existing chemical substance as a "significant new use" under TSCA § 5(a)(2)
  - TSCA § 5(a)(1) prohibits any person from manufacturing (including importing) or processing any chemical substance for a use that EPA has determined is a "significant new use" prior to submitting a Significant New Use Notice (SNUN) to EPA at least 90 days before commencing or resuming the use
  - Upon receipt of a SNUR, EPA may make a risk determination under TSCA § 5 and take appropriate regulatory action based on the results of the risk assessment

PFAS Activities Under TSCA (continuation)

- Existing Chemicals Program
  - 2002: SNUR on 13 perfluoroalkyl sulfonate chemicals (67 FR 11008)
  - 2002: SNUR on 75 perfluoroalkyl sulfonate chemicals (67 FR 72854)
  - 2003: Enforceable Consent Agreement (ECA) Process (68 FR 18626) to develop data on use and production, exposure, toxicity, pharmacokinetics, and monitoring on long-chain PFAS
  - 2007: SNUR on 183 perfluoroalkyl sulfonate chemicals (72 FR 57222)
  - 2010: Premanufacture Notification Exemption for Polymers: Amendment of Polymer Exemption Rule to Exclude Certain Perfluorinated Polymers (75 FR 4295) revoking PFAS polymers from exemption under the polymer exemption rule
  - 2013: SNUR on long-chain perfluoroalkyl carboxylate chemical substances (LCPFAC) as part of carpets or carpet treatment products (78 FR 62443)
  - 2015: Proposed SNUR on LCPFAC and perfluoroalkyl sulfonate chemicals (80 FR 2885) to support the voluntary PFOA Stewardship Program phaseout of long-chain PFAS

PFAS Activities Under TSCA (continuation)

- The significant new uses for perfluoroalkyl sulfonates in the 2002 and 2007 SNURs (CFR § 721.9582):
  - Any manufacture or import for any use
  - Manufacture or import for the **following specific uses** is **not** considered as a significant new use subject to reporting (because these are ongoing uses and therefore not "new"):
    - Use as an anti-erosion additive in fire-resistant phosphate ester aviation hydraulic fluids
    - Use as a component of a photoresist substance, including a photo acid generator or surfactant, or as a component of an anti-reflective coating, used in a photomicrolithography process to produce semiconductors or similar components of electronic or other miniaturized devices
    - Use in coating for surface tension, static discharge, and adhesion control for analog and digital imaging films, papers, and printing plates, or as a surfactant in mixtures used to process imaging films
    - Use as an intermediate only to produce other chemical substances to be used solely for all of the uses listed above
    - Manufacture or import of tetraethylammonium perfluorooctanesulfonate (CAS No. 56773-42-3) for use as a fume/mist suppressant in metal finishing and plating baths (e.g., hard chrome plating; decorative chromium plating; chromic acid anodizing; nickel, cadmium, or lead plating; metal plating on plastics; and alkaline zinc plating)
    - Manufacture or import of a few perfluoroalkyl sulfonates for use as a component of an etchant, including a surfactant or fume suppressant, used in the plating process to produce electronic devices

PFAS Activities Under TSCA (continuation)

- The significant new uses for LCPFAC in the 2013 SNUR (CFR § 721.10536):
  - Manufacture (including import) or processing for use as part of carpets or to treat carpets (e.g., for use in the carpet aftercare market)
  - Manufacture (including import) or processing of CAS No. 68412-68-0 and CAS No. 68412-69-1 for use as a surfactant in aftermarket carpet cleaning products is not be considered a significant new use subject to reporting

- In 2015, EPA published the proposed SNUR on LCPFAC to ensure that LCPFAC chemicals that have been phased out under the 2010/2015 PFOA Stewardship Program do not re-enter the marketplace without review
  - This SNUR has not been finalized

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Additional Information

- Per- and Polyfluoroalkyl Substances (PFAS)
  - https://www.epa.gov/pfas
- Risk Management of PFAS under TSCA
  - https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-and-polyfluoroalkyl-substances-pfass
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