

EPOCAST® 169 A-1 US

Version 2.0 Revision Date: 02/12/2022 SDS Number: 400001013670 Date of last issue: 06/24/2017
Date of first issue: 06/24/2017

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SECTION 1. IDENTIFICATION

Product name : EPOCAST® 169 A-1 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 : Epoxy constituents

Restrictions on use : For industrial use only.

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

Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitisation : Category 1
Reproductive toxicity : Category 2
Short-term (acute) aquatic hazard : Category 2
Chronic aquatic toxicity : Category 2

GHS label elementsHazard pictograms : 

Signal word : Warning

Hazard statements : H315 Causes skin irritation.

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H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H361d Suspected of damaging the unborn child.
 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 must 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 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.
 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 Take off contaminated clothing and wash 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	50 - 70
Formaldehyde, oligomeric reaction products with phenol	9003-35-4	10 - 20
1-isopropyl-2,2-dimethyltrimethylene diisobutyrate	6846-50-0	10 - 20

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Silicon, amorphous	7631-86-9	1 - 5
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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.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire
- 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

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product.

Do not breathe vapours/dust.

Avoid exposure - obtain special instructions before use.

Avoid contact with skin and eyes.

For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the application area.

Dispose of rinse water in accordance with local and national regulations.

- 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 : 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****Personal protective equipment**

- Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
- 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).
- 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 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.

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Hand protection

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

: 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 : red brown

Odour : slight

Odour Threshold : No data is available on the product itself.

pH : No data is available on the product itself.

Melting point/freezing point : No data is available on the product itself.

Boiling point : > 392 °F / > 200 °C

Flash point : 289 °F / 143 °C
Method: 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 : No data is available on the product itself.

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

Relative density : 0.55 - 0.65 (68 °F / 20 °C)

Density : 0.55 - 0.65 g/cm³ (68 °F / 20 °C)

Solubility(ies)
Water solubility : No data is available on the product itself.
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 : No data is available on the product itself.

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 : Strong acids
Strong bases
Strong oxidizing agents
None known.

Hazardous decomposition products : No decomposition if stored and applied as directed.

Hazardous decomposition products : carbon dioxide
carbon monoxide
Halogenated compounds
Nitrogen oxides (NO_x)

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SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

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

Formaldehyde, oligomeric reaction products with phenol:

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
- Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

- Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity : LC50 (Rat): > 5.3 mg/l
Exposure time: 6 h
Test atmosphere: vapour
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Silicon, amorphous:

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC50 (Rat, male and female): > 58.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
- Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

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

Species : Rabbit
Exposure time : 4 h
Assessment : Irritating to skin.
Method : OECD Test Guideline 404
Result : Irritating to skin.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

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

Silicon, amorphous:

Species : Rabbit
Assessment : No skin irritation
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

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

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

Silicon, amorphous:

Species : Rabbit
Result : No eye irritation
Assessment : 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.

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Formaldehyde, oligomeric reaction products with phenol:

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

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Exposure routes	:	Skin
Species	:	Humans
Result	:	Does not cause skin sensitisation.

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

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: without metabolic activation Result: positive
		Test Type: reverse mutation assay Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Result: negative
Genotoxicity in vivo	:	Test Type: in vivo assay Species: Mouse (male) Cell type: Germ Application Route: Oral Dose: 3333, 10000 mg/kg Result: negative
		Test Type: gene mutation test Species: Rat (male) Cell type: Somatic Application Route: Oral Dose: 50,250,500,1000 mg/kg bw/day Method: OECD Test Guideline 488 Result: negative

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Genotoxicity in vitro	:	Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative
		Concentration: 100 - 5000 ug/plate Metabolic activation: with and without metabolic activation Method: Directive 67/548/EEC, Annex, B.13/14 Result: negative
		Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells

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Method: OECD Test Guideline 476
 Result: negative

Silicon, amorphous:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative

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

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

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

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

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

Species : Mouse, male
 Application Route : Dermal
 Exposure time : 24 month(s)
 Dose : 0, 0.1, 10, 100 mg/kg bw/day
 Frequency of Treatment : 3 days/week
 NOEL : 0.1 mg/kg body weight
 Method : OECD Test Guideline 453
 Result : negative
 Target Organs : Digestive organs

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

Species : Rat, female
 Application Route : Oral

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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

Silicon, amorphous:

Species : Rat, male and female
 Application Route : Oral
 Exposure time : 103 weeks
 Dose : 1800 - 3200 mg/kg
 Frequency of Treatment : 7 daily
 Method : OECD Test Guideline 453
 Result : negative

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.

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: 0, 50, 180, 540 or 750 milligram per kilogram
 Duration of Single Treatment: 238 d
 Frequency of Treatment: 1 daily
 General Toxicity - Parent: NOEL: 540 mg/kg body weight
 General Toxicity F1: NOEL: 750 mg/kg body weight
 Symptoms: No adverse effects
 Method: OECD Test Guideline 416
 Result: No effects on fertility and early embryonic development were detected.

