

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended

HUNTSMAN

Enriching lives through innovation

EPOCAST® 1610-A2 US

Version	Revision Date:	SDS Number:	Date of last issue: 30.05.2023
2.0	30.06.2026	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

Unique Formula Identifier (UFI) : FPHD-E067-400N-DWVD

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

Use of the Substance/Mixture : Epoxy constituents

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe) BV
Address : Grijpenlaan 18
3300 Tienen
Belgium

Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

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

1.4 Emergency telephone

Emergency telephone : Berlin: 0049 30 19 24 0 & 0049 30 30 68 6 7 11
Bonn: 0049 228 19 27 0 & 0049 228 28 7 3 32 11
Erfurt: 0049 361 73 07 30
Freiburg: 0049 761 16 24 0
Göttingen: 0049 51 19 24 0 & 0049 551 38 31 80
Homburg: 0049 6841 19 24 0
Mainz: 0049 6131 19 24 0 & 0049 6131 23 24 66
München: 0049 89 19 24 0
Nürnberg: 0049 911 39 8 2 45 1
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.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Carcinogenicity, Category 1B	H350: May cause cancer.

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Reproductive toxicity, Category 1B
Short-term (acute) aquatic hazard,
Category 1
Long-term (chronic) aquatic hazard,
Category 1

H360F: May damage fertility.
H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labeling (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.
H350 May cause cancer.
H360F May damage fertility.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements :
Prevention:
P201 Obtain special instructions before use.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.

Hazardous ingredients which must be listed on the label:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane
1,4-bis(2,3 epoxypoxy)butane
Phenol, 4,4'-[(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]
diuron (ISO)

Additional Labeling

Restricted to professional users.

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 ingredients

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 Eye Irrit. 2; H319 ≥ 5 % Skin Irrit. 2; H315 ≥ 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 Repr. 1B; H360F 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	
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3 Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317	>= 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	Acute Tox. 4; H302 Carc. 1B; H350 STOT RE 2; H373 (Blood system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 100 M-Factor (Chronic aquatic toxicity): 100 Acute toxicity estimate Acute oral toxicity: 1 017 mg/kg	>= 0,25 - < 1
Substances with a workplace exposure limit :			
silicon dioxide	7631-86-9 231-545-4 01-2119379499-16		>= 0,1 - < 1
formaldehyde	50-00-0 200-001-8 605-001-00-5 01-2119488953-20	Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Muta. 2; H341 Carc. 1B; H350 specific concentration limit Skin Corr. 1B; H314 >= 25 % Skin Irrit. 2; H315	< 0,1

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		5 - < 25 % Eye Irrit. 2; H319 5 - < 25 % STOT SE 3; H335 >= 5 %	
4,4'-isopropylidenediphenol	80-05-7 201-245-8 604-030-00-0 01-2119457856-23	Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360F STOT SE 3; H335 (Respiratory system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 10	>= 0,0002 - < 0,0025

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 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.
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.

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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.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause cancer.
May damage fertility.

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
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

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.

Hazardous combustion products : Carbon oxides
Phenolics
Oxides of phosphorus

5.3 Advice for firefighters

Special protective equipment for fire-fighters : 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.

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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 and/or dermatitis and sensitization 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 vapors/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

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precautions. Keep in properly labeled containers.

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

Storage class (TRGS 510) : 6.1C

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
hexaboron dizinc undecaoxide	12767-90-7	MAK (measured as the alveolate fraction)	0,1 mg/m3	DE DFG MAK
	Further information: Zinc chloride: peak limit I(1), Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		MAK (inhalable fraction)	2 mg/m3	DE DFG MAK
	Further information: Zinc chloride: peak limit I(1), Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
silicon dioxide	7631-86-9	AGW (Inhalable fraction)	1 mg/m3 (Silica)	DE TRGS 900
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
		TWA (Respirable dust)	0,1 mg/m3	2004/37/EC
	Further information: Carcinogens or mutagens			
		MAK (measured as the alveolate fraction)	0,3 mg/m3	DE DFG MAK
	Further information: Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		MAK (measured as the alveolate fraction)	0,02 mg/m3	DE DFG MAK
	Further information: Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
				DE DFG MAK
	Further information: Substances that cause cancer in man and can be assumed to contribute to cancer risk			
		TWA (Respirable	0,1 mg/m3	2004/37/EC

