

**EPIBOND® 156 B US**

Version 2.0      Revision Date: 03/12/2021      SDS Number: 400001008595      Date of last issue: 08/15/2017  
Date of first issue: 08/15/2017

Print Date 09/29/2021

**SECTION 1. IDENTIFICATION**

Product name : EPIBOND® 156 B US

**Manufacturer or supplier's details**

Company name of supplier : Huntsman Advanced Materials Americas LLC  
Address : P.O. Box 4980  
The Woodlands,  
TX 77387  
United States of America (USA)  
Telephone : Non-Emergency: (800) 257-5547

E-mail address of person responsible for the SDS : Global\_Product\_EHS\_AdMat@huntsman.com

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

**Recommended use of the chemical and restrictions on use**

Recommended use : Hardener

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Acute toxicity (Oral) : Category 4  
Acute toxicity (Inhalation) : Category 2  
Acute toxicity (Dermal) : Category 4  
Skin corrosion : Category 1B  
Serious eye damage : Category 1  
Skin sensitisation : Category 1  
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

**GHS label elements**Hazard pictograms : 

Signal word : Danger

Hazard statements : H302 + H312 Harmful if swallowed or in contact with skin.  
H314 Causes severe skin burns and eye damage.

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**Precautionary statements**

H317 May cause an allergic skin reaction.  
 H330 Fatal if inhaled.  
 H335 May cause respiratory irritation.

**Prevention:**

P260 Do not breathe mist or vapours.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
 P284 Wear respiratory protection.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
 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/ shower.  
 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.  
 P363 Wash contaminated clothing before reuse.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
 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 : Substance

**Hazardous components**

Chemical name	CAS-No.	Concentration (% w/w)
Diethylenetriamine	111-40-0	90 - 100

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.  
Symptoms of poisoning may appear several hours later.  
Treat symptomatically.  
Get medical attention if symptoms occur.
- If inhaled : Call a physician or poison control centre immediately.  
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 : Clean mouth with water and drink afterwards plenty of water.  
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.

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**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
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 dioxide (CO<sub>2</sub>)  
Carbon monoxide  
Nitrogen oxides (NO<sub>x</sub>)
- 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.  
Ensure adequate ventilation.  
Evacuate personnel to safe areas.  
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 : Neutralise with acid.  
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

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and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.  
 Avoid formation of aerosol.  
 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.  
 Provide sufficient air exchange and/or exhaust in work rooms.  
 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 : Prevent unauthorized access.  
 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 : Do not store near acids.
- Recommended storage temperature : 36 - 104 °F / 2 - 40 °C
- Further information on storage stability : Stable under normal conditions.

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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Diethylenetriamine	111-40-0	TWA	1 ppm	ACGIH
		TWA	1 ppm 4 mg/m <sup>3</sup>	NIOSH REL
		TWA	1 ppm 4 mg/m <sup>3</sup>	OSHA P0

**Personal protective equipment**

- Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
- Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided

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by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

## 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

## 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.

## 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

: Avoid contact with skin, eyes and clothing.  
When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and immediately after handling the product.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid  
Colour : amber  
Odour : amine-like  
Odour Threshold : No data is available on the product itself.  
pH : 11.3 (68 °F / 20 °C)  
Concentration: 500 g/l  
Melting point : -38 °F / -39 °C  
Boiling point : 405.0 °F / 207.2 °C

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Flash point : 215.1 °F / 101.7 °C  
Method: Pensky-Martens 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 : 0.1 hPa (68 °F / 20 °C)

Relative vapour density : No data is available on the product itself.

Relative density : 0.952

Density : 0.95 g/cm<sup>3</sup> (68 °F / 20 °C)

Solubility(ies)  
Water solubility : completely miscible (68 °F / 20 °C)

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : 743 °F / 395 °C

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity  
Viscosity, kinematic : 4 mm<sup>2</sup>/s (77 °F / 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.

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Possibility of hazardous reactions : No hazards to be specially mentioned.

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : No hazardous decomposition products are known.

