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

1.1 Product identifier

Trade name : EPOCAST® 50-A1 US

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)BVBA
Address : Everslaan 45
3078 Everberg
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 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.

Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the unborn child.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements :

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201	Obtain special instructions before use.
P261	Avoid breathing mist or vapours.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P391	Collect spillage.

Hazardous components which must be listed on the label:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane
Phenol, polymer with formaldehyde, glycidyl ether
tris(methylphenyl) phosphate

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.

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
Phenol, polymer with formaldehyde, glycidyl ether	28064-14-4 Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 30 - < 50
Silsesquioxanes, Ph, hydroxy-terminated	181186-39-0 Polymer	Acute Tox. 4; H332	>= 10 - < 20
tris(methylphenyl) phosphate	1330-78-5 215-548-8	Repr. 2; H361 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 10 - < 20
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	>= 0,25 - < 1

		Acute toxicity estimate Acute oral toxicity: 1 412 mg/kg	

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 : Immediately flush eye(s) with plenty of water.
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

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
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.

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.
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 : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
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

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
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 : Normal measures for preventive fire protection.

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.

Further information on storage stability : Stable under normal conditions.

Recommended storage temperature : 2 - 40 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

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
	Consumers	Oral	Long-term systemic effects	0,5 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
	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

8.2 Exposure controls

Personal protective equipment

Eye 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
Break through time : > 8 h

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

Material : Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time : > 8 h

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. 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).

Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	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 and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	amber
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.
pH	:	No data is available on the product itself.
Melting point/freezing point	:	No data available
Boiling point	:	> 200 °C
Flash point	:	> 95 °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	:	< 1,5 hPa (20 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	1,21
Density	:	1,2 g/cm3 (25 °C)
Solubility(ies) Water solubility	:	partly soluble (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.

octanol/water

Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 200 °C
Viscosity		
Viscosity, dynamic	:	7 770 mPa.s (25 °C)

9.2 Other information

Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.
Burning rate	:	No data is available on the product itself.
Evaporation rate	:	No data is available on the product itself.
Molecular weight	:	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	:	No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid	:	None known.

10.5 Incompatible materials

Materials to avoid	:	Strong acids and strong bases Strong oxidizing agents

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 inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
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

Phenol, polymer with formaldehyde, glycidyl ether:

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

Silsesquioxanes, Ph, hydroxy-terminated:

Acute inhalation toxicity : Assessment: The component/mixture is moderately toxic after short term inhalation.

tris(methylphenyl) phosphate:

Acute oral toxicity : LD50 (Rat): > 20 000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 11,1 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 3 700 mg/kg
Assessment: The component/mixture is low 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

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.

Phenol, polymer with formaldehyde, glycidyl ether:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.

tris(methylphenyl) phosphate:

Species : Rabbit
Result : No skin irritation

4-nonylphenol, branched:

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

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.

Phenol, polymer with formaldehyde, glycidyl ether:

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

tris(methylphenyl) phosphate:

Species : Rabbit
Result : No eye irritation

4-nonylphenol, branched:

Result : Risk of serious damage to eyes.

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.

Phenol, polymer with formaldehyde, glycidyl ether:

Exposure routes	:	Skin
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	May cause sensitisation by skin contact.

tris(methylphenyl) phosphate:

Exposure routes	:	Skin
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitisation.

4-nonylphenol, branched:

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

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

Phenol, polymer with formaldehyde, glycidyl ether:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Result: positive

Concentration: 0 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Result: positive

Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Result: negative

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

tris(methylphenyl) phosphate:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Result: negative

Germ cell mutagenicity-Assessment : In vitro tests did not show mutagenic effects

Carcinogenicity

Components:

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

Species : Rat, male
Application Route : Oral
Exposure time : 24 month(s)
Dose : 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment : 7 days/week
NOAEL : 15 mg/kg bw/day
Method : OECD Test Guideline 453
Result : negative
Target Organs : Digestive organs

Species : Mouse, male
Application Route : Dermal
Exposure time : 24 month(s)
Dose : 0, 0.1, 10, 100 mg/kg bw/day
Frequency of Treatment : 3 days/week
NOEL : 0,1 mg/kg body weight

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

Species	:	Rat, female
Application Route	:	Dermal
Exposure time	:	24 month(s)
Dose	:	0.1, 100, 1000 mg/kg bw/day
Frequency of Treatment	:	5 days/week
NOEL	:	100 mg/kg body weight
Method	:	OECD Test Guideline 453
Result	:	negative

Species	:	Rat, female
Application Route	:	Oral
Exposure time	:	24 month(s)
Dose	:	0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment	:	7 days/week
NOAEL	:	100 mg/kg bw/day
Method	:	OECD Test Guideline 453
Result	:	negative
Target Organs	:	Digestive organs

Species	:	Rat, females
Application Route	:	Oral
Exposure time	:	24 month(s)
Dose	:	0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment	:	7 days/week
NOEL	:	2 mg/kg bw/day
Method	:	OECD Test Guideline 453
Result	:	negative
Target Organs	:	Digestive organs

Phenol, polymer with formaldehyde, glycidyl ether:

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

Species	:	Mouse, male
Application Route	:	Dermal
Exposure time	:	24 month(s)
Dose	:	.1 mg/kg
Frequency of Treatment	:	3 daily
Method	:	OECD Test Guideline 453
Result	:	negative

Species	:	Rat, female
Application Route	:	Dermal
Exposure time	:	24 month(s)
Dose	:	1 mg/kg

Frequency of Treatment	:	5 daily
Method	:	OECD Test Guideline 453
Result	:	negative

tris(methylphenyl) phosphate:

Carcinogenicity - Assessment	:	Animal testing did not show any carcinogenic effects.

