

SAFETY DATA SHEET

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RENCAST® 3261 US

Version	Revision Date:	SDS Number:	Date of last issue: 11/29/2017
1.2	02/08/2019	400001012668	Date of first issue: 07/29/2016

SECTION 1. IDENTIFICATION

Product name : RENCAST® 3261 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 : SDS@huntsman.com

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

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy constituents



SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A
Skin sensitisation : Category 1
Germ cell mutagenicity : Category 2
Carcinogenicity : Category 2
Short-term (acute) aquatic hazard : Category 3
Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :



Signal word : Warning

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- Hazard statements : H227 Combustible liquid.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H412 Harmful 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.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of 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.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
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	10 - 20

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Muscovite (Al ₂ K(Si ₃ Al)[(OH)0.5-1F0-0.5]2O ₁₀)	1318-94-1	5 - 10
limestone	1317-65-3	1 - 5
butyl 2,3-epoxypropyl ether	2426-08-6	1 - 2.5

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.
- 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.
Protect unharmed eye.
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.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during : Do not allow run-off from fire fighting to enter drains or water

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firefighting	courses.
Hazardous combustion products	: Carbon oxides Halogenated compounds Metal oxides
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. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
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.
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	: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	: Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
Advice on safe handling	: 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. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma,

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allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Conditions for safe storage : No smoking.
Keep in a 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.

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
limestone	1317-65-3	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
butyl 2,3-epoxypropyl ether	2426-08-6	TWA	3 ppm	ACGIH
		TWA	50 ppm 270 mg/m3	OSHA Z-1

Personal protective equipment

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

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

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Appearance	: liquid
Colour	: black
Odour	: slight, ether-like
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	: 165 °F / 74 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: 7.57144 hPa (122 °F / 50 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: 2.97 - 3.21
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: insoluble
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.

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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 : Vapours may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : None known.

Hazardous decomposition products : carbon dioxide
carbon monoxide
Halogenated compounds
Metal oxides

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

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

Acute inhalation toxicity - Product : Acute toxicity estimate: 60.88 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

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

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

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

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Skin corrosion/irritation**Components:**

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

Species: Rabbit

Assessment: Mild skin irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

butyl 2,3-epoxypropyl ether:

Species: Rabbit

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: Mild eye irritant

Method: OECD Test Guideline 405

Muscovite (Al₂K(Si₃Al)[(OH)_{0.5}-1F_{0.5}]2O₁₀):

Assessment: Irritating to eyes.

limestone:

Species: Rabbit

Result: Mechanical irritation of the eyes is possible.

Assessment: No eye irritation

butyl 2,3-epoxypropyl ether:

Species: Rabbit

Result: Severe eye irritation

Assessment: Severe eye irritation

Respiratory or skin sensitisation**Components:**

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

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: Causes sensitisation.

limestone:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

butyl 2,3-epoxypropyl ether:

Result: May cause sensitisation by skin contact.

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Assessment: No data available

Germ cell mutagenicity**Components:**

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

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

Components:

butyl 2,3-epoxypropyl ether:

Germ cell mutagenicity- : In vitro tests showed mutagenic effects
Assessment

Germ cell mutagenicity- : No data available
Assessment

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

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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

Components:

butyl 2,3-epoxypropyl ether:

Carcinogenicity -
Assessment

IARC

: Suspected human carcinogens

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.

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

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Species: Rabbit, female
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

Reproductive toxicity - : No data available
Assessment

STOT - single exposure**Components:**

butyl 2,3-epoxypropyl ether:
Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

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

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

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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:

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

limestone:

Toxicity to fish : LC50: > 56,000 mg/l
Exposure time: 96 h

Components:

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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/aquatic plants : 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

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

limestone:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): > 350 mg/l
Exposure time: 125 d
Test Type: semi-static test
Test substance: Fresh water

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

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

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Ecotoxicology Assessment
Acute aquatic toxicity : No data available

Components:

butyl 2,3-epoxypropyl ether:
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

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

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Remarks: Fresh water

Photodegradation : No data available

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.

