EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 06/01/2016
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SECTION 1. IDENTIFICATION

Product name : EPOCAST® 1610-A2 US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC

Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)

Telephone : Non-Emergency: (800) 257-5547

E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy constituents

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin irritation : Category 2

Serious eye damage : Category 1

Skin sensitisation : Category 1

Carcinogenicity : Category 2

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure : Category 2 (Liver, Thyroid, Adrenal gland, Gastrointestinal tract)

Short-term (acute) aquatic hazard : Category 1

Chronic aquatic toxicity : Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Liver, Thyroid, Adrenal gland, Gastrointestinal tract) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	30 - 50
Glass, oxide, chemicals	65997-17-3	20 - 30
1,4-bis(2,3-epoxypropoxy)butane	2425-79-8	5 - 10

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	1 - 5
Phenol, 4-nonyl-, branched	84852-15-3	1 - 5
trimethoxy(methyl)silane	1185-55-3	1 - 5
hexaboron dizinc undecaoxide	12767-90-7	0.1 - 1
silicon dioxide	7631-86-9	0.1 - 1
diuron	330-54-1	0.1 - 1
melamine	108-78-1	0.1 - 1

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance. Treat symptomatically. Get medical attention if symptoms occur.
If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Induce vomiting immediately and call a physician. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection

and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon oxides
Halogenated compounds
Carbon dioxide (CO2)
Carbon monoxide

Specific extinguishing methods : No data is available on the product itself.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up	:	Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	Ensure that eyewash stations and safety showers are close to the workstation location.
Local/Total ventilation	:	Ensure adequate ventilation.
Advice on protection against fire and explosion	:	Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
Advice on safe handling	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Avoid formation of respirable particles. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this SDS.
Recommended storage temperature	:	36 - 46 °F / 2 - 8 °C
Further information on storage stability	:	Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis

silicon dioxide	7631-86-9	TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m3 / %SiO2 (Silica)	OSHA Z-3
		TWA (Respirable dust)	0.05 mg/m3 (Silica)	NIOSH REL
		TWA	6 mg/m3 (Silica)	NIOSH REL
diuron	330-54-1	TWA	10 mg/m3	ACGIH
		TWA	10 mg/m3	NIOSH REL
		TWA	10 mg/m3	OSHA P0
melamine	108-78-1	TWA	3 mg/m3	US WEEL

Personal protective equipment

Respiratory protection : W A R N I N G ! This product contains quartz, which has been classified by IARC as carcinogenic for humans (Group 1), and which can cause silicosis and lung cancer following exposure to respirable dust. It is therefore important to take particular care to avoid inhalation exposure when mechanically processing cured material (e.g. grinding, sanding, sawing).

Hand protection
Material : butyl-rubber
Material : Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time : > 8 h

Material : Nitrile rubber
Material : Neoprene
Break through time : 10 - 480 min

Remarks : Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.

When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	solid, paste
Colour	:	off-white
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.
pH	:	substance/mixture is non-soluble (in water)
Melting point/freezing point	:	No data is available on the product itself.
Boiling point	:	> 392 °F / > 200 °C
Flash point	:	> 201 °F / > 94 °C Method: closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	< 1.333 hPa (68 °F / 20 °C)
Relative vapour density	:	1
Relative density	:	0.46 - 0.5
Density	:	0.48 g/cm3 (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	insoluble (68 °F / 20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 392 °F / > 200 °C

Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity	:	No data is available on the product itself.
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Dust may form explosive mixture in air.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	carbon dioxide carbon monoxide Halogenated compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity - Product	:	Acute toxicity estimate: 25.17 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity - Product	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method
Acute toxicity (other routes of administration)	:	No data available

Skin corrosion/irritation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Species: Rabbit
Exposure time: 4 h
Assessment: Irritating to skin.
Method: OECD Test Guideline 404
Result: Irritating to skin.