Hazardous decomposition products : carbon monoxide  
carbon dioxide  
Nitrogen oxides (NOx)

**SECTION 11. TOXICOLOGICAL INFORMATION**

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

**Acute toxicity****Components:**

Diethylenetriamine:  
Acute oral toxicityComponents : LD50 (Rat, male): 1,620 mg/kg

**Components:**

Diethylenetriamine:  
Acute inhalation toxicity : LC50 (Rat, male and female): 0.185 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

**Components:**

Diethylenetriamine:  
Acute dermal toxicity : LD50 (Rabbit): 1,045 mg/kg

Acute toxicity (other routes of administration) : No data available

**Skin corrosion/irritation****Components:**

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

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



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Diethylenetriamine:  
Species: Rabbit  
Result: Corrosive  
Assessment: Corrosive

**Respiratory or skin sensitisation****Components:**

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

Exposure routes: Respiratory Tract  
Species: Mouse  
Result: Does not cause respiratory sensitisation.

Assessment: No data available

**Germ cell mutagenicity**

Genotoxicity in vitro : No data available

**Components:**

Diethylenetriamine:  
Genotoxicity in vivo : Cell type: Somatic  
Application Route: Oral  
Dose: 85 - 850 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

Application Route: Oral  
Result: negative

Germ cell mutagenicity-  
Assessment : No data available

**Carcinogenicity****Components:**

Diethylenetriamine:  
Species: Mouse, male  
Application Route: Dermal  
Dose: 56.3 mg/kg  
Frequency of Treatment: 3 daily  
Result: negative

Carcinogenicity -  
Assessment : No data available

**IARC**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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- ACGIH**      No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- OSHA**      No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
- NTP**      No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity****Components:**

Diethylenetriamine:  
Effects on fertility      : Species: Rat, male and female  
Application Route: Oral  
General Toxicity - Parent: No observed adverse effect level:  
30 mg/kg wet weight  
Method: OECD Test Guideline 421

**Components:**

Diethylenetriamine:  
Effects on foetal  
development      : Species: Rat  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
100 mg/kg body weight  
Method: OECD Test Guideline 421  
Result: No adverse effects

Reproductive toxicity -  
Assessment      : No data available

**STOT - single exposure****Components:**

Diethylenetriamine:  
Target Organs: Respiratory Tract  
Assessment: May cause respiratory irritation.

**STOT - repeated exposure**

No data available

**Repeated dose toxicity****Components:**

Diethylenetriamine:  
Species: Rat, male and female  
NOEC: 70 - 80 mg/m3  
Application Route: Ingestion  
Test atmosphere: vapour  
Exposure time: 360 h

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Number of exposures: 7 d  
Method: Subchronic toxicity

Species: Rat, male and female  
NOAEL: 114 mg/kg/d  
Application Route: Skin contact  
Exposure time: 9,600 h  
Number of exposures: 6 d  
Method: Chronic toxicity

Repeated dose toxicity - Assessment : No data available

**Aspiration toxicity**

No data available

**Experience with human exposure**

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

**Toxicology, Metabolism, Distribution**

No data available

**Neurological effects**

No data available

**Further information**

Ingestion: No data available

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:**

Diethylenetriamine:  
Toxicity to fish : LC50: 430 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water

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Method: Directive 67/548/EEC, Annex V, C.1.

**Components:**

Diethylenetriamine:  
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 64.6 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Regulation (EC) No. 440/2008, Annex, C.2

EC50 (Daphnia magna (Water flea)): 16 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: DIN 38412

**Components:**

Diethylenetriamine:  
Toxicity to algae/aquatic plants : EbC50 (Selenastrum capricornutum (green algae)): 1,164 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : No data available

**Components:**

Diethylenetriamine:  
Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l  
Exposure time: 28 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 210

**Components:**

Diethylenetriamine:  
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 5.6 mg/l  
Exposure time: 21 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.20

M-Factor (Chronic aquatic toxicity) : No data available

Toxicity to microorganisms : No data available

**Components:**

Diethylenetriamine:  
Toxicity to soil dwelling : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg

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organisms Exposure time: 56 d  
Method: OECD Test Guideline 222

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

**Ecotoxicology Assessment****Components:**

Diethylenetriamine:  
Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

**Persistence and degradability****Components:**

Diethylenetriamine:  
Biodegradability : Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: 87 %  
Exposure time: 21 d  
Method: OECD Test Guideline 301D

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

**Components:**

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Diethylenetriamine:  
Photodegradation : Test Type: Air  
Rate constant: 500000  
Degradation (direct photolysis): 50 %

Impact on Sewage Treatment : No data available

**Bioaccumulative potential****Components:**

Diethylenetriamine:  
Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 0.3 - 6.3  
Exposure time: 42 d  
Test substance: Fresh water  
Method: flow-through test  
Remarks: Bioaccumulation is unlikely.

