

EPIBOND® 1559-1 A US

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	03/15/2022	400001012958	11/15/2018
			Date of first issue: 02/16/2017

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SECTION 1. IDENTIFICATION

Product name : EPIBOND® 1559-1 A US

Manufacturer or supplier's detailsCompany name of supplier : Huntsman Advanced Materials Americas LLC
Address : 870 Curé-BoivinBoisbriand, Québec J7G 2A7,
Canada

Telephone : +1 450 437 0123, Cust ser: (800) 257-5547

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

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

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy constituents

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitisation : Category 1

Germ cell mutagenicity : Category 2

Carcinogenicity : Category 2

Short-term (acute) aquatic hazard : Category 2

Chronic aquatic toxicity : Category 2

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H341 Suspected of causing genetic defects.

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H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	30 - 60
triphenyl phosphite	101-02-0	1 - 5
2,3-epoxypropyl o-tolyl ether	2210-79-9	1 - 5
2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane	3388-04-3	0.1 - 1

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

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

SECTION 4. FIRST AID MEASURES

- | | |
|---|---|
| General advice | : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur. |
| If inhaled | : If inhaled, remove to fresh air.
Get medical attention if symptoms occur. |
| In case of skin contact | : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes. |
| In case of eye contact | : 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. |
| Most important symptoms and effects, both acute and delayed | : None known. |
| Protection of first-aiders | : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| Notes to physician | : Treat symptomatically. |

SECTION 5. FIREFIGHTING MEASURES

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- | | | |
|---|---|---|
| Suitable extinguishing media | : | Water spray
Alcohol-resistant foam
Carbon dioxide (CO ₂)
Dry chemical |
| Unsuitable extinguishing media | : | Exercise caution when using a high volume water jet as it may scatter and spread fire |
| Specific hazards during firefighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Carbon oxides
Halogenated compounds |
| 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. |
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8. |
| Environmental precautions | : | Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : | Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal. |

SECTION 7. HANDLING AND STORAGE

- | | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Normal measures for preventive fire protection. |
| 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. |

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Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Keep in properly labelled containers.
- Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.
- Recommended storage temperature : 18 - 40 °C
- Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Personal protective equipment

- Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines
- Filter type : Combined particulates and organic vapour type
- Hand protection
- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: blue
Odour	: odourless
Odour Threshold	: No data is available on the product itself.
pH	: substance/mixture is non-soluble (in water)
Melting point/freezing point	: No data is available on the product itself.
Boiling point	: > 200 °C
Flash point	: > 93.5 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: < 1.333 hPa (20 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: 1.2
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: negligible (20 °C)
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Auto-ignition temperature	: No data is available on the product itself.
Decomposition temperature	: > 200 °C

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

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	carbon dioxide carbon monoxide Halogenated compounds

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

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

Acute oral toxicity	:	LD50 (Rat, female): > 2,000 mg/kg Method: OECD Test Guideline 420 Assessment: The substance or mixture has no acute oral toxicity Remarks: No mortality observed at this dose.
Acute dermal toxicity	:	LD50 (Rat, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402

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Assessment: The substance or mixture has no acute dermal toxicity

triphenyl phosphite:

Acute oral toxicity : LD50 (Rat, male and female): 1,590 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): > 6.7 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 - < 5,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is low toxic after single contact with skin.

2,3-epoxypropyl o-tolyl ether:

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 6100 ppb
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Acute oral toxicity : LD50 (Rat): 13,161 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit): 6,741 mg/kg
Method: OECD Test Guideline 402

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.

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Result : Irritating to skin.

Species : Guinea pig
Result : Skin irritation

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2,3-epoxypropyl o-tolyl ether:

Assessment	: Irritating to skin.
Result	: Severe skin irritation

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

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

Serious eye damage/eye irritation**Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

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

triphenyl phosphite:

Species	: Rabbit
Result	: Irritation to eyes, reversing within 7 days

2,3-epoxypropyl o-tolyl ether:

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

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

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

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.

triphenyl phosphite:

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

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2,3-epoxypropyl o-tolyl ether:

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

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Test Type	: Maximisation Test
Exposure routes	: Skin
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: The product is a skin sensitiser, sub-category 1B.