Glass, oxide, chemicals:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: Normally reversible injuries

1,4-bis(2,3-epoxypropoxy)butane:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation
GLP: yes

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:
Result: Skin irritation

Phenol, 4-nonyl-, branched:
Species: Rabbit
Assessment: Causes burns.
Result: Causes burns.

trimethoxy(methyl)silane:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

silicon dioxide:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

diuron:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

Species: Rabbit
Assessment: Mild skin irritant
Method: OPPTS 870.2500
Result: Mild skin irritation

melamine:
Species: Rabbit
Method: OECD Test Guideline 404

Result: No skin irritation

Serious eye damage/eye irritation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Species: Rabbit
Result: Irritating to eyes.
Assessment: Irritating to eyes.
Method: OECD Test Guideline 405

1,4-bis(2,3-epoxypropoxy)butane:
Species: Rabbit
Assessment: Risk of serious damage to eyes.
Method: OECD Test Guideline 405
GLP: yes

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:
Result: Eye irritation

Phenol, 4-nonyl-, branched:
Result: Risk of serious damage to eyes.

trimethoxy(methyl)silane:
Species: Rabbit
Result: No eye irritation
Assessment: No eye irritation
Method: OECD Test Guideline 405

hexaboron dizinc undecaoxide:
Assessment: Irritating to eyes.

silicon dioxide:
Species: Rabbit
Result: No eye irritation
Assessment: No eye irritation
Method: OECD Test Guideline 405

diuron:
Species: Rabbit
Result: Irritation to eyes, reversing within 7 days
Assessment: No eye irritation
Method: OECD Test Guideline 405

Species: Rabbit
Result: Irritation to eyes, reversing within 7 days
Assessment: Mild eye irritant
Method: OPPTS 870.2400

melamine:
Species: Rabbit
Remarks: slight irritation

Respiratory or skin sensitisation

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: The product is a skin sensitiser, sub-category 1B.

Glass, oxide, chemicals:
Exposure routes: Skin
Species: Other
Result: Does not cause skin sensitisation.

1,4-bis(2,3-epoxypropoxy)butane:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.
GLP: yes

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]:
Result: May cause sensitisation by skin contact.

Phenol, 4-nonyl-, branched:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

trimethoxy(methyl)silane:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Causes sensitisation.

diuron:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Exposure routes: Skin
Species: Guinea pig
Method: OPPTS 870.2600
Result: Does not cause skin sensitisation.

melamine:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Components:

1,4-bis(2,3-epoxypropoxy)butane:
Assessment: Harmful if inhaled.

Germ cell mutagenicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Result: positive

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative

1,4-bis(2,3-epoxypropoxy)butane:
Genotoxicity in vitro : Test Type: reverse mutation assay
Concentration: 10 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: yes
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Concentration: 1 - 100 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: no
Remarks: Not classified due to data which are conclusive although insufficient for classification.

silicon dioxide:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

diuron:
Genotoxicity in vitro : Concentration: 360 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Concentration: 2000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Method: OECD Test Guideline 473
Result: negative

melamine:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: Chromosome aberration test in vitro
Result: negative

Metabolic activation: with and without metabolic activation
Method: In vitro mammalian cell gene mutation test
Result: negative

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Genotoxicity in vivo : Test Type: in vivo assay
Species: Mouse (male)
Cell type: Germ
Application Route: Oral
Dose: 3333, 10000 mg/kg
Result: negative

Test Type: gene mutation test
Species: Rat (male)
Cell type: Somatic
Application Route: Oral
Dose: 50,250,500,1000 mg/kg bw/day
Method: OECD Test Guideline 488
Result: negative

1,4-bis(2,3-epoxypropoxy)butane:
Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male)
Cell type: Somatic
Application Route: Oral
Exposure time: 4 d
Dose: 187.5 - 750 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

trimethoxy(methyl)silane:
Genotoxicity in vivo : Application Route: Oral
Dose: 2000 mg/kg
Method: OECD Test Guideline 474
Result: negative

silicon dioxide:
Genotoxicity in vivo : Application Route: Inhalation
Dose: 50 mg/m3
Result: negative

diuron:
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 700 mg/kg
Method: OECD Test Guideline 474
Result: negative

melamine:
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Method: Skin Sensitization
Result: negative

Components:

1,4-bis(2,3-epoxypropoxy)butane:
Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen., Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Species: Rat, male
Application Route: Oral
Exposure time: 24 month(s)
Dose: 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment: 7 days/week
NOAEL: 15 mg/kg bw/day

Method: OECD Test Guideline 453
Result: negative
Target Organs: Digestive organs

Species: Mouse, male
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 0, 0.1, 10, 100 mg/kg bw/day