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		dust)		
	Further information: Carcinogens or mutagens			
formaldehyde	50-00-0	AGW	0,3 ppm 0,37 mg/m3	DE TRGS 900
	Further information: Carcinogenic substance Cat. 1A or 1B or carcinogenic activity or procedure according to § 2 (3) No. 4 of the Hazardous Substances Ordinance - in addition, § 10 GefStoffV must be observed, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin			
		STEL	0,6 ppm 0,74 mg/m3	2004/37/EC
	Further information: Dermal sensitisation, Carcinogens or mutagens			
		TWA	0,3 ppm 0,37 mg/m3	2004/37/EC
	Further information: Dermal sensitisation, Carcinogens or mutagens			
		MAK	0,3 ppm 0,37 mg/m3	DE DFG MAK
	Further information: Danger of sensitization of the skin, Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans and for which a MAK value can be derived., Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed, Germ cell mutagens or suspected substances (according to the definition of Category 3 A and 3B), the potency of which is considered to be so low that, provided the MAK and BAT values are observed, their contribution to genetic risk for man is considered to be very slight			
		Mow	1 ppm 1,2 mg/m3	DE DFG MAK
	Further information: Danger of sensitization of the skin, Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans and for which a MAK value can be derived., Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed, Germ cell mutagens or suspected substances (according to the definition of Category 3 A and 3B), the potency of which is considered to be so low that, provided the MAK and BAT values are observed, their contribution to genetic risk for man is considered to be very slight			
		STEL	0,6 ppm 0,74 mg/m3	2004/37/EC
	Further information: Dermal sensitisation, Carcinogens or mutagens			
		TWA	0,3 ppm 0,37 mg/m3	2004/37/EC
	Further information: Dermal sensitisation, Carcinogens or mutagens			
4,4'-isopropylidenediph enol	80-05-7	AGW (Inhalable fraction)	2 mg/m3	DE TRGS 900
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin			
		TWA (inhalable fraction)	2 mg/m3	2017/164/EU
	Further information: Indicative			
		TWA (inhalable fraction)	2 mg/m3	2004/37/EC
	Further information: Carcinogens or mutagens			
		MAK (inhalable	5 mg/m3	DE DFG MAK

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		fraction)		
	Further information: Danger of photo-contact sensitization, Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		TWA (inhalable fraction)	2 mg/m3	2017/164/EU
	Further information: Indicative			
		TWA (inhalable fraction)	2 mg/m3	2004/37/EC
	Further information: Carcinogens or mutagens			

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

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
formaldehyde	Consumers	Oral	Long-term systemic effects	6,5 mg/kg
	Workers	Inhalation	Long-term systemic effects	9 mg/m3
	Workers	Inhalation	Long-term local	0,375 mg/m3

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			effects	
	Workers	Inhalation	Acute local effects	0,75 mg/m3
	Workers	Dermal	Long-term systemic effects	240 mg/kg bw/day
	Workers	Dermal	Long-term local effects	0,037 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	3,2 mg/m3
	Consumers	Inhalation	Long-term local effects	0,1 mg/m3
	Consumers	Dermal	Long-term systemic effects	102 mg/kg bw/day
	Consumers	Dermal	Long-term local effects	0,012 mg/cm2
	Consumers	Oral	Long-term systemic effects	4,1 mg/kg bw/day
silicon dioxide	Workers	Inhalation	Long-term systemic effects	4 mg/m3
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Workers	Dermal	Systemic effects, Long-term exposure	21 mg/kg bw/day
	Workers	Inhalation	Systemic effects, Long-term exposure	147 mg/m3
	Consumers	Oral	Systemic effects, Long-term exposure	12,5 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	43,5 mg/kg bw/day
	Consumers	Dermal	Systemic effects, Long-term exposure	12,5 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Fresh water	0,006 mg/l
	Sea water	0,001 mg/l
	Fresh water sediment	0,341 mg/kg dry weight (d.w.)
	Sea 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	
	Sea 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	
	Sea sediment	0,008 mg/kg dry

