

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 07.09.2018
1.2	30.05.2023	400001018109	Date of first issue: 25.05.2016

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : EPOCAST® 1610-A2 US

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the : Epoxy constituents  
Substance/Mixture

#### 1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe) BV  
Address : Everslaan 45  
3078 Everberg  
Belgium  
Telephone : +41 61 299 20 41  
Telefax : +41 61 299 20 40  
E-mail address of person : Global\_Product\_EHS\_AdMat@huntsman.com  
responsible for the SDS

#### 1.4 Emergency telephone number

Emergency telephone number : Centres Antipoison et de Toxicovigilance:  
ANGERS: 02 41 48 21 21  
BORDEAUX: 05 56 96 40 80  
LILLE: 0 825 812 822  
LYON: 04 72 11 69 11  
MARSEILLE 04 91 75 25 25  
NANCY: 03 83 32 36 36  
PARIS: 01 40 05 48 48  
RENNES: 02 99 59 22 22  
STRASBOURG: 03 88 37 37 37  
TOULOUSE: 05 61 77 74 47  
EUROPE: +32 35 75 1234  
France ORFILA: +33(0)145425959  
ASIA: +65 6336-6011  
China: +86 20 39377888  
+86 532 83889090  
India: + 91 22 42 87 5333  
Australia: 1800 786 152  
New Zealand: 0800 767 437  
USA: +1 800-424-9300

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

Skin irritation, Category 2 H315: Causes skin irritation.

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Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :  
**Prevention:**  
P261 Avoid breathing dust.  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ eye protection/ face protection.  
**Response:**  
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.  
P391 Collect spillage.

#### Hazardous components which must be listed on the label:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane  
1,4-bis(2,3 epoxypropoxy)butane  
bisphenol A - epoxy resins, number average MW >700 - <1100  
4-nonylphenol, branched

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: This substance/mixture contains components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

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Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3 216-823-5 603-073-00-2 01-2119456619-26	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411  specific concentration limit Skin Irrit. 2; H315 >= 5 % Eye Irrit. 2; H319 >= 5 %	>= 30 - < 50
1,4-bis(2,3 epoxypropoxy)butane	2425-79-8 219-371-7 603-072-00-7 01-2119494060-45	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412  Acute toxicity estimate  Acute dermal toxicity: 1 100 mg/kg	>= 3 - < 10
4-nonylphenol, branched	84852-15-3 284-325-5 601-053-00-8 01-2119510715-45	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Repr. 2; H361fd Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10  Acute toxicity estimate	>= 2,5 - < 3

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		Acute oral toxicity: 1 412 mg/kg	
bisphenol A - epoxy resins, number average MW >700 - <1100	25068-38-6 Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317	>= 1 - < 10
trimethoxy(methyl)silane	1185-55-3 214-685-0	Flam. Liq. 2; H225 STOT RE 2; H373 (Liver, Thyroid, Adrenal gland, Gastrointestinal tract)	>= 1 - < 10
hexaboron dizinc undecaoxide	12767-90-7 235-804-2	Eye Irrit. 2; H319 Repr. 2; H361d Aquatic Acute 1; H400 Aquatic Chronic 2; H411  M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 0,25 - < 1
diuron (ISO)	330-54-1 206-354-4 006-015-00-9	Carc. 2; H351 Acute Tox. 4; H302 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 1010 M-Factor (Chronic aquatic toxicity): 10	>= 0,25 - < 1
1,3,5-triazine-2,4,6-triamine	108-78-1 203-615-4 613-345-00-2	Repr. 2; H361	>= 0,1 - < 1

For explanation of abbreviations see section 16.

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

#### 4.1 Description of 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.
- 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

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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.

- |                         |   |  |
|-------------------------|---|--|
| If inhaled              | : | If inhaled, remove to fresh air.<br>Get medical attention if symptoms occur.   |
| In case of skin contact | : | If skin irritation persists, call a physician.<br>If on skin, rinse well with water.<br>If on clothes, remove clothes.   |
| In case of eye contact  | : | Small amounts splashed into eyes can cause irreversible tissue damage and blindness.<br>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>Continue rinsing eyes during transport to hospital.<br>Remove contact lenses.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist. |
| If swallowed            | : | Induce vomiting immediately and call a physician.<br>Keep respiratory tract clear.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Take victim immediately to hospital.   |

### 4.2 Most important symptoms and effects, both acute and delayed

None known.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- |                                |   |  |
|--------------------------------|---|--|
| Suitable extinguishing media   | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical |
| Unsuitable extinguishing media | : | Exercise caution when using a high volume water jet as it may scatter and spread fire      |

### 5.2 Special hazards arising from the substance or mixture

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

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Hazardous combustion products : Carbon oxides  
Halogenated compounds  
Carbon dioxide (CO<sub>2</sub>)  
Carbon monoxide

### 5.3 Advice for firefighters

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

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

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

### 6.2 Environmental precautions

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.