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

Phenol, polymer with formaldehyde, glycidyl ether:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
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
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

tris(methylphenyl) phosphate:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: LOAEL: 62,5 mg/kg body weight
Target Organs: Testes, Ovary
Method: OECD Test Guideline 415
Result: positive

Effects on foetal development : Species: Rat, female
Application Route: Oral
Dose: 20, 100, 400, 750 milligram per kilogram
General Toxicity Maternal: NOEL: 20 mg/kg body weight
Method: OPPTS 870.3700
Result: Teratogenic effects

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

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 - : Suspected human reproductive toxicant

Assessment

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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

Phenol, polymer with formaldehyde, glycidyl ether:

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
Exposure time	:	13 Weeks
Number of exposures	:	5 d
Method	:	Subchronic toxicity

Species	:	Mouse, male
NOAEL	:	100 mg/kg
Application Route	:	Skin contact

Exposure time	:	13 Weeks
Number of exposures	:	3 d
Method	:	Subchronic toxicity

tris(methylphenyl) phosphate:

Species	:	Rat, male and female
NOEL	:	1000 mg/kg
Application Route	:	Ingestion
Exposure time	:	2 160 h
Method	:	Subchronic toxicity

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

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 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 aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1,8 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 : 11 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009 NOEC : 4,2 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009
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 aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,3 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

Ecotoxicology Assessment

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

Phenol, polymer with formaldehyde, glycidyl ether:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 1,5 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)): 1,7 mg/l Exposure time: 48 h

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

EC50 (Daphnia magna (Water flea)): 2,7 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 9,4 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water

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

Toxicity to fish (Chronic toxicity) : GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,3 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

tris(methylphenyl) phosphate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,6 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,146 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 : 0,4042 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): > 1 000 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity) : NOEC: 0,01 mg/l
Exposure time: 28 d
Species: Other

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test
M-Factor (Chronic aquatic toxicity)	:	1

4-nonylphenol, branched:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0,128 mg/l Exposure time: 96 h Test Type: flow-through test Test substance: Fresh water Method: ASTM Method, other LC50 (Lepomis macrochirus (Bluegill sunfish)): 0,209 mg/l Exposure time: 96 h Test Type: flow-through test Test substance: Fresh water Method: ASTM Method, other LC50 (Oncorhynchus mykiss (rainbow trout)): 0,221 mg/l Exposure time: 96 h Test Type: flow-through test Test substance: Fresh water Method: ASTM Method, other
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

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

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

Phenol, polymer with formaldehyde, glycidyl ether:

Biodegradability : Inoculum: Sewage (STP effluent)

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

tris(methylphenyl) phosphate:

Biodegradability : Test Type: aerobic
Inoculum: Sewage (STP effluent)
Concentration: 100 mg/l
Result: Readily biodegradable.
Biodegradation: 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

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

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

Phenol, polymer with formaldehyde, glycidyl ether:

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

tris(methylphenyl) phosphate:

Partition coefficient: n-octanol/water	:	log Pow: 5,93

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

12.4 Mobility in soil

Components:

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

Distribution among environmental compartments	:	Koc: 445

Phenol, polymer with formaldehyde, glycidyl ether:

Distribution among environmental compartments	:	Koc: 445

tris(methylphenyl) phosphate:

Distribution among environmental compartments	:	Koc: 4,31 Method: OECD Test Guideline 121

4-nonylphenol, branched:

Distribution among environmental compartments : Koc: 23000 - 489000

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.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
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 3082

ADR : UN 3082

RID : UN 3082

IMDG : UN 3082

IATA : UN 3082

14.2 UN proper shipping name

ADN : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN)

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN)

IATA : Environmentally hazardous substance, liquid, n.o.s.
(BISPHENOL A EPOXY RESIN, EPOXY PHENOL NOVOLAC RESIN)

14.3 Transport hazard class(es)

ADN : 9

ADR : 9

RID : 9

IMDG : 9

IATA : 9

14.4 Packing group

ADN

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

ADR

Packing group : III
Classification Code : M6

Hazard Identification Number	:	90
Labels	:	9
Tunnel restriction code	:	(-)

RID

Packing group	:	III
Classification Code	:	M6
Hazard Identification Number	:	90
Labels	:	9

IMDG

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

IATA (Cargo)

Packing instruction (cargo aircraft)	:	964
Packing instruction (LQ)	:	Y964
Packing group	:	III
Labels	:	Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft)	:	964
Packing instruction (LQ)	:	Y964
Packing group	:	III
Labels	:	Miscellaneous

14.5 Environmental hazards

ADN

Environmentally hazardous	:	yes

ADR

Environmentally hazardous	:	yes

RID

Environmentally hazardous	:	yes

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

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

E2	ENVIRONMENTAL HAZARDS

Occupational Illnesses (R-461-3, France) : 51, 34, 4 bis, 84

Installations classified for the protection of the environment (Environment Code R511-9) : 4511

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

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

NZIoC : Not in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

KECI : Not in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or 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

H302	:	Harmful if swallowed.
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.
H332	:	Harmful if inhaled.
H361	:	Suspected of damaging fertility or the unborn child.
H361fd	:	Suspected of damaging fertility. Suspected of damaging the unborn child.
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.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Chronic aquatic toxicity
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation

Further information

Classification of the mixture:		**Classification procedure:**
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Repr. 2	H361	Calculation method
Aquatic Chronic 2	H411	Calculation method

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