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		weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0,003 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Oral	0,028 mg/kg
cyanoguanidine	Fresh water	2,5 mg/l
	Sea water	0,25 mg/l
	Freshwater - intermittent	10 mg/l
	Sewage treatment plant	34 mg/l
	Fresh water sediment	5,83 mg/kg
	Sea sediment	0,58 mg/kg
	Soil	3,16 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Fresh water	1 mg/l
	Sea water	0,1 mg/l
	Freshwater - intermittent	1 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	3,6 mg/kg
	Sea sediment	0,36 mg/kg
	Soil	0,14 mg/kg

8.2 Exposure controls

Individual protection measures, such as personal protective equipment (PPE)

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)
Material : Nitrile rubber
Material : Neoprene
Material : PVC
Break through time : > 8 h

Remarks : Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. 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). The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

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

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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).

Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Equipment should conform to EN 14387

Filter type : Combined particulates, inorganic and acidic gas/vapor, ammonia/amines and organic vapor type (ABEK-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: solid
Form	: solid, paste
Color	: off-white
Odor	: slight
Odor Threshold	: No data is available on the product itself.
Melting point/freezing point	: No data is available on the product itself.
Boiling point	: > 200 °C
Flammability	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Flash point	: > 94 °C Method: closed cup
Autoignition temperature	: No data is available on the product itself.
Decomposition temperature	: > 200 °C
pH	: substance/mixture is non-soluble (in water)
Viscosity	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: insoluble (20 °C)
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-	: No data is available on the product itself.

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octanol/water

Vapor pressure : < 1,333 hPa (20 °C)

Density : 0,48 g/cm³ (25 °C)

Relative density : 0,46 - 0,5

Relative vapor density : 1

Particle characteristics : No data is available on the product itself.

9.2 Other information

No data is available on the product itself.

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.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

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

Acute toxicity

Not classified due to lack of data.

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

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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

Test atmosphere: dust/mist
Method: Expert judgment
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 dermal toxicity : LD50 (Rabbit, male): 2 031 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

diuron (ISO):

Acute oral toxicity : LD50 (Rat, male): 1 017 mg/kg

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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GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity

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

silicon dioxide:

Acute oral toxicity : LD50 (Rat): > 5 000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 58,8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5 000 mg/kg

formaldehyde:

Acute oral toxicity : LD50 (Rat, male): 640 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 463 ppm
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403
GLP: yes
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit): 270 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.

4,4'-isopropylidenediphenol:

Acute oral toxicity : LD50 (Rat, male and female): > 2 000 - < 5 000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 170 mg/m³
Exposure time: 6 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit, male): ca. 6 400 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

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Skin corrosion/irritation

Causes skin 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.

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

Result	: Skin irritation
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diuron (ISO):

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

formaldehyde:

Species	: Rabbit
Assessment	: Causes burns.
Method	: OECD Test Guideline 404
Result	: Corrosive after 3 minutes to 1 hour of exposure

4,4'-isopropylidenediphenol:

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

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Serious eye damage/eye irritation

Causes serious eye damage.

