SAT REPORT

REPORT CBI INDICATOR: [redacted] [redacted] [ ] N DCO NUMBER: 50897001242

CASE NUMBER(S): P-89-867 thru - -

ADDITIONAL CASE NUMBERS: - - - - - -
- - - - - -

SAT Meeting Date: 7/14/89

Submitter Name: [redacted]

Submitted Chemical Name: [redacted]

Chemical Structure: [redacted]

Molecular Weight: [redacted] Physical State:

Maximum Production Volume: [redacted] kg/yr

Intended Use: [redacted] plastics, [redacted]

Related Case Number	Case Role
[redacted]	STAN
[redacted]	↓
- -	
- -	
- -	
- -	

[redacted]

delisting petition
decabromodiphenyl ether

MP = 342-352°C

TSCA CONFIDENTIAL
BUSINESS INFORMATION
Does not contain National
Security information (E.O. 12065)

CASE NUMBER: P89-867

CONCLUSIONS/DISCUSSIONS

TYPE OF CONCERN:	HEALTH	ECOTOX
LEVEL OF CONCERN:	H	H

KEYWORDS: CHRONIC, KIDNEY, REPRO, UNCERT (H), AQUATOX (A,C), LIVER, DEVEL, ONCO

SUMMARY OF ASSESSMENT:

FATE: SH2O =< 0.025 mg/L; log Kow = 11.; log Koc > 4.5; strong sorption; POTW removal = [redacted] vp < 10E-5 torr; expect photolysis in the environment to the lower brominated isomers; ultimate biodegradation is persistent.

HEALTH: Absorption some small amounts all routes; submitted test data were no eye irritation, no skin irritation, rat acute oral LD50 > 5 g/kg with no signs, rabbit acute dermal LD50 > 2 g/kg with no toxic signs and Ames test was negative; concern for chronic toxicity, developmental toxicity, reproductive toxicity, liver and kidney toxicity and oncogenicity based on decabromodiphenyl ether SARA Delisting (NOEL = 8 mg/kg/d), [redacted] decabromobiphenlyoxide and halogenated aromatic flame retardants as a class; the concern for oncogenicity is weak and uncertain; high concern.

ECOTOX: No effects expected at saturation for the PMN based on extremely high Kow, high MP, extremely low predicted water solubility, QSAR for neutral organic chemicals and large cross-sectional diameter of molecule; low concern for PMN;

however, PMN may be photolyzed and all the lower brominated isomers may be produced (i.e., nonylbromo thru monobromo); the monobromo thru tetrabromo isomers will be acutely toxicity and the pentabromo thru hexabromo will be chronically toxic; the tetrabromo isomers will have the highest acute toxicity with levels < 1 mg/L and the hexabromo isomer will have the highest chronic toxicity with levels in the low ug/L (ppb) range; the monobromo thru hexabromoisomers will have a high potential to bioconcentrate in aquatic organisms and this potential will increase with the number of bromines; the heptabromo thru nonlybromo isomers may be water solubility limited and some isomers could be limited by large cross-sectional diameters; the PMN will be persistent in the environment for decades and every time the PMN is exposed to sunlight there is the potential for photolysis and release of hazardous photolysis products into the environment; high concern for the photolysis products.

BIOLOGICAL TEST INFORMATION
CASE NUMBER: P - 87 - 867

This information is for: [✓] Submitted Substance [ ] Analog

STUDY TYPE: IRR-E STUDY DURATION: 72 h SPECIES/SEX: RABBIT (M&F)
WT/LIFE STAGE: NO. GROUPS/NO. PER GROUP: 1/6 CONTROLS: untreated eyes
ROUTE: OCULAR DOSE RANGE: 100 mg/eye
CHARACTERISTICS OF TESTED SUBSTANCE: as received
TEST CONDITIONS (Dosing Regimen): single instillation, no washout
RESULTS: nonirritant

This information is for: [✓] Submitted Substance [ ] Analog

STUDY TYPE: IRR-SK STUDY DURATION: 72 h SPECIES/SEX: RABBIT (M&F)
WT/LIFE STAGE: NO. GROUPS/NO. PER GROUP: 1/6 CONTROLS:
ROUTE: DERMAL DOSE RANGE: 500 mg/site
CHARACTERISTICS OF TESTED SUBSTANCE: moistened w. saline
TEST CONDITIONS (Dosing Regimen): 4-h exposure, occluded, intact skin
RESULTS: nonirritant