**Components:**

Diethylenetriamine:  
Partition coefficient: n-octanol/water : log Pow: -1.58 (68 °F / 20 °C)  
pH: 7

**Mobility in soil**

Mobility : No data available

**Components:**

Diethylenetriamine:  
Distribution among environmental compartments : Koc: 19111  
Stability in soil : No data available

**Other adverse effects**

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

**Hazardous to the ozone layer**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82  
Protection of Stratospheric Ozone - CAA Section 602 Class I  
Substances  
Remarks: This product neither contains, nor was  
manufactured with a Class I or Class II ODS as defined by the

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U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

Global warming potential (GWP) : No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Do not dispose of waste into sewer.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.  
Dispose of as hazardous waste in compliance with local and national regulations.  
Dispose of contents/ container to an approved waste disposal plant.

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

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

UN/ID No. : UN 2079  
Proper shipping name : Diethylenetriamine  
Class : 8  
Packing group : II  
Labels : Corrosive  
Packing instruction (cargo aircraft) : 855  
Packing instruction (passenger aircraft) : 851

**IMDG**

UN number : UN 2079  
Proper shipping name : DIETHYLENETRIAMINE  
Class : 8  
Packing group : II  
Labels : 8  
EmS Code : F-A, S-B  
Marine pollutant : no

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

Not applicable for product as supplied.

**National Regulations****DOT Classification**

UN/ID/NA number	: UN 2079
Proper shipping name	: DIETHYLENETRIAMINE
Class	: 8
Packing group	: II
Labels	: CORROSIVE
ERG Code	: 154
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****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

<b>SARA 311/312 Hazards</b>	: Acute toxicity (any route of exposure) Respiratory or skin sensitisation Specific target organ toxicity (single or repeated exposure) Skin corrosion or irritation Serious eye damage or eye irritation
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<b>SARA 313</b>	: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
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This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

**California Prop. 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory



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- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory
- TCSI : On the inventory, or 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), TSCA (USA)

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

No substances are subject to a Significant New Use Rule.

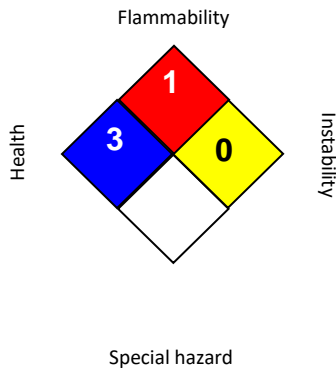
**US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)**

No substances are subject to TSCA 12(b) export notification requirements.

**SECTION 16. OTHER INFORMATION**

**Further information**

**NFPA 704:**



**HMIS® IV:**

<b>HEALTH</b>		<b>3</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

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

- Revision Date : 03/12/2021
- ACGIH : USA. ACGIH Threshold Limit Values (TLV)
- NIOSH REL : USA. NIOSH Recommended Exposure Limits
- OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
- ACGIH / TWA : 8-hour, time-weighted average
- NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
- OSHA P0 / TWA : 8-hour time weighted average

**EPIBOND® 156 B US**

Version	Revision Date:	SDS Number:	Date of last issue: 08/15/2017
2.0	03/12/2021	400001008595	Date of first issue: 08/15/2017

Print Date 09/29/2021

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.