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 epoxypropoxy)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.
--------	-----------------------------------

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

Result	: Eye irritation
--------	------------------

hexaboron dizinc undecaoxide:

Assessment	: Irritating to eyes.
------------	-----------------------

diuron (ISO):

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

silicon dioxide:

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

formaldehyde:

Assessment	: Risk of serious damage to eyes.
------------	-----------------------------------

4,4'-isopropylidenediphenol:

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

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Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

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.

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.
--------	--

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.

formaldehyde:

Exposure routes	: Skin
Species	: Guinea pig
Assessment	: Probability or evidence of low to moderate skin sensitisation rate in humans
Method	: OECD Test Guideline 406
Result	: Probability or evidence of low to moderate skin sensitisation rate in humans

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Test Type : Local lymph node assay (LLNA)
Exposure routes : Respiratory Tract
Species : Mouse
Assessment : Did not cause sensitisation on laboratory animals.
Result : Did not cause sensitisation on laboratory animals.

Assessment : May cause sensitisation by skin contact.

4,4'-isopropylidenediphenol:

Exposure routes : Skin
Species : Mouse
Assessment : Did not cause sensitisation on laboratory animals.
Method : OECD Test Guideline 429
Result : Did not cause sensitisation on laboratory animals.
GLP : yes

Exposure routes : Skin
Species : Humans
Assessment : May cause sensitisation by skin contact.
Result : Causes sensitization.

Germ cell mutagenicity

Not classified due to lack of data.

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

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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.

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

Test Type: gene mutation test
Species: Rat (male)
Cell type: Somatic
Application Route: Oral
Dose: 0, 62.5, 125 and 250 mg/kg
Method: OECD Test Guideline 488
Result: negative

Germ cell mutagenicity- : Weight of evidence does not support classification as a germ

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Assessment cell mutagen., Animal testing did not show any mutagenic effects.

diuron (ISO):

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Concentration: 0, 90, 180 and 360 µg/mL
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: gene mutation test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: reverse mutation assay
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

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Intraperitoneal injection
Dose: 700 mg/kg
Method: OECD Test Guideline 474
Result: negative

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

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

formaldehyde:

Genotoxicity in vitro : Test Type: unscheduled DNA synthesis assay
Result: positive

Test Type: unscheduled DNA synthesis assay
Result: positive

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Test Type: gene mutation test
Test system: Chinese hamster lung cells
Concentration: 0, 3.75, 7.5, 15 µg/mL
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: positive

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive

Genotoxicity in vivo : Cell type: Germ + somatic
Result: Positive results were obtained in some in vivo tests.

Test Type: in vivo assay
Species: Rat (male)
Application Route: inhalation (vapor)
Dose: 0.7/2/5.8/9.1 ppm
Result: negative

Test Type: in vivo assay
Species: Rat (male)
Application Route: inhalation (vapor)
Dose: 0.7/2/5.8/9.1 ppm
Result: negative

Test Type: in vivo assay
Species: Rat (male)
Application Route: inhalation (gas)
Dose: 0.7/2/5.8/9.1/15.2 ppm
Result: positive

Germ cell mutagenicity-Assessment : Positive result(s) from in vivo non-mammalian somatic cell mutagenicity tests, supported by positive results from in vitro mutagenicity assays.

4,4'-isopropylidenediphenol:
Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: reverse mutation assay
Test system: Salmonella typhimurium and E. coli
Metabolic activation: with and without metabolic activation
Result: negative

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Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Dose: 0, 500, 1000, or 2000 mg/kg
Result: negative

Carcinogenicity

May cause cancer.

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

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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

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

NOAEL : 25 ppm

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 : Sufficient evidence of carcinogenicity in animal experiments

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

formaldehyde:

Species : Rat, male

Application Route : Inhalation

Exposure time : 24 month(s)

Dose : 6 ppm

Frequency of Treatment : 6 hour

Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in inhalation studies with animals

4,4'-isopropylidenediphenol:

Species : Rat, male and female

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Application Route : Oral
Exposure time : 103 weeks
Frequency of Treatment : 7 daily
Result : negative
GLP : yes

Reproductive toxicity

May damage fertility.