### 6.3 Methods and material for containment and cleaning up

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

### 6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Local/Total ventilation : Ensure adequate ventilation.

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation

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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.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : 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.

Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.

Recommended storage temperature : 2 - 8 °C

Further information on storage stability : Stable under normal conditions.

### 7.3 Specific end use(s)

Specific use(s) : No data available

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
diuron (ISO)	330-54-1	VME	10 mg/m3	FR VLE
Further information	Carcinogenic category 2 - Possibly carcinogenic to humans, Indicative exposure limits			

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

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Substance name	End Use	Exposure routes	Potential health effects	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Workers	Inhalation	Long-term systemic effects	4,93 mg/m3
	Workers	Dermal	Long-term systemic effects	0,75 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,87 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,0893 mg/kg bw/day
1,4-bis(2,3-epoxypropoxy)butane	Consumers	Oral	Long-term systemic effects	0,5 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	4,7 mg/m3
	Workers	Dermal	Long-term systemic effects	6,66 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,16 mg/m3
cyanoguanidine	Consumers	Dermal	Long-term systemic effects	3,33 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,33 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	15,3 mg/m3
	Workers	Inhalation	Acute systemic effects	76,5 mg/m3
	Workers	Dermal	Long-term systemic effects	30,1 mg/kg
	Consumers	Inhalation	Long-term local effects	11,2 mg/m3
	Consumers	Inhalation	Acute systemic effects	56 mg/m3
	Consumers	Dermal	Long-term systemic effects	6,5 mg/kg
	Consumers	Oral	Long-term systemic effects	6,5 mg/kg
	Workers	Inhalation	Long-term systemic effects	8,3 mg/m3
	Workers	Inhalation	Acute systemic effects	82,3 mg/m3
	Workers	Dermal	Long-term systemic effects	11,8 mg/kg bw/day
1,3,5-triazine-2,4,6-triamine	Workers	Dermal	Acute systemic effects	117 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,5 mg/m3
	Consumers	Dermal	Long-term systemic effects	4,2 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,42 mg/kg bw/day

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**



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Substance name	Environmental Compartment	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Fresh water	0,006 mg/l
	Marine water	0,001 mg/l
	Fresh water sediment	0,341 mg/kg dry weight (d.w.)
	Marine sediment	0,034 mg/kg dry weight (d.w.)
	Soil	0,065 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
	Secondary Poisoning	11 mg/kg
1,4-bis(2,3 epoxypropoxy)butane	Fresh water	0,024 mg/l
	Remarks:Assessment Factors	
	Marine water	0,002 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	100 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	0,084 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,008 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
cyanoguanidine	Soil	0,003 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Oral	0,028 mg/kg
	Fresh water	2,5 mg/l
	Marine water	0,25 mg/l
	Freshwater - intermittent	10 mg/l
	Sewage treatment plant	34 mg/l
	Fresh water sediment	5,83 mg/kg
	Marine sediment	0,58 mg/kg
	Soil	3,16 mg/kg
1,3,5-triazine-2,4,6-triamine	Fresh water	0,51 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	2 mg/l
	Remarks:Assessment Factors	
	Marine water	0,051 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	200 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	2,524
	Remarks:Equilibrium method	
	Marine sediment	0,252
	Remarks:Equilibrium method	
	Soil	0,206 mg/kg
	Remarks:Equilibrium method	

### 8.2 Exposure controls

#### Personal protective equipment

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

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.

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

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).

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : 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.

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Boiling point	: > 200 °C
Flash point	: > 94 °C Method: closed cup
Flammability (solid, gas)	: 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 (20 °C)
Relative vapour density	: 1
Relative density	: 0,46 - 0,5
Density	: 0,48 g/cm <sup>3</sup> (25 °C)
Solubility(ies)	
Water solubility	: insoluble (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	: > 200 °C
Viscosity	: No data is available on the product itself.