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**EPIBOND® 156-1 A US**

Version 1.2      Revision Date: 10/19/2018      SDS Number: 400001014592      Date of last issue: 07/23/2015  
Date of first issue: 07/18/2015

**SECTION 1. IDENTIFICATION**

Product name : EPIBOND® 156-1 A US

**Manufacturer or supplier's details**

Company name of supplier : Huntsman Advanced Materials Americas LLC  
Address : P.O. Box 4980  
The Woodlands,  
TX 77387  
United States of America (USA)  
Telephone : Non-Emergency: (800) 257-5547  
E-mail address of person responsible for the SDS : MSDS@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 resin solution

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Skin irritation : Category 2  
Eye irritation : Category 2A  
Skin sensitisation : Category 1  
Short-term (acute) aquatic hazard : Category 2  
Long-term (chronic) aquatic hazard : 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.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**

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P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
 P264 Wash skin thoroughly after handling.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/ eye protection/ face protection.

**Response:**

P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P362 Take off contaminated clothing and wash before reuse.  
 P391 Collect spillage.

**Storage:**

Not available

**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	70 - 90
mica	12001-26-2	10 - 20
titanium dioxide	13463-67-7	1 - 5

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.  
 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.

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- 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 : Keep respiratory tract clear.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : Treat symptomatically.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
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.

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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 : 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.  
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

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.  
Keep in properly labelled containers.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
mica	12001-26-2	TWA (Respirable fraction)	3 mg/m <sup>3</sup>	ACGIH
		TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m <sup>3</sup>	OSHA Z-1
		TWA	10 mg/m <sup>3</sup> (Titanium dioxide)	ACGIH

**Personal protective equipment**

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- Respiratory protection : No personal respiratory protective equipment normally required.
- Hand protection  
Remarks : 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.
- 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 : off-white
- Odour : slight
- Odour Threshold : No data is available on the product itself.
- pH : No data is available on the product itself.
- Freezing point : No data is available on the product itself.
- Melting point : No data is available on the product itself.
- Boiling point : No data is available on the product itself.
- Flash point : 360 °F / 182 °C  
Method: Pensky-Martens 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 (68 °F / 20 °C)

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Relative vapour density : No data is available on the product itself.

Relative density : 1.5

Density : 1.5 g/cm<sup>3</sup> (77 °F / 25 °C)

Solubility(ies)

Water solubility : practically insoluble (68 °F / 20 °C)

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity

Viscosity, dynamic : 325,000 mPa.s (77 °F / 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 : None known.

Hazardous decomposition products : No hazardous decomposition products are known.

**SECTION 11. TOXICOLOGICAL INFORMATION**

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

**Acute toxicity****Components:**

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Acute oral : LD50 (Rat, female): > 2,000 mg/kg



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toxicityComponents                      Method: OECD Test Guideline 420  
Assessment: The substance or mixture has no acute oral toxicity

titanium dioxide:  
Acute oral                                      : LD50 (Rat, female): > 5,000 mg/kg  
toxicityComponents                      Method: OECD Test Guideline 425  
Assessment: The substance or mixture has no acute oral toxicity

**Components:**

titanium dioxide:  
Acute inhalation toxicity                : LC50 (Rat, male and female): 3.43 - 5.09 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity

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

Acute toxicity (other routes of        : No data available  
administration)

**Skin corrosion/irritation****Product:**

Remarks: The product is not considered as being a skin irritant.

**Serious eye damage/eye irritation****Product:**

Remarks: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

**Respiratory or skin sensitisation****Product:**

Remarks: No data available

**Components:**

titanium dioxide:  
Assessment:                                      No skin irritation, No eye irritation  
Does not cause skin sensitisation., Does not cause respiratory sensitisation.

**Germ cell mutagenicity****Components:**

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

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

Concentration: 0 - 5000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: positive

titanium dioxide:

Genotoxicity in vitro : Test Type: Ames test  
Concentration: 100 - 200 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Concentration: 31 - 500 µg/L  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Test Type: Chromosome aberration test in vitro  
Concentration: 125 - 2500 µg/L  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

**Components:**

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

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

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

titanium dioxide:

Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Mouse (males)  
Application Route: Inhalation  
Exposure time: 5 consecutive days  
Dose: 0.8, 7.2, and 28.5 mg/m<sup>3</sup>  
Method: OECD Test Guideline 474  
Result: negative