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 fetal 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

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

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0/50/200/500 mg/kg bw/day
Duration of Single Treatment: 43 d
General Toxicity Parent: LOEL: 500 mg/kg body weight
General Toxicity F1: LOAEL: 500 mg/kg body weight
Target Organs: Gastrointestinal tract
Method: OECD Test Guideline 421
GLP: yes

Test Type: Extended one-generation reproduction toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0/10/55/300 mg/kg bw/day
General Toxicity Parent: NOAEL: 55 mg/kg body weight
General Toxicity F1: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 443
GLP: yes

Effects on fetal development : 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: 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.

Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Oral
Dose: 0/33/110/300 mg/kg bw/day
Duration of Single Treatment: 18 d
General Toxicity Maternal: NOAEL: 110 mg/kg body weight
Embryo-fetal toxicity.: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Test Type: Pre-natal
Species: Rabbit
Application Route: Oral
Dose: 0/125/250/500 mg/kg bw/day
General Toxicity Maternal: NOAEL: 250 mg/kg body weight
Embryo-fetal toxicity.: NOAEL: 250 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

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Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

4-nonylphenol, branched:

Effects on fetal 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

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
General Toxicity Parent: NOAEL: 14,8 mg/kg body weight
General Toxicity F1: NOAEL: 18,9 mg/kg body weight
Method: OECD Test Guideline 416
Result: negative
GLP: yes

Effects on fetal 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.

silicon dioxide:

Effects on fetal development : Species: Mouse
Application Route: Oral
General Toxicity Maternal: NOAEL: 1 340 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Oral
General Toxicity Maternal: NOAEL: 1 600 mg/kg body weight

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Method: OECD Test Guideline 414

Result: No teratogenic effects

Species: Rat

Application Route: Oral

General Toxicity Maternal: NOAEL: 1 350 mg/kg body weight

Method: OECD Test Guideline 414

Result: No teratogenic effects

formaldehyde:

Effects on fetal development : Test Type: Pre-natal
Species: Rat, female
Application Route: inhalation (gas)
Dose: 2/5/10 ppm
Duration of Single Treatment: 10 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: NOAEC: 5 ppm
Developmental Toxicity: NOAEC: 10 ppm
Method: OECD Test Guideline 414
Result: No teratogenic effects

Test Type: Pre-natal

Species: Dog, female

Application Route: Oral

Dose: 3.1 and 9.4 mg/kg bw/day

Duration of Single Treatment: 50 d

General Toxicity Maternal: LOAEL: > 9,4 mg/kg body weight

Developmental Toxicity: LOAEL: > 9,4 mg/kg body weight

Method: OECD Test Guideline 414

4,4'-isopropylidenediphenol:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 0.2, 2, 20, and 200 µg/kg
General Toxicity Parent: NOAEL: 0,2 mg/kg body weight
General Toxicity F1: NOAEL: 0,2 mg/kg body weight
General Toxicity F2: NOAEL: 0,2 mg/kg body weight
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.
GLP: yes

Species: Rat, male and female

General Toxicity Parent: NOAEL: 2,7 mg/kg body weight

General Toxicity F1: NOAEL: 2,7 mg/kg body weight

GLP: yes

Effects on fetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 0,2 mg/kg body weight
Method: OECD Test Guideline 416
Result: No teratogenic effects

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Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

STOT-single exposure

Not classified due to lack of data.

Components:

4,4'-isopropylidenediphenol:

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT-repeated exposure

Not classified due to lack of data.

Components:

diuron (ISO):

Exposure routes : Inhalation
Target Organs : Blood
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

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

Species : Rat, male and female
NOAEL : 200 mg/kg
Application Route : Oral

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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.

Repeated dose toxicity - Assessment : Harmful if inhaled.