Frequency of Treatment: 3 days/week
NOEL: 0.1 mg/kg body weight

Method: OECD Test Guideline 453
Result: negative
Target Organs: Digestive organs

Species: Rat, female
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 0.1, 100, 1000 mg/kg bw/day
Frequency of Treatment: 5 days/week
NOEL: 100 mg/kg body weight

Method: OECD Test Guideline 453
Result: negative

Species: Rat, female
Application Route: Oral
Exposure time: 24 month(s)
Dose: 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment: 7 days/week
NOAEL: 100 mg/kg bw/day

Method: OECD Test Guideline 453
Result: negative
Target Organs: Digestive organs

Species: Rat, females
Application Route: Oral
Exposure time: 24 month(s)
Dose: 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment: 7 days/week
NOEL: 2 mg/kg bw/day

Method: OECD Test Guideline 453
Result: negative
Target Organs: Digestive organs

silicon dioxide:
Species: Rat, male and female
Application Route: Oral
Exposure time: 103 weeks
Dose: 1800 - 3200 mg/kg
Frequency of Treatment: 7 daily
Method: OECD Test Guideline 453
Result: negative

diuron:
Species: Rat, male and female
Application Route: Oral
Exposure time: 24 month(s)
Dose: 1 - 17 mg/kg
Frequency of Treatment: 7 daily
Method: OECD Test Guideline 453
Result: positive

Target Organs: Bladder

Species: Rat, male and female
Application Route: Oral
Dose: < 600 mg/kg
Result: positive

Carcinogenicity - Assessment : No data available

IARC

Group 1: Carcinogenic to humans
silicon dioxide
(Silica dust, crystalline)

Group 2A: Probably carcinogenic to humans
Glass, oxide, chemicals
(glass)

Group 2B: Possibly carcinogenic to humans
Glass, oxide, chemicals
(special-purpose fibres)

Group 2B: Possibly carcinogenic to humans
melamine

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

Known to be human carcinogen
silicon dioxide
(Silica, Crystalline (Respirable Size))

Reproductive toxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 180, 540 or 750 milligram per kilogram
Duration of Single Treatment: 238 d
Frequency of Treatment: 1 daily
General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight
General Toxicity F1: No-observed-effect level: 750 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

trimethoxy(methyl)silane:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: negative

diuron:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: negative

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Effects on foetal development : Species: Rabbit, female
Application Route: Dermal
Dose: 0, 30, 100 or 300 milligram per kilogram
Duration of Single Treatment: 28 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 300 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Test Type: Pre-natal
Species: Rabbit, female
Application Route: Oral
Dose: 0, 20, 60 or 180 milligram per kilogram
Duration of Single Treatment: 13 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0, 60, 180 and 540 milligram per kilogram
Duration of Single Treatment: 10 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level: 180 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: > 540 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

1,4-bis(2,3-epoxypropoxy)butane:

Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0/30/100/300 mg/kg bw/day
Duration of Single Treatment: 17 d
General Toxicity Maternal: No observed adverse effect level: 300 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 300 mg/kg body weight
Method: OECD Test Guideline 414

GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Phenol, 4-nonyl-, branched:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 75 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

trimethoxy(methyl)silane:

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 1,000 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

silicon dioxide:

Species: Mouse
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 1,340 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 1,600 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 1,350 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

diuron:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 16 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 10 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: > 125 mg/kg body weight
Result: Teratogenic effects

melamine:

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 600 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

Phenol, 4-nonyl-, branched:
Reproductive toxicity - Assessment : Suspected human reproductive toxicant

hexaboron dizinc undecaoxide:
Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

Components:

trimethoxy(methyl)silane:
Target Organs: Liver, Thyroid, Adrenal gland, Gastrointestinal tract
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Species: Rat, male and female
NOAEL: 50 mg/kg
Application Route: oral (gavage)
Exposure time: 14 Weeks
Number of exposures: 7 d
Dose: 0, 50, 250, 1000 mg/kg/day
Method: OECD Test Guideline 408

Species: Rat, male and female
NOAEL: >= 10 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 5 d
Dose: 0, 10, 100, 1000 mg/kg/day
Method: OECD Test Guideline 411

Species: Mouse, male

NOAEL: 100 mg/kg
Application Route: Skin contact
Exposure time: 13 Weeks
Number of exposures: 3 d
Dose: 0, 1, 10, 100 mg/kg/day
Method: OECD Test Guideline 411

Glass, oxide, chemicals:
Species: Rat, male
LOEC: 2.4 mg/m3
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 6 h
Method: Directive 67/548/EEC, Annex, B.29