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

limestone:
Partition coefficient: n-octanol/water : log Pow: < 1

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 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 - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful 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.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

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

Not regulated as dangerous goods

Remarks : Above applies only to containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (450 liters).

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

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Version 1.2 Revision Date: 02/08/2019 SDS Number: 400001012668 Date of last issue: 11/29/2017
Date of first issue: 07/29/2016

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Ethylene glycol	107-21-1	5000	*
1-chloro-2,3-epoxypropane	106-89-8	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Germ cell mutagenicity
Carcinogenicity

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).

California Prop. 65

WARNING: This product can expose you to chemicals including quartz (SiO₂), kaolin, 1-chloro-2,3-epoxypropane, which is/are known to the State of California to cause cancer, and Ethylene glycol, 1-chloro-2,3-epoxypropane, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV : The formulation contains substances listed on the Swiss Inventory

DSL : This product contains one or several components that are not on the Canadian DSL nor NDSL.

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

NZIoC : Not in compliance with the inventory

ENCS : Not 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

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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.

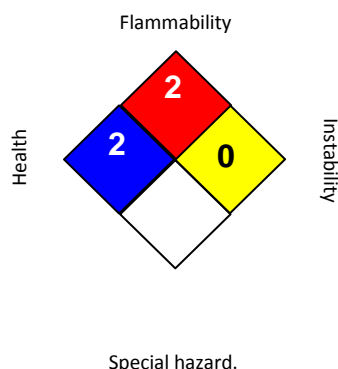
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

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

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		2
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

Revision Date : 02/08/2019

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1
Limits for Air Contaminants
ACGIH / TWA : 8-hour, time-weighted average
OSHA Z-1 / 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.

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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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NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

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SECTION 1. IDENTIFICATION

Product name : REN® 3261 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 29 CFR 1910.1200

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Skin corrosion : Category 1B

Serious eye damage : Category 1

Skin sensitisation : Category 1

Reproductive toxicity : Category 1B

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

GHS label elements

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Hazard pictograms



Signal word

: Danger

Hazard statements

: H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H360F May damage fertility.
H410 Very 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 dust/ fume/ gas/ mist/ vapours/ spray.
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
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.

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II

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	31326-29-1	30 - 50
Diethylenetriamine	111-40-0	30 - 50
4,4'-isopropylidenediphenol	80-05-7	25 - 30

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

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 : Keep respiratory tract clear.
Do NOT induce vomiting.

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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.

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.

Hazardous combustion products : Carbon dioxide (CO₂)
Carbon monoxide
Nitrogen oxides (NO_x)

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.
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 : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

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SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : 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.
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 : 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 : 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
Diethylenetriamine	111-40-0	TWA	1 ppm	ACGIH
		TWA	1 ppm 4 mg/m3	NIOSH REL

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

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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.

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 : 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	: ammoniacal
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	: > 399 °F / > 204 °C
Flash point	: > 250 °F / > 121 °C Method: Pensky-Martens closed cup, closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.

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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 : < 3.11922 hPa (158 °F / 70 °C)

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

Relative density : 1.08

Density : No data is available on the product itself.

Solubility(ies)
Water solubility : slightly soluble

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 : No data is available on the product itself.

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

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

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

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

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : carbon monoxide
carbon dioxide
dinitrogen oxide

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SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Acute oral toxicity - Product : LD50 (Rat, male): 1,150 mg/kg
LD50 (Rat, female): 1,369 mg/kg
LD50 (Rat, male and female): 1,190 mg/kg

Acute inhalation toxicity - Product : Acute toxicity estimate: 0.5286 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : 2,986 mg/kg
Method: Calculation method

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

Skin corrosion/irritation

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Species: Rabbit

Assessment: Causes burns.

Method: OECD Test Guideline 431

Result: Causes burns.

GLP: yes

Diethylenetriamine:

Species: Rabbit

Assessment: Causes burns.

Result: Causes burns.