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

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
Dose : 0, 50, 300, 1800 ppm
Method : OECD Test Guideline 452
GLP : yes

Species : Rabbit, male and female
NOAEL : 250 mg/kg/d
Application Route : Skin contact

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Exposure time : 504 h
Number of exposures : 5 d
Method : Subacute toxicity

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

formaldehyde:

Species : Rat, male and female
NOAEL : 82 mg/kg
Application Route : oral (drinking water)
Exposure time : 103 Weeks
Number of exposures : 7 days/week
Dose : 5/25/125 mg/kg bw/day
Method : OECD Test Guideline 453
Target Organs : Gastrointestinal tract, Stomach

4,4'-isopropylidenediphenol:

Species : Mouse, male and female
NOAEL : 300 ppm
Application Route : oral (feed)
Exposure time : 8 weeks
Number of exposures : 7 days/week
Dose : 0.018,0.18,1.8,30,300,3500 ppm
Method : OECD Test Guideline 416
GLP : yes

Species : Rat, male and female
NOEL : 75 ppm
NOAEL : 750 ppm
Application Route : oral (feed)
Number of exposures : 7 days/week
Dose : 0,0.015,0.3,4.5,75,750,7500ppm
Method : OECD Test Guideline 416
GLP : yes

Species : Rat, male and female
LOAEL : 600 mg/kg
Application Route : oral (gavage)
Exposure time : 28 d
Number of exposures : 7 days/week
Dose : 0, 40, 200, 600 1000 mg/kg-day
Method : OECD Test Guideline 407
GLP : yes

Species : Rat, male and female
NOEC : 10 mg/m3

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Application Route : inhalation (dust/mist/fume)
Exposure time : 13 weeks 6 h
Number of exposures : 5 days/week
Dose : 0, 10, 50, or 150 mg/m³

Species : Rat, male and female
NOAEL : 90 mg/m³
Application Route : inhalation (dust/mist/fume)
Exposure time : 8 weeks 6 h
Number of exposures : 5 days/week
Dose : 10/30/90 mg/m³

Aspiration hazard

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Not classified due to lack of data.

Components:

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

Assessment : Based on available data, the classification criteria are not met.

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

Assessment : Does not have endocrine disrupting properties.

4-nonylphenol, branched:

Assessment : Does not have endocrine disrupting properties.

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

Assessment : Does not have endocrine disrupting properties.

hexaboron dizinc undecaoxide:

Assessment : Does not have endocrine disrupting properties.

diuron (ISO):

Assessment : Based on available data, the classification criteria are not met.

silicon dioxide:

Assessment : Does not have endocrine disrupting properties.

formaldehyde:

Assessment : Does not have endocrine disrupting properties.

4,4'-isopropylidenediphenol:

Assessment : Based on available data, the classification criteria are not met.

Experience with human exposure

No data available

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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
(Chronic toxicity)
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
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

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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

Toxicity to fish (Chronic toxicity) : NOEC: > 3,2 mg/l
Exposure time: 35 d
Species: Danio rerio (zebra fish)
Test Type: flow-through test
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 15 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

4-nonylphenol, branched:

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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

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

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M-Factor (Chronic aquatic toxicity) : 10
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

hexaboron dizinc undecaoxide:

Toxicity to fish : LC50 : 0,169 mg/l
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 (Desmodesmus subspicatus (green algae)): 0,0079 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

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NOEC (Desmodesmus subspicatus (green algae)): 0,0032 mg/l

Exposure time: 72 h

Test Type: static test

Test substance: Fresh water

Method: OECD Test Guideline 201

NOEC (Synechococcus leopoliensis (blue-green algae)): 0,000632 mg/l

Exposure time: 72 h

Test Type: static test

Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 100

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 toxicity) : NOEC: 0,41 mg/l
Exposure time: 28 d
Species: Oncorhynchus mykiss (rainbow trout)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 204