### 9.2 Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : Dust may form explosive mixture in air.

### 10.4 Conditions to avoid

Conditions to avoid : None known.

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### 10.5 Incompatible materials

Materials to avoid : None known.

### 10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide  
carbon monoxide  
Halogenated compounds

## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

##### Product:

Acute oral toxicity : Acute toxicity estimate: > 2 000 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2 000 mg/kg  
Method: Calculation method

##### Components:

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

Acute oral toxicity : LD50 (Rat, female): > 2 000 mg/kg  
Method: OECD Test Guideline 420  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

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

Acute oral toxicity : LD50 (Rat, male and female): 1 163 mg/kg  
Method: OECD Test Guideline 401  
GLP: yes  
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat): > 2,068 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

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Test atmosphere: dust/mist  
Method: Expert judgement  
Assessment: The component/mixture is moderately toxic after short term inhalation., The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.

Acute dermal toxicity : Acute toxicity estimate: 1 100 mg/kg  
Method: Converted acute toxicity point estimate

Assessment: The component/mixture is moderately toxic after single contact with skin.

### **4-nonylphenol, branched:**

Acute oral toxicity : LD50 (Rat, male and female): 1 412 mg/kg

Acute toxicity estimate: 1 412 mg/kg  
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit, male): 2 031 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

### **bisphenol A - epoxy resins, number average MW >700 - <1100:**

Acute oral toxicity : LD50 (Rat, female): > 2 000 mg/kg  
Method: OECD Test Guideline 420  
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

### **trimethoxy(methyl)silane:**

Acute oral toxicity : LD50 (Rat, male): 11 685 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 7605 ppm  
Exposure time: 6 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 9 500 mg/kg  
Method: OECD Test Guideline 402

### **diuron (ISO):**

Acute oral toxicity : LD50 (Rat, female): 4 150 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,05 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

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LC50 (Rat): > 7,1 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OPPTS 870.1300

Acute dermal toxicity : LD50 (Rat, male and female): > 5 000 mg/kg  
Method: OECD Test Guideline 402

LD50 (Rat, male and female): > 2 000 mg/kg  
Method: OPPTS 870.1200

### **1,3,5-triazine-2,4,6-triamine:**

Acute oral toxicity : LD50 (Rat, male and female): 3 161 - 3 828 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5190 mg/m3  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
GLP: yes  
Assessment: The substance or mixture has no acute inhalation toxicity

### **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.

#### **1,4-bis(2,3 epoxypoxy)butane:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation  
GLP : yes

#### **4-nonylphenol, branched:**

Species : Rabbit  
Assessment : Causes burns.  
Result : Causes burns.

#### **bisphenol A - epoxy resins, number average MW >700 - <1100:**

Method : OECD Test Guideline 404  
Result : Skin irritation

#### **trimethoxy(methyl)silane:**

Species : Rabbit  
Assessment : No skin irritation

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Method : OECD Test Guideline 404  
Result : No skin irritation

### **diuron (ISO):**

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

### **1,3,5-triazine-2,4,6-triamine:**

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

### **Serious eye damage/eye irritation**

#### **Components:**

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

Species : Rabbit  
Assessment : Irritating to eyes.  
Method : OECD Test Guideline 405  
Result : Irritating to eyes.

#### **1,4-bis(2,3 epoxypoxy)butane:**

Species : Rabbit  
Assessment : Risk of serious damage to eyes.  
Method : OECD Test Guideline 405  
GLP : yes

#### **4-nonylphenol, branched:**

Result : Risk of serious damage to eyes.

#### **bisphenol A - epoxy resins, number average MW >700 - <1100:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Eye irritation

#### **trimethoxy(methyl)silane:**

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

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### hexaboron dizinc undecaoxide:

Assessment : Irritating to eyes.

### diuron (ISO):

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

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

### 1,3,5-triazine-2,4,6-triamine:

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.

#### 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

Assessment : Harmful if inhaled.

#### 4-nonylphenol, branched:

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

#### bisphenol A - epoxy resins, number average MW >700 - <1100:

Exposure routes : Skin  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : May cause sensitisation by skin contact.



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### trimethoxy(methyl)silane:

Exposure routes	: Skin
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Causes sensitisation.

### diuron (ISO):

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.