COMMENTS:

MUTA TESTS: [✓] AMES +/(-) (with/without activation) STRAIN if (+)
[ ] E. Coli Reverse Mutation +/- (with/without activation)
[ ] CHO +/- (with/without activation) [ ] MOUSE MICRONUCLEUS +/- (ip/oral)
[ ] RAT HEPATOCYTE UDS +/- [ ] OTHER

BIOLOGICAL TEST INFORMATION
CASE NUMBER: P-89-867

This information is for: [✓] Submitted Substance [ ] Analog

STUDY TYPE: ACUTE STUDY DURATION: 14 days SPECIES/SEX: RAT (M + F)
WT/LIFE STAGE: NO. GROUPS/NO. PER GROUP: 1/10 CONTROLS:
ROUTE: GAVAGE DOSE RANGE: 5000 mg/kg, single dose
CHARACTERISTICS OF TESTED SUBSTANCE: as received
TEST CONDITIONS (Dosing Regimen): single gavage to fasted animals
RESULTS: LD50 > 5000 mg/kg, no deaths, no signs, no gross lesions

This information is for: [✓] Submitted Substance [ ] Analog

STUDY TYPE: ACUTE STUDY DURATION: 14 days SPECIES/SEX: RABBIT (M + F)
WT/LIFE STAGE: 3.0 kg NO. GROUPS/NO. PER GROUP: 1/10 CONTROLS:
ROUTE: DERMAL DOSE RANGE: 2000 mg/kg, single dose
CHARACTERISTICS OF TESTED SUBSTANCE: moistened with saline
TEST CONDITIONS (Dosing Regimen): 24-h exposure, semiocluded
RESULTS: LD50 > 2000 mg/kg; diarrhea in 1 animal, no deaths, no lesions

COMMENTS:

MUTA TESTS: [ ] AMES +/- (with/without activation) STRAIN if (+)
[ ] E. Coli Reverse Mutation +/- (with/without activation)
[ ] CHO +/- (with/without activation) [ ] MOUSE MICRONUCLEUS +/- (ip/oral)
[ ] RAT HEPATOCYTE UDS +/- [ ] OTHER

OTHER TESTS: [ ] ECOTOX [ ] FATE [ ] OTHER

Environmental Effects Branch/HERD
ENVIRONMENTAL TOXICOLOGY SAT REPORT (P)
Case No. P89-867
CBI: (yes) no SAT date 7/14/89
Prepared by: [illegible]
Reviewed by: [illegible]
Chemical Name [redacted]

Disk LIPFORMS/form8/12-12-86/Angie
TOXIC CONCERN CONCENTRATION
Value GRTHD LTHK CLASS-X OTH
Date 7/7/89
Date 7/14/89

1. Structure (CBI (yes) no): exact repres. feedstocks impur.

[redacted]

SAT MEETING NOTES - SAR PREDICTIONS

ENVIRON. DISTR.:	water	soil/sed.	air
RATE OF:	SECS.	MINS.	HRS.	DAYS	MOS	YRS
Hydrolysis						
Biodegrad.						
volat (from wat)						
volat (fr. soil)						
photolysis						

Bacterial inhib.:
Human/mammalian abs.: GI skin lungs
Metabolism:
Health Concerns: carc. mutag. terat.
LEVEL OF CONCERN: reprod. eye irrit
skin irrit. neurotox.
HIGH MED LOW liver kidney other