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

triphenyl phosphite:

Genotoxicity in vitro	: Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Metabolic activation: with and without metabolic activation Result: negative
Genotoxicity in vivo	: Application Route: Oral

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Method: OECD Test Guideline 474
Result: negative

2,3-epoxypropyl o-tolyl ether:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

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

Application Route: Dermal
Exposure time: 5 d
Dose: 500 mg/kg
Result: negative

Application Route: Dermal
Exposure time: 8 Weeks
Dose: 1.5 mg/kg
Method: OECD Test Guideline 478
Result: positive

Germ cell mutagenicity - Assessment : Positive results from in vitro mammalian mutagenicity assays, chemical structure activity relationship to known germ cell mutagen

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

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

Germ cell mutagenicity - Assessment : In vitro tests showed 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

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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

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

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

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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

triphenyl phosphite:

Effects on fertility

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

Effects on foetal development

: Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: NOAEL: 15 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Effects on foetal development

: Species: Rat
Application Route: Oral
Dose: 0.25, 1, 2.5 ml/kg
General Toxicity Maternal: NOEL: >= 0.25 ml/kg

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Embryo-foetal toxicity: NOAEL: \geq 25 ml/kg
Method: OECD Test Guideline 414**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	: \geq 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

triphenyl phosphite:

Species	: Rat, male and female
NOAEL	: 15 mg/kg/d
Application Route	: Ingestion
Exposure time	: 16 Weeks
Number of exposures	: 7 d
Method	: Subchronic toxicity

2,3-epoxypropyl o-tolyl ether:

Species	: Rat, male and female
NOEC	: 4 ppm
Test atmosphere	: vapour
Exposure time	: 672 h
Number of exposures	: 6 h
Method	: OECD Test Guideline 412

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2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Species	: Rat, male and female
NOAEL	: 1,000 mg/kg
Application Route	: Oral
Exposure time	: 90 d
Dose	: 0, 100, 500, 1000 mg/kg
Method	: OECD Test Guideline 408

Aspiration toxicity

No data available

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

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l
	Exposure time: 96 h
	Method: OECD Test Guideline 203

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 daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 0.3 mg/l
	Exposure time: 21 d
	Test Type: semi-static test
	Test substance: Fresh water

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Method: OECD Test Guideline 211

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

Ecotoxicology Assessment

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

triphenyl phosphite:

Toxicity to fish : LC50: 0.7 mg/l
Exposure time: 96 h
Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

2,3-epoxypropyl o-tolyl ether:

Toxicity to fish : LC50: 13 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

LC50 (Oncorhynchus mykiss (rainbow trout)): 2.8 - 5.1 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

LC50 (Brachydanio rerio (zebrafish)): ca. 6.5 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)): ca. 3.3 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 (Selenastrum capricornutum (green algae)): 5.1 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Toxicity to microorganisms : IC50: > 100 mg/l
Exposure time: 3 h
Test Type: static test

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Test substance: Fresh water
Method: OECD Test Guideline 209

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 180 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 20 mg/l
aquatic invertebrates
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 (Desmodesmus subspicatus (green algae)): > 17 mg/l
plants
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

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

Biodegradability : 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

triphenyl phosphite:

Biodegradability : Inoculum: Sewage (STP effluent)
Concentration: 10 mg/l
Result: Not readily biodegradable.
Biodegradation: 0.1 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Stability in water : Degradation half life (DT50): 0.5 hrs (22 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

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Degradation half life (DT50): < 14 hrs (22 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

2,3-epoxypropyl o-tolyl ether:

Biodegradability : Inoculum: activated sludge
Concentration: 10 mg/l
Result: Not readily biodegradable.
Biodegradation: 17 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in water : Degradation half life (DT50): 10.5 hrs (25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 9.4 hrs (25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 8.96 hrs (25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

2-(3,4-epoxycyclohexyl)ethyltrimethoxysilane:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Concentration: 2 mg/l
Result: Not biodegradable
Biodegradation: 28 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

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

triphenyl phosphite:

Partition coefficient: n-octanol/water : log Pow: 4.98

log Pow: 6.62 (25 °C)

2,3-epoxypropyl o-tolyl ether:

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Partition coefficient: n-octanol/water : log Pow: 2.5 (21 °C)
Method: OECD Test Guideline 107

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

Distribution among environmental compartments : Koc: 445

2,3-epoxypropyl o-tolyl ether:

Distribution among environmental compartments : Koc: ca. 210
Method: OECD Test Guideline 121

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**Disposal methods**

Waste from residues : 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**International Regulations****IATA-DGR**

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(BISPHENOL A EPOXY RESIN, TRIPHENYL PHOSPHITE)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Environmentally hazardous : yes

IMDG-Code

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UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN, TRIPHENYL PHOSPHITE)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

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

Not applicable for product as supplied.

National Regulations**TDG**

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN, TRIPHENYL PHOSPHITE)
Class	:	9
Packing group	:	III
Labels	:	9
ERG Code	:	171
Marine pollutant	:	yes(BISPHENOL A EPOXY RESIN, TRIPHENYL PHOSPHITE)

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.

SECTION 15. REGULATORY INFORMATION**The components of this product are reported in the following inventories:**

DSL	:	All components of this product are on the Canadian DSL
AIIC	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
ENCS	:	Not 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	:	Not in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory

Inventories

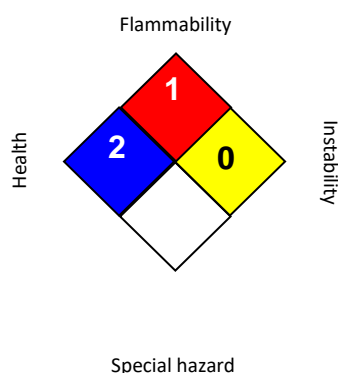
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AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

Canada. CEPA 1999 Significant New Activity (SNAc) List
No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0

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

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The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

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

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

SAFETY DATA SHEET



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SECTION 1. IDENTIFICATION

Product name : EPIBOND® 1559-1 B US

Manufacturer or supplier's detailsCompany name of supplier : Huntsman Advanced Materials Americas LLC
Address : 870 Curé-BoivinBoisbriand, Québec J7G 2A7,
Canada

Telephone : +1 450 437 0123, Cust ser: (800) 257-5547

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

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

Recommended use of the chemical and restrictions on use

Recommended use : Hardener

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**

Skin corrosion : Category 1C

Serious eye damage : Category 1

Skin sensitisation : Sub-category 1B

Short-term (acute) aquatic hazard : Category 3

Chronic aquatic toxicity : Category 3

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.Precautionary statements : **Prevention:**
P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of

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the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Polyamines

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether	72244-98-5	60 - 80
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	5 - 10
bis[(dimethylamino)methyl]phenol	71074-89-0	1 - 5

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

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SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician : Treat symptomatically.

Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

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- | | | |
|---|---|---|
| Suitable extinguishing media | : | Water spray
Alcohol-resistant foam
Carbon dioxide (CO ₂)
Dry chemical |
| Unsuitable extinguishing media | : | Exercise caution when using a high volume water jet as it may scatter and spread fire |
| Specific hazards during firefighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Carbon oxides
Sulphur oxides
Nitrogen oxides (NO _x) |
| 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. |
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8. |
| Environmental precautions | : | Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : | Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal. |

SECTION 7. HANDLING AND STORAGE

- | | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Normal measures for preventive fire protection. |
| 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. |

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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.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labelled containers.
Materials to avoid	:	For incompatible materials please refer to Section 10 of this SDS.
Recommended storage temperature	:	2 - 40 °C
Further information on storage stability	:	Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection	:	W A R N I N G ! This product contains quartz, which has been classified by IARC as carcinogenic for humans (Group 1), and which can cause silicosis and lung cancer following exposure to respirable dust. It is therefore important to take particular care to avoid inhalation exposure when mechanically processing cured material (e.g. grinding, sanding, sawing).
Hand protection		
Material	:	butyl-rubber
Break through time	:	> 8 h
Material	:	Solvent-resistant gloves (butyl-rubber)
Material	:	Nitrile rubber
Break through time	:	10 - 480 min
Material	:	Neoprene gloves
Remarks	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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Eye protection	: Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: paste
Colour	: dark grey
Odour	: rotten-egg like
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 is available on the product itself.
Boiling point	: > 200 °C
Flash point	: > 124 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: < 1 hPa (20 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: No data is available on the product itself.
Density	: 1.2 g/cm ³ (25 °C)
Solubility(ies) Water solubility	: slightly soluble (20 °C)