### 1,3,5-triazine-2,4,6-triamine:

Test Type	: Maximisation Test
Exposure routes	: Skin
Species	: Guinea pig
Assessment	: Did not cause sensitisation on laboratory animals.
Method	: OECD Test Guideline 406
Result	: Did not cause sensitisation on laboratory animals.
GLP	: yes

### 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
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

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Application Route: Oral  
Dose: 50,250,500,1000 mg/kg bw/day  
Method: OECD Test Guideline 488  
Result: negative

### 1,4-bis(2,3 epoxypoxy)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.

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

Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen., Animal testing did not show any mutagenic effects.

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### **bisphenol A - epoxy resins, number average MW >700 - <1100:**

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: Positive results were obtained in some in vitro tests.

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

Genotoxicity in vivo : Cell type: Germ  
Application Route: Oral  
Method: OECD Test Guideline 478  
Result: negative

Cell type: Somatic  
Application Route: Oral  
Dose: 0 - 5000 mg/kg  
Method: OPPTS 870.5395  
Result: negative

### **trimethoxy(methyl)silane:**

Genotoxicity in vivo : Application Route: Oral  
Dose: 2000 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

### **diuron (ISO):**

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

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

Method: OECD Test Guideline 473  
Result: negative

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

### **1,3,5-triazine-2,4,6-triamine:**

Genotoxicity in vitro : Test Type: reverse mutation assay  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Result: negative

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Test Type: gene mutation test  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Result: negative

Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro  
Species: Mouse (male)  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Dose: 0 - 150 - 300 - 600 mg/kg  
Result: negative

### 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

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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

### bisphenol A - epoxy resins, number average MW >700 - <1100:

Species	: Rat, male and female
Application Route	: Oral
Exposure time	: 24 month(s)
Dose	: 15 mg/kg
Frequency of Treatment	: 7 daily
Method	: OECD Test Guideline 453
Result	: negative

### diuron (ISO):

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

### 1,3,5-triazine-2,4,6-triamine:

Species	: Rat, male and female
Application Route	: Oral
Exposure time	: 103 weeks
NOAEL	: 126 mg/kg bw/day
Result	: negative
Target Organs	: Urinary bladder

Species	: Mouse, male and female
Application Route	: Oral
Exposure time	: 103 weeks
NOAEL	: 2 250 mg/kg bw/day
Result	: negative

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### 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: NOEL: 540 mg/kg body weight  
General Toxicity F1: NOEL: 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.

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: NOAEL: 30 mg/kg body weight  
Developmental Toxicity: NOAEL: 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: NOAEL: 60 mg/kg body weight  
Developmental Toxicity: NOAEL: 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: NOAEL: 180 mg/kg body weight  
Developmental Toxicity: NOAEL: > 540 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

#### **1,4-bis(2,3 epoxypoxy)butane:**

Effects on foetal development : Test Type: Pre-natal  
Species: Rat, female  
Application Route: Oral

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Dose: 0/30/100/300 mg/kg bw/day  
Duration of Single Treatment: 17 d  
General Toxicity Maternal: NOAEL: 300 mg/kg body weight  
Developmental Toxicity: NOAEL: 300 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes  
Remarks: Information given is based on data obtained from similar substances.

### 4-nonylphenol, branched:

Effects on foetal development : Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 75 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Reproductive toxicity - Assessment : Suspected human reproductive toxicant

### bisphenol A - epoxy resins, number average MW >700 - <1100:

Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
General Toxicity - Parent: NOEL: 750 mg/kg body weight  
General Toxicity F1: NOEL: 750 mg/kg body weight  
Method: OECD Test Guideline 416  
Result: No effects on fertility and early embryonic development were detected.

Effects on foetal development : Species: Rabbit, female  
Application Route: Dermal  
General Toxicity Maternal: NOAEL: 30 mg/kg body weight  
Method: Other guidelines  
Result: No teratogenic effects

Species: Rabbit, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 60 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 180 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

### trimethoxy(methyl)silane:

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

Effects on foetal : Species: Rat, male and female

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development

Application Route: Oral  
General Toxicity Maternal: NOAEL: 1 000 mg/kg body weight  
Method: OECD Test Guideline 422  
Result: No teratogenic effects

### hexaboron dizinc undecaoxide:

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

### diuron (ISO):

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

Effects on foetal development : Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 16 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

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

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: > 125 mg/kg body weight  
Result: Teratogenic effects