1,4-bis(2,3-epoxypropoxy)butane:
Species: Rat, male and female
NOAEL: 200 mg/kg
Application Route: Oral
Exposure time: 28 d
Number of exposures: daily
Dose: 25, 100, 200, 400 mg/kg
Method: Subacute toxicity

Species: Rat, male and female
NOAEL: 263 mg/kg
Application Route: Oral
Exposure time: 90 h
Number of exposures: daily
Dose: 0,30,100,300 mg/kg bw/day
Method: OECD Test Guideline 408
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Phenol, 4-nonyl-, branched:
Species: Rat, male and female
NOAEL: 100 mg/kg
Application Route: Ingestion
Exposure time: 672 h
Number of exposures: 7 d
Method: Subacute toxicity

Species: Rat, male and female
NOAEL: 50 mg/kg
Application Route: Ingestion
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

trimethoxy(methyl)silane:
Species: Rat, male and female
NOEC: 50 mg/kg, 100 ppm

Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 672 h
Number of exposures: 7 d
Method: OECD Test Guideline 413

silicon dioxide:
Species: Rat, male and female
NOEC: 4000 - 4500 mg/m3
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 13 Weeks
Number of exposures: 7 d
Method: OECD Test Guideline 413

diuron:
Species: Rat, male and female
NOEC: 6.7 - 8.7 mg/kg, 4.1 - 37.4 mg/m3
Application Route: Inhalation
Test atmosphere: dust/mist
Exposure time: 8 Weeks
Number of exposures: 7 d
Method: OECD Test Guideline 412

Species: Dog, male and female
NOAEL: 1.8 mg/kg/d
Application Route: Ingestion
Exposure time: 8,640 h
Number of exposures: 7 d
Method: Chronic toxicity

Species: Rabbit, male and female
NOAEL: 250 mg/kg/d
Application Route: Skin contact
Exposure time: 504 h
Number of exposures: 5 d
Method: Subacute toxicity

melamine:
Species: Rat, male and female
LOAEL: 72 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks
Method: Subchronic toxicity

Components:

1,4-bis(2,3-epoxypropoxy)butane:
Repeated dose toxicity - Assessment : Harmful if inhaled.

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Components:

trimethoxy(methyl)silane:
Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Glass, oxide, chemicals:
Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: Other guidelines
Test substance: Fresh water
Method: OECD Test Guideline 203

1,4-bis(2,3-epoxypropoxy)butane:
Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 24 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water

Method: OECD Test Guideline 203
GLP: no

Phenol, 4-nonyl-, branched:
Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.128 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.209 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.221 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: ASTM Method, other

trimethoxy(methyl)silane:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 110 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 203

hexaboron dizinc undecaoxide:
Toxicity to fish : LC50: 0.169 mg/l
End point: mortality
Exposure time: 96 h

silicon dioxide:
Toxicity to fish : LL50 (Brachydanio rerio (zebrafish)): > 10,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

diuron:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 14.7 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

LC50 (Pimephales promelas (fathead minnow)): 14 mg/l
Exposure time: 96 h
Test substance: Fresh water

melamine:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 3,000 mg/l
Exposure time: 96 h
Test Type: semi-static test

Test substance: Fresh water

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Glass, oxide, chemicals:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 72 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

1,4-bis(2,3-epoxypropoxy)butane:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 75 mg/l
End point: Immobilization
Exposure time: 24 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: no

Phenol, 4-nonyl-, branched:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.085 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: ASTM Method, other

EC50 (Daphnia magna (Water flea)): 0.14 mg/l
Exposure time: 48 h
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.2.

trimethoxy(methyl)silane:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 122 mg/l
Exposure time: 48 h
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 202

silicon dioxide:
Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): >= 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

diuron:
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.4 mg/l
Exposure time: 48 h

Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

melamine:
Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to algae/aquatic plants : EC50: 11 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

NOEC: 4.2 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Glass, oxide, chemicals:
Toxicity to algae/aquatic plants : EgC50 (Selenastrum capricornutum (green algae)): > 1,000 mg/l
Exposure time: 72 h
Test Type: semi-static test
Method: OECD Test Guideline 201

1,4-bis(2,3-epoxypropoxy)butane:
Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 160 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

NOELR (Pseudokirchneriella subcapitata (green algae)): 40 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