2. Molecular weight: [redacted] exact range no avg wght avg
3. Maximum production volume (year 3): 2.73×10^6 kg/yr
4. Proposed use: Flame retardant : plastics, textiles, adhesives
5. log [redacted] (CLOGP Meas Sub Mis.frag) 6. H_2O sol'y (est meas)
7. BCF (Pred.) 8. Fish LC50 (Pred. Est. Meas) X mg/L
9. Daphnia EC50 X mg/L 10. Algae (EC50 other) X mg/L
11. Ecotox concern level: (low moderate X high) SAT REP [illegible]
12. Chemical species of concern: a) PMN b) low MW species
c) impurity d) envir. trans. prod.(s) X e) metabolite(s)
f) other
13. Ecotox concern: a) persistence b) bioconcentration
c) fish (96 hr 14 day >14 day test) d) algae
e) daphnia f) bacteria g) fungi h) protozoa
i) mammals j) birds k) plants l) molluscs
m) insects n) worms o) juvenile stage p) other
14. Basis for concern: a) subm. test data b) subm. analog data
c) lit. test data on PMN d) lit. analog data
e) QSAR pred. (baseline phenol ester aniline)
f) member of known toxic class g) electrophile
h) proelectrophile i) degradative release in environ. to toxicants
j) possible enzyme inhibitor
k) low MW basic amine (e.g., ethylenediamine)
l) surfactant in H_2O m) other
15. Basis for low concern: a) test data (sub. lit.)
b) analogue data (sub. lit.) c) QSAR calc'ns
d) high MW
e) nil rate of pharm. uptake (very high log P nil H_2O soly rapid detox. nil lipid soly)
f) non- or low mole % cationic g) non- or low mole % electrophile
h) no identified toxic class or metabolites of concern
i) predicted very rapid environmental transformation to low toxicity chemicals (concern only for accidental spills) k) predicted toxicity greatly exceeds water solubility
l) high MP (with other factors) m) log P < 3.5 (narcosis action)
n) other
16. Comments: Concern for photolysis products

Environmental Effects Branch/HERD
ENVIRONMENTAL TOXICOLOGY SAT REPORT
PMN/TME No. P89-867
[redacted] No

SUBMITTED TEST DATA FORM
PREPARED BY [illegible]
DATE: 7/7/89

1. Appearance:

A. State: Solid _____ Liquid _____ Other _____
B. Color: _____

2. Physical Chemical Properties

A. Log P (meas, est) _____
B. Water Solubility [redacted]
C. Other Solubility: i) Solvent _____ Value _____
i) Solvent _____ Value _____
D. Vapor Pressure: _____ Method _____
E. Boiling Point (C, F) _____
F. Melting Point (C, F) [redacted]
G. pH _____ Conditions _____
H. Density _____
I. Log (air/water partition) _____
J. _____
K. _____

3. Chemical Fate Properties

A. BOD _____ B. COD _____
C. Predicted Environmental Concentration _____
D. Bacterial Inhibition _____
E. Kp _____
F. Rate of Volatilization _____
G. Rate of Photolysis _____
H. _____

4. Toxicity Data

Test No.	Species	No. of Organisms Tested	Effect	Effect Time	Effect Value	Comments
1.	rat	10	oral LD50	14-d	>5g/kg	NSLD
2.	Rabbit	10	dermal LD50	14-d	>2g/kg	No deaths, No lesions, Diarrhea
3.	rabbit	6	eye irritation	72-h	Non-irritant	
4.	rabbit	6	skin irritation	72-h	Non-irritant	
	Ames				Neg	w/wo activ.

5. Comments:

STRUCTURE ACTIVITY TEAM MEETING DATE JUL 14 1989

ATTENDEES	SIGNATURE	OFFICE	ID NUMBER
Chemistry			
Paul Bickart			
Fred Metz			
Marvis Aleem			
✓ Maria Doa		EFD/TEB	15354
Environmental Fate			
Asa Leifer			
Gary Thom			
✓ DAVID G. LYNCH	David G. Lynch	EED-EAB	12713
Health			
Joseph Arcos			
Angela Auletta			
Michael Cimino			
Fredrick Di Carlo		HERD	49850
✓ Leonard Keifer		HERD/TEB	14644
✓ David Lai		HERD/OB	12820
✓ Sue McMaster		HERD/TEB	15435
✓ Jennifer Seed		HERD	14695
✓ Vivian Turner		HERD/PMCL	00454
✓ Yin Tak Woo		HERD	13120
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David Johnson			
✓ Robert Lipnick		EED/HERD	36497
Larry Newsome			
SAT Chairperson/Other			
Oscar Hernandez			
✓ Vince Nabholz		OTS/HERD	33418
Pauline Wagner			
✓ Rebecca Jones	Rebecca Jones	HERD/TEB	06754