### 1,3,5-triazine-2,4,6-triamine:

Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
Dose: 1000/4000/12500 pm  
General Toxicity - Parent: NOAEL: 1 000 ppm  
General Toxicity F1: NOAEL: >= 12 500 ppm  
General Toxicity F2: NOAEL: >= 12 500 parts per million  
Target Organs: Testes  
Method: OECD Test Guideline 443  
GLP: yes

Effects on foetal development : Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 600 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Test Type: Pre-natal  
Species: Rat, female  
Application Route: Oral  
Dose: 136; 400; 1060 mg/kg bw/day



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Duration of Single Treatment: 11 d  
General Toxicity Maternal: NOAEL: ca. 400 mg/kg body weight  
Developmental Toxicity: NOAEL: ca. 1 060 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

Test Type: Pre-natal  
Species: Rabbit, female  
Application Route: Oral  
Dose: 15/50/150 mg/kg bw/d  
Duration of Single Treatment: 23 d  
Frequency of Treatment: 7 days/week  
General Toxicity Maternal: NOAEL: 150 mg/kg body weight  
Developmental Toxicity: NOAEL: 150 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

Reproductive toxicity - Assessment : Suspected of damaging fertility or the unborn child., Some evidence of adverse effects on sexual function and fertility, and/or 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

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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

### 1,4-bis(2,3 epoxypoxy)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.

### 4-nonylphenol, 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

### bisphenol A - epoxy resins, number average MW >700 - <1100:

Species : Rat, male and female  
NOAEL : 50 mg/kg  
Application Route : Ingestion  
Exposure time : 14 Weeks  
Number of exposures : 7 d  
Method : Subchronic toxicity

Species : Rat, male and female  
NOEL : 10 mg/kg  
Application Route : Skin contact

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Exposure time : 13 Weeks  
Number of exposures : 5 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

### diuron (ISO):

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

### 1,3,5-triazine-2,4,6-triamine:

Species : Rat, male  
NOAEL : 72 mg/kg  
Application Route : oral (feed)  
Exposure time : 13 Weeks  
Method : Subchronic toxicity

### Aspiration toxicity

No data available

## 11.2 Information on other hazards

### Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according

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to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

### Experience with human exposure

No data available

### Toxicology, Metabolism, Distribution

No data available

### Neurological effects

No data available

### Further information

No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

#### 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

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1,8 mg/l  
aquatic invertebrates : Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 : 11 mg/l  
plants : 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

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to daphnia and other : NOEC: 0,3 mg/l  
aquatic invertebrates : Exposure time: 21 d  
(Chronic toxicity) : Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Test substance: Fresh water

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Method: OECD Test Guideline 211

### Ecotoxicology Assessment

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

#### 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

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

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

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

#### 4-nonylphenol, branched:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0,128 mg/l  
Exposure time: 96 h

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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

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.

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

M-Factor (Acute aquatic toxicity) : 10

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

Toxicity to fish (Chronic toxicity) : NOEC: 0,006 mg/l  
Exposure time: 91 d  
Species: Oncorhynchus mykiss (rainbow trout)  
Test Type: flow-through test  
Test substance: Fresh water

M-Factor (Chronic aquatic toxicity) : 10

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Toxicity to soil dwelling organisms : EC10: 3,44 mg/kg  
Exposure time: 504 h  
  
EC50: 906,7 mg/kg  
Exposure time: 4 Weeks  
Species: Other  
Test substance: Synthetic

Toxicity to terrestrial organisms : EC10: 63,2 mg/kg  
Exposure time: 672 h  
Test substance: Synthetic

### bisphenol A - epoxy resins, number average MW >700 - <1100:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EgC50 (Selenastrum capricornutum (green algae)): > 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

### 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

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

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

### hexaboron dizinc undecaoxide:

Toxicity to fish : LC50 : 0,169 mg/l

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End point: mortality  
Exposure time: 96 h

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: 0,025 mg/l

M-Factor (Chronic aquatic toxicity) : 1

### Ecotoxicology Assessment

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

#### diuron (ISO):

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

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

Toxicity to algae/aquatic plants : EC50 (Other): 22 µg/l  
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

M-Factor (Acute aquatic toxicity) : 10

10

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

Toxicity to fish (Chronic) : NOEC: 0,41 mg/l



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toxicity)

Exposure time: 28 d  
Species: Oncorhynchus mykiss (rainbow trout)  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 204

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,56 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 211