Phenol, 4-nonyl-, branched:
Toxicity to algae/aquatic plants : EbC50 (Desmodesmus subspicatus (green algae)): 1.3 mg/l
Exposure time: 72 h
Test Type: static test

Test substance: Fresh water

ErC50 (Selenastrum capricornutum (green algae)): 0.41 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: Algal Toxicity, Tiers I and II

trimethoxy(methyl)silane:
Toxicity to algae/aquatic plants : EgC50 (Selenastrum capricornutum (green algae)): > 120 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

silicon dioxide:
Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): > 10,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

diuron:
Toxicity to algae/aquatic plants : EC50 (Other): 22 ugl
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

EC50 (Selenastrum capricornutum (green algae)): 2.4 ppb
Exposure time: 96 h
Test substance: Fresh water

melamine:
Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 325 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Components:

Phenol, 4-nonyl-, branched:
M-Factor (Acute aquatic toxicity) : 10

hexaboron dizinc undecaoxide:
M-Factor (Acute aquatic toxicity) : 1

diuron:
M-Factor (Acute aquatic toxicity) : 10

Components:

Phenol, 4-nonyl-, branched:
Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.006 mg/l
Exposure time: 91 d

Test Type: flow-through test
Test substance: Fresh water

hexaboron dizinc undecaoxide:
Toxicity to fish (Chronic toxicity) : NOEC: 0.025 mg/l

diuron:
Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.41 mg/l
Exposure time: 28 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 204

melamine:
Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 1,500 mg/l
Exposure time: 28 d
Test Type: semi-static test
Test substance: Fresh water

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.3 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

diuron:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.56 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

NOEC (Daphnia magna (Water flea)): >= 1 mg/l
Exposure time: 21 d
Test substance: Fresh water

melamine:
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 18 mg/l
Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water

Components:

Phenol, 4-nonyl-, branched:
M-Factor (Chronic aquatic toxicity) : 10

hexaboron dizinc undecaoxide:
M-Factor (Chronic aquatic toxicity) : 1

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l

Exposure time: 3 h
Test Type: static test
Test substance: Fresh water

1,4-bis(2,3-epoxypropoxy)butane:
Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: no

Phenol, 4-nonyl-, branched:
Toxicity to microorganisms : EC50 (activated sludge): 950 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

diuron:
Toxicity to microorganisms : EC50 (activated sludge): 3,080 mg/l
Exposure time: 0.5 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209

Components:

Phenol, 4-nonyl-, branched:
Toxicity to soil dwelling organisms : EC10: 3.44 mg/kg
Exposure time: 504 h

EC50 (Other): 906.7 mg/kg
Exposure time: 4 Weeks
Test substance: Synthetic

diuron:
Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 336 h

Remarks: see user defined free text

Plant toxicity : No data available

Sediment toxicity : No data available

Components:

Phenol, 4-nonyl-, branched:
Toxicity to terrestrial organisms : EC10: 63.2 mg/kg
Exposure time: 672 h
Test substance: Synthetic

Ecotoxicology Assessment
Acute aquatic toxicity : No data available

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

hexaboron dizinc undecaoxide:
Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

1,4-bis(2,3-epoxypropoxy)butane:
Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 43 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

Test Type: aerobic
Inoculum: Sewage (STP effluent)
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 38 % (Dissolved organic carbon (DOC))
Exposure time: 28 d
Method: OECD Test Guideline 301E
GLP: no

Phenol, 4-nonyl-, branched:
Biodegradability : Inoculum: activated sludge
Concentration: 13 mg/l
Result: Inherently biodegradable.
Biodegradation: ca. 48.2 %
Exposure time: 35 d
Method: OECD Test Guideline 301B

Inoculum: Sediment
Concentration: 2
Result: Inherently biodegradable.
Biodegradation: 100 %
Exposure time: 63 - 84 d

Method: Anaerobic Biodegradability in the Subsurface

Inoculum: Marine water
Concentration: 11
Biodegradation: 50 %
Exposure time: 56 - 112 d
Method: OECD Test Guideline 309

trimethoxy(methyl)silane:
Biodegradability : Inoculum: activated sludge
Concentration: 11.2 mg/l
Result: Not readily biodegradable.
Biodegradation: 54 %
Exposure time: 28 d

hexaboron dizinc undecaoxide:
Biodegradability : Result: Readily biodegradable.

diuron:
Biodegradability : Inoculum: Sewage (STP effluent)
Concentration: 30 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Result: Inherently biodegradable.

melamine:
Biodegradability : Inoculum: activated sludge
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: < 10 %
Exposure time: 28 d
Method: OECD Test Guideline 302B

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Stability in water : Degradation half life(DT50): 4.83 d (77 °F / 25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 7.1 d (77 °F / 25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life(DT50): 3.58 d (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

trimethoxy(methyl)silane:

Stability in water : Degradation half life(DT50): 2.2 hrs (77 °F / 25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.