NOEC: 0,001 mg/l
Exposure time: 63 d
Species: Danio rerio (zebra fish)
Test Type: flow-through test
Method: OECD Test Guideline 234

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) : 100

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

Species: Eisenia fetida (earthworms)

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Remarks: see user defined free text

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
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
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

formaldehyde:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 24,1 mg/l End point: mortality 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 pulex (Water flea)): 5,8 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 4,89 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 EC50 (Desmodesmus subspicatus (green algae)): 3,48 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (Bacteria): 20,4 mg/l Exposure time: 120 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1,04 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211

4,4'-isopropylidenediphenol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 4,6 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: ASTM Method, other
GLP: yes

LC50 (Oryzias latipes (Orange-red killifish)): 6,8 mg/l
End point: mortality
Exposure time: 72 h
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 10,2 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: Other guidelines
GLP: yes

EC50 (Chironomus sp.): 2,7 mg/l
End point: Immobilization
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: Other guidelines
GLP: yes

EC50 (Acartia tonsa): 0,885 mg/l
Exposure time: 48 h
Method: Measured

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 2,73 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
GLP: yes

EC10 (Pseudokirchneriella subcapitata (green algae)): 1,41 mg/l

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Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
GLP: yes

EC50 (Lemna minor (duckweed)): 20 mg/l
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 221
GLP: yes

NOEC (Lemna minor (duckweed)): 7,8 mg/l
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 221
GLP: yes

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: $\geq 0,640$ 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

NOEC: 0,000372 mg/l
Exposure time: 300 d
Species: Danio rerio (zebra fish)
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,025 mg/l
Exposure time: 181 d
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
GLP: yes

M-Factor (Chronic aquatic toxicity) : 10

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

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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 %
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

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

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.

formaldehyde:

Biodegradability : Test Type: anaerobic
Inoculum: activated sludge
Concentration: 1 360 mg/l
Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 4 d
Test substance: Fresh water

Test Type: aerobic
Inoculum: Sewage (STP effluent)
Result: Readily biodegradable.
Biodegradation: 99 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 303A
Test substance: Fresh water

Biochemical Oxygen Demand (BOD) : 0,33 - 1,07 mg/l
Incubation time: 5 d

Chemical Oxygen Demand (COD) : 1.07 mgO₂/g

4,4'-isopropylidenediphenol:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 100 mg/l
Result: Readily biodegradable.
Biodegradation: 89 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Test substance: Fresh water
GLP: yes

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Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 25 mg/l
Result: Readily biodegradable.
Biodegradation: 74,7 - 81,4 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 301F
Test substance: Fresh water
GLP: yes

12.3 Bioaccumulative potential

Components:

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

Bioaccumulation : Bioconcentration factor (BCF): 31
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 epoxypoxy)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

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

formaldehyde:

Bioaccumulation : Species: Fish

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Bioconcentration factor (BCF): < 1
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 0,35 (25 °C)

4,4'-isopropylidenediphenol:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 42 d
Bioconcentration factor (BCF): 5,1 - 13,3

Partition coefficient: n-octanol/water : log Pow: 3,4 (21,5 °C)
pH: 6,4
Method: OECD Test Guideline 107

12.4 Mobility in soil

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

4-nonylphenol, branched:

Distribution among environmental compartments : Koc: 23000 - 489000

diuron (ISO):

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

formaldehyde:

Distribution among environmental compartments : Koc: 15,9, log Koc: 1,202
Method: Calculation method

12.5 Results of PBT and vPvB assessment

Components:

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

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

4-nonylphenol, branched:

Assessment : Based on available data, the classification criteria are not met.
Based on available data, the classification criteria are not met.

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

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

hexaboron dizinc undecaoxide:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

diuron (ISO):

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

silicon dioxide:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

formaldehyde:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

4,4'-isopropylidenediphenol:

Assessment : Not persistent, bioaccumulative, and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Endocrine disrupting properties

Components:

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

Assessment : Based on available data, the classification criteria are not met.