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

M-Factor (Chronic aquatic toxicity) : 10

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

Species: Eisenia fetida (earthworms)  
Remarks: see user defined free text

### 1,3,5-triazine-2,4,6-triamine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 3 000 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
GLP: no

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 200 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: no  
Test substance: Fresh water  
GLP: yes

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  
GLP: yes

NOEC (Selenastrum capricornutum (green algae)): 98 mg/l  
Exposure time: 96 h  
Test Type: static test

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	Test substance: Fresh water
	GLP: yes
Toxicity to fish (Chronic toxicity)	: NOEC: $\geq 5$ mg/l Exposure time: 36 d Species: Pimephales promelas (fathead minnow) Test Type: flow-through test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: $\geq 11$ mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 211 GLP: yes

### 12.2 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
------------------	---

Stability in water	: Degradation half life (DT50): 4,83 d (25 °C) pH: 4 Method: OECD Test Guideline 111 Remarks: Fresh water
--------------------	--

Degradation half life (DT50): 7,1 d (25 °C)  
pH: 9  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life (DT50): 3,58 d (25 °C)  
pH: 7  
Method: OECD Test Guideline 111  
Remarks: Fresh water

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

Biodegradability	: Test Type: aerobic Inoculum: activated sludge Concentration: 20 mg/l Result: Not readily biodegradable. Biodegradation: 43 %
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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 %  
Related to: Dissolved organic carbon (DOC)  
Exposure time: 28 d  
Method: OECD Test Guideline 301E  
GLP: no

### 4-nonylphenol, 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

### bisphenol A - epoxy resins, number average MW >700 - <1100:

Biodegradability : Test Type: aerobic  
Inoculum: Sewage (STP effluent)  
Concentration: 20 mg/l  
Result: Not biodegradable  
Biodegradation: 5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

Stability in water : Degradation half life (DT50): 4,83 d (25 °C)  
pH: 4  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life (DT50): 7,1 d (25 °C)  
pH: 9  
Method: OECD Test Guideline 111  
Remarks: Fresh water

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Degradation half life (DT50): 3,58 d (25 °C)  
pH: 7  
Method: OECD Test Guideline 111  
Remarks: Fresh water

### trimethoxy(methyl)silane:

Biodegradability : Inoculum: activated sludge  
Concentration: 11,2 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 54 %  
Exposure time: 28 d

Stability in water : Degradation half life (DT50): 2,2 hrs (25 °C)  
pH: 7  
Method: OECD Test Guideline 111  
Remarks: Fresh water

### hexaboron dizinc undecaoxide:

Biodegradability : Result: Readily biodegradable.

### diuron (ISO):

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.

### 1,3,5-triazine-2,4,6-triamine:

Biodegradability : Inoculum: activated sludge  
Concentration: 100 mg/l  
Result: Not readily biodegradable.  
Biodegradation: < 10 %  
Related to: Dissolved organic carbon (DOC)  
Exposure time: 28 d  
Method: OECD Test Guideline 302B  
Test substance: Fresh water

Inoculum: activated sludge  
Concentration: 100 parts per million  
Result: Not biodegradable  
Method: OECD Test Guideline 301C  
Test substance: Fresh water

## 12.3 Bioaccumulative potential

### Components:

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

Bioaccumulation : Bioconcentration factor (BCF): 31

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Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3,242 (25 °C)  
pH: 7,1  
Method: OECD Test Guideline 117

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

Partition coefficient: n-octanol/water : log Pow: -0,269 (25 °C)  
pH: 6,7  
Method: OECD Test Guideline 117  
GLP: yes

### 4-nonylphenol, 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.

Partition coefficient: n-octanol/water : log Pow: 5,4 (23 °C)  
pH: 5,7  
Method: OECD Test Guideline 117

### bisphenol A - epoxy resins, number average MW >700 - <1100:

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

### trimethoxy(methyl)silane:

Partition coefficient: n-octanol/water : log Pow: 0,7 (20 °C)  
pH: 7  
Method: QSAR

### diuron (ISO):

Bioaccumulation : Species: Other  
Bioconcentration factor (BCF): 5,2  
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 2,89 (20 °C)  
pH: 7,01  
Method: OECD Test Guideline 107

### 1,3,5-triazine-2,4,6-triamine:

Partition coefficient: n-octanol/water : log Pow: -1,22 (20 °C)  
pH: 8  
Method: Partition coefficient  
GLP: no