Phenol, 4-nonyl-, branched:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 231
Remarks: Does not bioaccumulate.

Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 740
Remarks: Bioaccumulation is unlikely.

diuron:

Bioaccumulation : Species: Other
Bioconcentration factor (BCF): 5.2
Remarks: Bioaccumulation is unlikely.

melamine:

Bioaccumulation : Bioconcentration factor (BCF): 0.05

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Partition coefficient: n-octanol/water : log Pow: 3.242 (77 °F / 25 °C)
pH: 7.1
Method: OECD Test Guideline 117

1,4-bis(2,3-epoxypropoxy)butane:

Partition coefficient: n- : log Pow: -0.269 (77 °F / 25 °C)

octanol/water		pH: 6.7 Method: OECD Test Guideline 117 GLP: yes
Phenol, 4-nonyl-, branched: Partition coefficient: n-octanol/water	:	log Pow: 5.4 (73 °F / 23 °C) pH: 5.7 Method: OECD Test Guideline 117
trimethoxy(methyl)silane: Partition coefficient: n-octanol/water	:	log Pow: 0.7 (68 °F / 20 °C) pH: 7 Method: QSAR
diuron: Partition coefficient: n-octanol/water	:	log Pow: 2.89 (68 °F / 20 °C) pH: 7.01 Method: OECD Test Guideline 107
melamine: Partition coefficient: n-octanol/water	:	log Pow: -1.22 (68 °F / 20 °C) pH: 8 Method: Partition coefficient

Mobility in soil

Mobility	:	No data available

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Distribution among environmental compartments	:	Koc: 445

1,4-bis(2,3-epoxypropoxy)butane:

Distribution among environmental compartments	:	Koc: 12.59 Method: OECD Test Guideline 121

Phenol, 4-nonyl-, branched:

Distribution among environmental compartments	:	Koc: 23000 - 489000

diuron:

Distribution among environmental compartments	:	Koc: 293 - 504 Method: OECD Test Guideline 106

melamine:

Distribution among environmental compartments	:	Koc: 1.7
Stability in soil	:	No data available

Other adverse effects

Environmental fate and pathways	:	No data available
Results of PBT and vPvB assessment	:	No data available

Endocrine disrupting potential	:	No data available
Adsorbed organic bound halogens (AOX)	:	No data available

Hazardous to the ozone layer

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information - Product	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.
Global warming potential (GWP)	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of contents/ container to an approved waste disposal plant.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (NONYL PHENOL, DIURON)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	956
Packing instruction	:	956

(passenger aircraft)
Environmentally hazardous : yes

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (NONYL PHENOL, DIURON)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(NONYL PHENOL, DIURON)
Remarks	:	Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

Remarks : 49CFR: no dangerous good in non-bulk packaging

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
diuron	330-54-1	100	10526

SARA 311/312 Hazards : Respiratory or skin sensitisation
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Phenol, 4-nonyl-, branched 84852-15-3 >= 1 - < 5 %

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including diuron, benzene, which is/are known to the State of California to cause cancer, and methanol, 4,4'-isopropylidenediphenol, benzene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: Not in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

The following substance(s) is/are subject to a Significant New Use Rule:

Phenol, 4-nonyl-, branched	84852-15-3	See 40 CFR § 721.10765

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

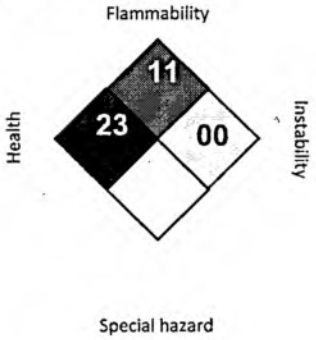
The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Phenol, 4-nonyl-, branched	84852-15-3

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Revision Date	:	08/05/2021
ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average
US WEEL / TWA	:	8-hr TWA

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