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Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Auto-ignition temperature	: No data is available on the product itself.
Decomposition temperature	: > 200 °C
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.
Viscosity	
Viscosity, dynamic	: ca. 90,000 mPa.s (25 °C)
Explosive properties	: No data is available on the product itself.
Oxidizing properties	: No data is available on the product itself.
Particle size	: No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No hazards to be specially mentioned.
Conditions to avoid	: None known.
Incompatible materials	: Strong acids and strong bases Strong oxidizing agents
Hazardous decomposition products	: carbon monoxide carbon dioxide Sulphur Oxides Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity	: Acute toxicity estimate: 3,675 mg/kg Method: Calculation method
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Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

- Acute oral toxicity : LD50 (Rat, male and female): 2,600 mg/kg
Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC50 (Rat, male and female): > 0.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 10,200 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

2,4,6-tris(dimethylaminomethyl)phenol:

- Acute oral toxicity : LD50 (Rat, male and female): 2,169 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is low toxic after single ingestion.
- Acute dermal toxicity : LD50 (Rat, male): > 1 ml/kg
Assessment: The substance or mixture has no acute dermal toxicity

bis[(dimethylamino)methyl]phenol:

- Acute oral toxicity : LD50 (Rat, male and female): 2,169 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is low toxic after single ingestion.
- Acute dermal toxicity : LD50 (Rat, male): > 1 ml/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

- Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
- Method : OECD Test Guideline 439
Result : No skin irritation

2,4,6-tris(dimethylaminomethyl)phenol:

- Species : Rabbit

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Method	:	OECD Test Guideline 404
Result	:	Corrosive after 1 to 4 hours of exposure

Species	:	synthetic macromolecular bio-barrier
Method	:	OECD Test Guideline 435
Result	:	Corrosive after 1 to 4 hours of exposure

bis[(dimethylamino)methyl]phenol:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 1 to 4 hours of exposure

Species	:	synthetic macromolecular bio-barrier
Method	:	OECD Test Guideline 435
Result	:	Corrosive after 1 to 4 hours of exposure

Serious eye damage/eye irritation**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

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

2,4,6-tris(dimethylaminomethyl)phenol:

Species	:	Rabbit
Result	:	Corrosive
Assessment	:	Corrosive
Method	:	Other guidelines

bis[(dimethylamino)methyl]phenol:

Species	:	Rabbit
Result	:	Corrosive
Assessment	:	Corrosive
Method	:	Other guidelines

Respiratory or skin sensitisation**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

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.

2,4,6-tris(dimethylaminomethyl)phenol:

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406

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Result : Does not cause skin sensitisation.

bis[(dimethylamino)methyl]phenol:

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

Germ cell mutagenicity**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

Genotoxicity in vitro	: Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 471
	Result: negative
	GLP: yes

	Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 473
	Result: negative
	GLP: yes

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

2,4,6-tris(dimethylaminomethyl)phenol:

Genotoxicity in vitro	: Concentration: 5000 ug/plate
	Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 471
	Result: negative

	Concentration: 2500 ug/plate
	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

bis[(dimethylamino)methyl]phenol:

Genotoxicity in vitro	: Concentration: 5000 ug/plate
	Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 471
	Result: negative

	Concentration: 2500 ug/plate
	Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 473
	Result: negative

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

Carcinogenicity

No data available

Reproductive toxicity**Components:****2,4,6-tris(dimethylaminomethyl)phenol:**

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Remarks: No significant adverse effects were reported

bis[(dimethylamino)methyl]phenol:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Remarks: No significant adverse effects were reported

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

Species : Rat, male and female
NOAEL : 75 mg/kg
Application Route : Oral
Dose : 75, 250 and 1000 mg/kg bw/d
Method : OECD Test Guideline 408

2,4,6-tris(dimethylaminomethyl)phenol:

Species : Rat, male and female
NOEL : 15 mg/kg
Application Route : Ingestion
Exposure time : 1,032 h
Number of exposures : 7 d
Method : Subacute toxicity

bis[(dimethylamino)methyl]phenol:

Species : Rat, male and female
NOEL : 15 mg/kg
Application Route : Ingestion
Exposure time : 1,032 h

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Number of exposures : 7 d
Method : Subacute toxicity

Aspiration toxicity

No data available

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**Ecotoxicity****Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 87 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 12 mg/l
aquatic invertebrates
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 (Desmodesmus subspicatus (green algae)): > 733 mg/l
plants
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other : NOEC (Daphnia magna (Water flea)): 3.5 mg/l
aquatic invertebrates
Exposure time: 21 d
(Chronic toxicity) Method: OECD Test Guideline 211

2,4,6-tris(dimethylaminomethyl)phenol:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 175 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other : LC50 (Palaeomonetes vulgaris (Grass shrimp)): 718 mg/l
aquatic invertebrates
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no

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Test substance: Marine water

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 84 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 6.25 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

bis[(dimethylamino)methyl]phenol:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 175 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : LC50 (Palaeomonetes vulgaris (Grass shrimp)): 718 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no
Test substance: Marine water

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 84 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 6.25 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

Persistence and degradability**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), 2-hydroxy-3-mercaptopropyl ether:

Biodegradability : aerobic
Inoculum: activated sludge
Result: Not biodegradable
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

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2,4,6-tris(dimethylaminomethyl)phenol:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Concentration: 2 mg/l
Result: Not biodegradable
Biodegradation: 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

bis[(dimethylamino)methyl]phenol:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Concentration: 2 mg/l
Result: Not biodegradable
Biodegradation: 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Bioaccumulative potential**Components:****2,4,6-tris(dimethylaminomethyl)phenol:**

Partition coefficient: n- : Pow: ≥ 0.219 (21.5 °C)
octanol/water log Pow: -0.66 (21.5 °C)
Method: OPPTS 830.7550

bis[(dimethylamino)methyl]phenol:

Partition coefficient: n- : Pow: ≥ 0.219 (21.5 °C)
octanol/water log Pow: -0.66 (21.5 °C)
Method: OPPTS 830.7550

Mobility in soil

No data available

Other adverse effects**Product:**

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

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : 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.

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Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No.	: UN 2735
Proper shipping name	: Amines, liquid, corrosive, n.o.s. (2,4,6-TRIS(DIMETHYL AMINOMETHYL)PHENOL, bis[(dimethylamino)methyl]phenol)
Class	: 8
Packing group	: III
Labels	: Corrosive
Packing instruction (cargo aircraft)	: 856
Packing instruction (passenger aircraft)	: 852

IMDG-Code

UN number	: UN 2735
Proper shipping name	: AMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-TRIS(DIMETHYL AMINOMETHYL)PHENOL, bis[(dimethylamino)methyl]phenol)
Class	: 8
Packing group	: III
Labels	: 8
EmS Code	: F-A, S-B
Marine pollutant	: no

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

Not applicable for product as supplied.

National Regulations**TDG**

UN number	: UN 2735
Proper shipping name	: AMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-TRIS(DIMETHYL AMINOMETHYL)PHENOL, bis[(dimethylamino)methyl]phenol)
Class	: 8
Packing group	: III
Labels	: 8
ERG Code	: 153
Marine pollutant	: no

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.

SECTION 15. REGULATORY INFORMATION**The components of this product are reported in the following inventories:**

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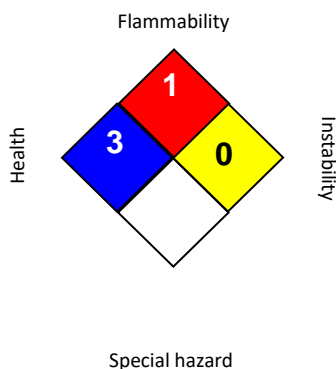
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with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

Inventories

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

Canada. CEPA 1999 Significant New Activity (SNAc) List

No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

HEALTH		3
FLAMMABILITY		1
PHYSICAL HAZARD		0

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

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Date format	: mm/dd/yyyy

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

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

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