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

Assessment : Does not have endocrine disrupting properties.

4-nonylphenol, branched:

Assessment : Does not have endocrine disrupting properties.

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

Assessment : Does not have endocrine disrupting properties.

hexaboron dizinc undecaoxide:

Assessment : Does not have endocrine disrupting properties.

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diuron (ISO):

Assessment : Based on available data, the classification criteria are not met.

silicon dioxide:

Assessment : Does not have endocrine disrupting properties.

formaldehyde:

Assessment : Does not have endocrine disrupting properties.

4,4'-isopropylidenediphenol:

Assessment : Based on available data, the classification criteria are not met.

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.

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

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

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

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

4-nonylphenol, branched:

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

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

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

hexaboron dizinc undecaoxide:

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

diuron (ISO):

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

silicon dioxide:

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

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formaldehyde:

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

4,4'-isopropylidenediphenol:

Assessment : Not persistent, mobile, and toxic (PMT).
Not very persistent and very mobile (vPvM).

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.

Dispose of contents and container in accordance with all local, regional, national and international regulations.

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)

Class	Subsidiary risks
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ADN	:	9
ADR	:	9
RID	:	9
IMDG	:	9
IATA	:	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
ADR	
Environmentally hazardous	: yes
RID	
Environmentally hazardous	: yes
IMDG	

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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 Authorization (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 must be considered::
Number on list 28: diuron (ISO)

Number on list 40

This substance/mixture shall not be used in aerosol dispensers intended for supply to the general public for entertainment and decorative purposes.

Number on list 46: 4-nonylphenol, branched

Number on list 72: formaldehyde, benzene

Number on list 75

If you intend to use this product as tattoo ink, please contact your vendor.

Number on list 77: 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde, formaldehyde

Number on list 78:

Amino-resins, phenolic resins and polyurethanes

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synthetic polymer microparticles
(SPM) content: 1 - 2,5 %
The synthetic polymer microparticles
supplied is subject to conditions laid
down by entry 78 of Annex XVII to
Regulation (EC) No 1907/2006 of
the European Parliament and of the
Council

Seveso III: Directive 2012/18/EU of the E1 ENVIRONMENTAL HAZARDS
European Parliament and of the Council on the
control of major-accident hazards involving
dangerous substances.

Water hazard class : WGK 3 highly hazardous to water
(Germany) Classification according to AwSV, Annex 1 (5.2)

Other regulations:

The product is subject to the supply restrictions of the Ordinance on the Prohibition of
Chemicals.

Take note of Law on the protection of mothers at work, in education and in studies (Maternity
Protection Act - MuSchG).

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

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

H301	: Toxic if swallowed.
H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
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.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H331	: Toxic if inhaled.
H332	: Harmful if inhaled.
H335	: May cause respiratory irritation.
H341	: Suspected of causing genetic defects.
H350	: May cause cancer.
H360F	: May damage fertility.
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.

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H411 : Toxic 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
Muta.	: Germ cell mutagenicity
Repr.	: Reproductive toxicity
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT RE	: Specific target organ toxicity - repeated exposure
STOT SE	: Specific target organ toxicity - single exposure
2004/37/EC	: Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens, mutagens or reprotoxic substances at work - Annex III
2017/164/EU	: Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
DE DFG MAK	: Germany. MAK BAT Annex IIa
DE TRGS 900	: Germany. TRGS 900 - Occupational exposure limit values.
2004/37/EC / STEL	: Short term exposure limit
2004/37/EC / TWA	: Long term exposure limit
2017/164/EU / TWA	: Limit Value - eight hours
DE DFG MAK / Mow	: Momentary value
DE DFG MAK / MAK	: MAK value
DE TRGS 900 / AGW	: Time Weighted Average

Further information

Classification of the mixture:

Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Carc. 1B	H350
Repr. 1B	H360F
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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