Test Type: Micronucleus test  
Species: Rat (male and female)  
Application Route: Oral  
Exposure time: once

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Dose: 500, 1000, and 2000 mg/kg bw  
Method: OECD Test Guideline 474  
Result: negative

**Components:**

titanium dioxide:

Germ cell mutagenicity-  
Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

Germ cell mutagenicity-  
Assessment : No data available

**Carcinogenicity****Components:**

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

Species: Rat, male and female

Application Route: Oral

Exposure time: 24 month(s)

Dose: 15 mg/kg

Frequency of Treatment: 7 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Mouse, male

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 0.1 mg/kg

Frequency of Treatment: 3 days/week

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 days/week

Method: OECD Test Guideline 453

Result: negative

titanium dioxide:

Species: Rat, male and female

Application Route: Oral

Exposure time: 103 weeks

Dose: 0, 25000, 50000 ppm

Frequency of Treatment: 7 days/week

NOAEL: &gt; 50.000 ppm

Method: No information available.

Remarks: Titanium Dioxide: based on the results of chronic inhalation studies (with positive results only in a single species - rat), IARC has concluded that: "There is inadequate evidence in humans for the carcinogenicity of titanium dioxide. " but that : "There is sufficient evidence in experimental animals for carcinogenicity of titanium dioxide". IARCs overall evaluation was that

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"titanium dioxide is possibly carcinogenic to humans (Group 2B)."

Huntsman has examined all of the available animal carcinogenicity and mechanistic data together with workplace epidemiology data for titanium dioxide and concludes that the weight of scientific evidence indicates that there is no causative link between titanium dioxide exposure and cancer risk in humans and that workplace exposures in compliance with applicable exposure standards will not result in lung cancer or chronic respiratory diseases in humans.

**Components:**

titanium dioxide:

Carcinogenicity -  
Assessment

: Not classifiable as a human carcinogen.

**IARC**

Group 2B: Possibly carcinogenic to humans  
titanium dioxide

**ACGIH**

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**OSHA**

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

**NTP**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**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: >750 milligram per kilogram

General Toxicity - Parent: No-observed-effect level: 540  
mg/kg body weight

General Toxicity F1: No-observed-effect level: 540 mg/kg  
body weight

Symptoms: No adverse effects

Method: OECD Test Guideline 416

Result: No effects on fertility and early embryonic  
development were detected.

**Components:**

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

Effects on foetal  
development

: Species: Rabbit, female

Application Route: Dermal

General Toxicity Maternal: No observed adverse effect level:  
30 mg/kg body weight

Method: Other guidelines

Result: No teratogenic effects

Species: Rabbit, female

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

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

titanium dioxide:

Species: Rat, male and female  
Application Route: Oral  
Dose: 100, 300, and 1000 mg/kg bw/  
Duration of Single Treatment: 20 d  
Frequency of Treatment: 7 days/week  
General Toxicity Maternal: No observed adverse effect level:  
1,000 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level:  
1,000 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No adverse effects

**Components:**

titanium dioxide:

Reproductive toxicity -  
Assessment

: No evidence of adverse effects on sexual function and fertility,  
or on development, based on animal experiments.

**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: 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

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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

titanium dioxide:  
Species: Rat, male and female  
NOEC: 3500 mg/m<sup>3</sup>  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 2 yr  
Number of exposures: 5 d  
Method: Chronic toxicity

Species: Rat, male and female  
NOEC: 10 - 50 mg/m<sup>3</sup>  
Application Route: Inhalation  
Exposure time: 2 yr  
Number of exposures: 6 hours/day, 5 days/week  
Method: Chronic toxicity

**Components:**

titanium dioxide:  
Repeated dose toxicity - Assessment : No skin irritation, No eye irritation  
No adverse effect has been observed in chronic toxicity tests.