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### 12.4 Mobility in soil

#### Components:

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

Distribution among : Koc: 445  
environmental compartments

##### **1,4-bis(2,3 epoxypoxy)butane:**

Distribution among : Koc: 12,59  
environmental compartments Method: OECD Test Guideline 121

##### **4-nonylphenol, branched:**

Distribution among : Koc: 23000 - 489000  
environmental compartments

##### **bisphenol A - epoxy resins, number average MW >700 - <1100:**

Distribution among : Koc: 445  
environmental compartments

##### **diuron (ISO):**

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

##### **1,3,5-triazine-2,4,6-triamine:**

Distribution among : Koc: 1,7  
environmental compartments

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Endocrine disrupting properties

#### Product:

Assessment : This substance/mixture contains components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

#### Components:

##### **4-nonylphenol, branched:**

Assessment : The substance is considered to have endocrine disrupting properties according to REACH Article 57(f) for the environment.

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### 12.7 Other adverse effects

#### Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life with long lasting effects.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Dispose of contents and container in accordance with all local, regional, national and international regulations.  
Do not dispose of waste into sewer.  
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

## SECTION 14: Transport information

### 14.1 UN number or ID number

ADN	: UN 3077
ADR	: UN 3077
RID	: UN 3077
IMDG	: UN 3077
IATA	: UN 3077

### 14.2 UN proper shipping name

ADN	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
ADR	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
RID	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
IMDG	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (NONYL PHENOL, DIURON)
IATA	: Environmentally hazardous substance, solid, n.o.s. (NONYL PHENOL, DIURON)

### 14.3 Transport hazard class(es)

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	Class	Subsidiary risks
<b>ADN</b>	: 9	
<b>ADR</b>	: 9	
<b>RID</b>	: 9	
<b>IMDG</b>	: 9	
<b>IATA</b>	: 9	

### 14.4 Packing group

#### **ADN**

Packing group	: III
Classification Code	: M7
Hazard Identification Number	: 90
Labels	: 9

#### **ADR**

Packing group	: III
Classification Code	: M7
Hazard Identification Number	: 90
Labels	: 9
Tunnel restriction code	: (-)

#### **RID**

Packing group	: III
Classification Code	: M7
Hazard Identification Number	: 90
Labels	: 9

#### **IMDG**

Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F

#### **IATA (Cargo)**

Packing instruction (cargo aircraft)	: 956
Packing instruction (LQ)	: Y956
Packing group	: III
Labels	: Miscellaneous

#### **IATA (Passenger)**

Packing instruction (passenger aircraft)	: 956
Packing instruction (LQ)	: Y956
Packing group	: III
Labels	: Miscellaneous

### 14.5 Environmental hazards

#### **ADN**

Environmentally hazardous	: yes
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#### **ADR**

Environmentally hazardous	: yes
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#### **RID**

Environmentally hazardous	: yes
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### IMDG

Marine pollutant : yes

### IATA (Passenger)

Environmentally hazardous : yes

### IATA (Cargo)

Environmentally hazardous : yes

### 14.6 Special precautions for user

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.

### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : 4-nonylphenol, branched

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:  
Number on list 75  
If you intend to use this product as tattoo ink, please contact your vendor.  
  
4-nonylphenol, branched (Number on list 46a)  
formaldehyde (Number on list 72, 28)  
benzene (Number on list 72, 5, 29, 28)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E1 ENVIRONMENTAL HAZARDS

Occupational Illnesses (R-461-3, France) : 51

Installations classified for the : 4510

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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protection of the environment  
(Environment Code R511-9)

### Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

### 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
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

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

## 15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

## SECTION 16: Other information

### Full text of H-Statements

H225	: Highly flammable liquid and vapour.
H302	: Harmful if swallowed.
H312	: Harmful in contact with skin.
H314	: Causes severe skin burns and eye damage.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.

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H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H332	: Harmful if inhaled.
H351	: Suspected of causing cancer.
H361	: Suspected of damaging fertility or the unborn child.
H361d	: Suspected of damaging the unborn child.
H361fd	: Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	: May cause damage to organs through prolonged or repeated exposure.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.

### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Repr.	: Reproductive toxicity
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT RE	: Specific target organ toxicity - repeated exposure
FR VLE	: France. Occupational Exposure Limits
FR VLE / VME	: Time Weighted Average

### Further information

#### Classification of the mixture:

Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

#### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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