Effects on foetal development : Species: Rabbit, female
 Application Route: Dermal

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Dose: 0, 30, 100 or 300 milligram per kilogram
 Duration of Single Treatment: 28 d
 Frequency of Treatment: 1 daily
 General Toxicity Maternal: NOAEL: 30 mg/kg body weight
 Developmental Toxicity: NOAEL: 300 mg/kg body weight
 Method: Other guidelines
 Result: No teratogenic effects

Test Type: Pre-natal
 Species: Rabbit, female
 Application Route: Oral
 Dose: 0, 20, 60 or 180 milligram per kilogram
 Duration of Single Treatment: 13 d
 Frequency of Treatment: 1 daily
 General Toxicity Maternal: NOAEL: 60 mg/kg body weight
 Developmental Toxicity: NOAEL: 180 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

Test Type: Pre-natal
 Species: Rat, female
 Application Route: Oral
 Dose: 0, 60, 180 and 540 milligram per kilogram
 Duration of Single Treatment: 10 d
 Frequency of Treatment: 1 daily
 General Toxicity Maternal: NOAEL: 180 mg/kg body weight
 Developmental Toxicity: NOAEL: > 540 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Effects on fertility : Species: Rat, male and female
 Application Route: Oral
 Method: OECD Test Guideline 421

Species: Rat, male and female
 Application Route: Oral
 Method: OECD Test Guideline 422
 Result: Animal testing did not show any effects on fertility.

Effects on foetal development : Species: Rat, females
 Application Route: Oral
 General Toxicity Maternal: NOAEL: 343 mg/kg body weight
 Developmental Toxicity: NOAEL: 343 mg/kg body weight
 Method: OECD Test Guideline 414

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

Silicon, amorphous:

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

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Species: Rabbit
Application Route: Oral
General Toxicity Maternal: NOAEL: 1,600 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL: 1,350 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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

Species : Rat, male and female
NOAEL : 50 mg/kg
Application Route : oral (gavage)
Exposure time : 14 Weeks
Number of exposures : 7 d
Dose : 0, 50, 250, 1000 mg/kg/day
Method : OECD Test Guideline 408

Species : Rat, male and female
NOAEL : >= 10 mg/kg
Application Route : Skin contact
Exposure time : 13 Weeks
Number of exposures : 5 d
Dose : 0, 10, 100, 1000 mg/kg/day
Method : OECD Test Guideline 411

Species : Mouse, male
NOAEL : 100 mg/kg
Application Route : Skin contact
Exposure time : 13 Weeks
Number of exposures : 3 d
Dose : 0, 1, 10, 100 mg/kg/day
Method : OECD Test Guideline 411

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Species : Rat, male and female
NOAEL : 150 - 750 mg/kg/d
Application Route : Ingestion
Exposure time : 13 Weeks
Number of exposures : 7 d
Method : Subchronic toxicity

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Species : Rat, male and female
 NOEL : 30 mg/kg
 Application Route : Ingestion
 Number of exposures : 7 d
 Method : Subchronic toxicity

Silicon, amorphous:

Species : Rat, male and female
 NOAEL : 7950 - 8980 mg/kg
 Application Route : Ingestion
 Exposure time : 4,320 h
 Number of exposures : 7 d
 Method : Subchronic toxicity

Species : Rat, male and female
 NOEC : 4000 - 4500 mg/m³
 Application Route : Ingestion
 Test atmosphere : dust/mist
 Exposure time : 13 Weeks
 Number of exposures : 7 d
 Method : OECD Test Guideline 413

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 : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
 aquatic invertebrates : Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50: 11 mg/l
 plants : Exposure time: 72 h

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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
 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.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Toxicity to fish : EC50 (Lepomis macrochirus (Bluegill sunfish)): >= 6 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
 Test substance: Fresh water
 Method: OECD Test Guideline 203
 Remarks: No-observed-effect level

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.46 mg/l
 Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Remarks: Aquatic toxicity is unlikely due to low solubility.

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): > 7.49 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201
 Remarks: Aquatic toxicity is unlikely due to low solubility.

Toxicity to fish (Chronic toxicity) : GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.7 mg/l
 Exposure time: 21 d
 Test Type: flow-through test
 Test substance: Fresh water
 Method: OECD Test Guideline 211
 Remarks: Aquatic toxicity is unlikely due to low solubility.

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EC50 (Daphnia magna (Water flea)): \geq 1.3 mg/l
Exposure time: 21 d
Test Type: flow-through test
Test substance: Fresh water

Ecotoxicology Assessment

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

Silicon, amorphous:

Toxicity to fish : LL50 (Brachydanio rerio (zebrafish)): $>$ 10,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): \geq 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): $>$ 10,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

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

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1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Biodegradability : Inoculum: activated sludge
Concentration: 10 mg/l
Result: Readily biodegradable.
Biodegradation: 70.73 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in water : Degradation half life (DT50): 1.48 - 14.75 yr (20 °C) pH: 7.5
Method: No information available.

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 (77 °F / 25 °C)
pH: 7.1
Method: OECD Test Guideline 117

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1.95
Exposure time: 23 d
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 4.04 - 4.91 (77 °F / 25 °C)
pH: 7

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

Distribution among environmental compartments : Koc: 445

Other adverse effects**Product:**

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

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

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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)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Environmentally hazardous : yes

IMDG-Code

- UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
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**49 CFR**

- 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

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ERG Code	:	171
Marine pollutant	:	yes
Remarks	:	Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user

Remarks	:	49CFR: no dangerous good in non-bulk packaging
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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**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

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

WARNING: This product can expose you to chemicals including formaldehyde, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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
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

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TSCA : All substances listed as active on the TSCA inventory

Inventories

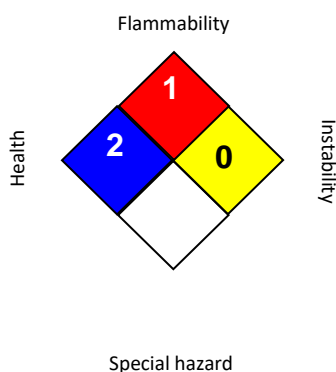
AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

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:**

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.

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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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