**Aspiration toxicity**

No data available

**Experience with human exposure**

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

**Toxicology, Metabolism, Distribution**

No data available

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**Neurological effects**

No data available

**Further information****Product:**

Remarks: 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)): 1.5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

titanium dioxide:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): >  
10,000 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Marine water  
Method: OECD Test Guideline 203

**Components:**

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

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.7 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water

**Components:**

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

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: EPA-660/3-75-009

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

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**Components:**

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

M-Factor (Chronic aquatic toxicity) : No data available

**Components:**

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
 Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l  
 Exposure time: 3 h  
 Test Type: static test  
 Test substance: Fresh water

Toxicity to soil dwelling organisms : No data available

**Components:**

titanium dioxide:  
 Plant toxicity : NOEC: 100,000 mg/kg  
 Exposure time: 480 h

**Components:**

titanium dioxide:  
 Sediment toxicity : (Gammarus pulex (Amphipod)): > 100000 mg/kg sediment dw  
 Study: Acute  
 Test Type: semi-static test  
 Water: Fresh water  
 Exposure duration: 28 d  
 Method: ASTM Method, other

(Gammarus pulex (Amphipod)): 100000 mg/kg sediment dw  
 Study: Chronic  
 Test Type: semi-static test  
 Water: Fresh water  
 Exposure duration: 28 d  
 Method: ASTM Method, other

(Gammarus pulex (Amphipod)): 14989 mg/kg sediment dw  
 Study: Acute  
 Test Type: semi-static test  
 Water: Marine water  
 Exposure duration: 10 d

**Components:**

titanium dioxide:  
 Toxicity to terrestrial organisms : NOEC: 10,000 mg/kg  
 Exposure time: 672 h



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Ecotoxicology Assessment  
 Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

**Persistence and degradability****Components:**

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

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

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

**Components:**

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

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

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

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

Photodegradation : No data available

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Impact on Sewage Treatment : No data available

**Bioaccumulative potential****Components:**

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

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

titanium dioxide:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)  
Bioconcentration factor (BCF): 19 - 352  
Exposure time: 14 d  
Test substance: Fresh water  
Method: semi-static test  
Remarks: Does not bioaccumulate.

**Components:**

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

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

**Mobility in soil**

Mobility : No data available

**Components:**

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

Distribution among environmental compartments : Koc: 445  
Stability in soil : No data available

**Other adverse effects**

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

**Hazardous to the ozone layer**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82  
Protection of Stratospheric Ozone - CAA Section 602 Class I  
Substances  
Remarks: This product neither contains, nor was

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manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : There is no data available for this product.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

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

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

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

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

**IMDG**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

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N.O.S.  
(BISPHENOL A EPOXY RESIN)

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****DOT Classification**

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

**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****EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
1-chloro-2,3-epoxypropane	106-89-8	100	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** : Skin corrosion or irritation  
Serious eye damage or eye irritation  
Respiratory or skin sensitisation

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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

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**California Prop. 65**

This product contains a chemical that is at or below California Propositions 65's "safe harbor level" as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the SDS or label.

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

CH INV : The formulation contains substances listed on the Swiss Inventory, Not in compliance with the inventory  
 DSL : All components of this product are on the Canadian DSL  
 AICS : 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 : On the inventory, or in compliance with the inventory  
 PICCS : On the inventory, or in compliance with the inventory  
 IECSC : On the inventory, or in compliance with the inventory  
 TCSI : On the inventory, or in compliance with the inventory  
 TSCA : On the inventory, or in compliance with the inventory

**Inventories**

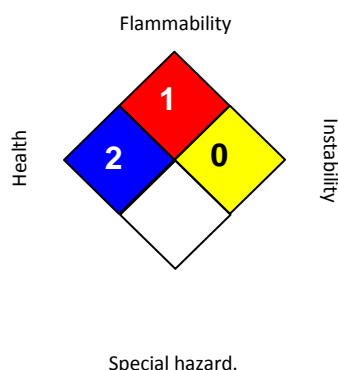
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

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

No substances are subject to a Significant New Use Rule.

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

No substances are subject to TSCA 12(b) export notification requirements.

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

<b>HEALTH</b>		<b>2</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

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

Revision Date : 10/19/2018

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

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OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1  
Limits for Air Contaminants

OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3  
Mineral Dusts

ACGIH / TWA : 8-hour, time-weighted average

OSHA Z-1 / TWA : 8-hour time weighted average

OSHA Z-3 / TWA : 8-hour time weighted average

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.

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