4,4'-isopropylidenediphenol:

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

Serious eye damage/eye irritation

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

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Result: Severe irritation
Assessment: Causes severe burns.
Method: OECD Test Guideline 437

Diethylenetriamine:
Species: Rabbit
Result: Corrosive
Assessment: Corrosive

4,4'-isopropylidenediphenol:
Species: Rabbit
Result: Irreversible effects on the eye
Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane,
reaction products with diethylenetriamine:
Test Type: Local lymph node assay (LLNA)
Species: Mouse
Assessment: Probability or evidence of high skin sensitisation rate in humans
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.
GLP: yes

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.

4,4'-isopropylidenediphenol:
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.

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

Assessment: No data available

Germ cell mutagenicity

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane,
reaction products with diethylenetriamine:
Genotoxicity in vitro : Test Type: Ames test

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

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

4,4'-isopropylidenediphenol:
Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Result: negative

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

4,4'-isopropylidenediphenol:
Genotoxicity in vivo

: Method: OECD Test Guideline 474
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

4,4'-isopropylidenediphenol:
Species: Rat, male and female
Application Route: Oral
Exposure time: 103 weeks
Frequency of Treatment: 7 daily
Result: negative

Carcinogenicity -
Assessment

: No data available

IARC

No component of this product present at levels greater than or

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equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Effects on fertility

: Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Strain: wistar
Application Route: Oral
General Toxicity - Parent: No observed adverse effect level: 60 mg/kg body weight
Fertility: No-observed-effect level: 60 mg/kg body weight
Method: OECD Test Guideline 422
GLP: yes

Diethylenetriamine:

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

4,4'-isopropylidenediphenol:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.

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

4,4'-isopropylidenediphenol:

Species: Rat, female

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Application Route: Oral
General Toxicity Maternal: No observed adverse effect level:
< 160 mg/kg body weight
Method: OECD Test Guideline 416
Result: No teratogenic effects

Components:

4,4'-isopropylidenediphenol:

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

STOT - single exposure

Components:

Diethylenetriamine:

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

4,4'-isopropylidenediphenol:

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

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Species: Rat, male and female

NOAEL: 60 mg/kg

Application Route: Oral

Method: OECD Test Guideline 422

GLP: yes

Diethylenetriamine:

Species: Rat, male and female

NOEC: 70 - 80 mg/m³

Application Route: Ingestion

Test atmosphere: vapour

Exposure time: 360 h

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

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4,4'-isopropylidenediphenol:
Species: Dog, male and female
NOEC: 75 mg/kg, 10 mg/m³
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
LOAEL: 600 mg/kg
Application Route: Ingestion
Exposure time: 672 h
Number of exposures: 7 d
Method: Subchronic toxicity

Repeated dose toxicity - : No data available
Assessment

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

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

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.16 mg/L
WAF
End point: mortality
Method: OECD Test Guideline 203
GLP: yes

Diethylenetriamine:

Toxicity to fish : LC50: 430 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

4,4'-isopropylidenediphenol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.7 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: Immobilization
Method: OECD Test Guideline 202
GLP: yes

NOEC: 1 mg/l
Method: OECD Test Guideline 202

Diethylenetriamine:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 32 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: see user defined free text

4,4'-isopropylidenediphenol:

Toxicity to daphnia and other aquatic invertebrates : EC50: 3.9 - 10.2 mg/l
Exposure time: 48 h

(Ceriodaphnia dubia (Water flea)):

Components:

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4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane,
 reaction products with diethylenetriamine:

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 0.31 mg/l
 Exposure time: 72 h
 Test Type: semi-static test
 Method: OECD Test Guideline 201

NOELr (Pseudokirchneriella subcapitata (green algae)): 0.1 mg/l
 Method: OECD Test Guideline 201
 GLP: yes

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

4,4'-isopropylidenediphenol:

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 2.5 - 3.1 mg/l
 Exposure time: 96 h

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane,
 reaction products with diethylenetriamine:

M-Factor (Acute aquatic toxicity) : 1

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

4,4'-isopropylidenediphenol:

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.016 mg/l
 Exposure time: 444 d
 Test Type: flow-through test
 Test substance: Fresh water
 Method: Fish Life Cycle Toxicity
 Remarks: Toxic to aquatic organisms.

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

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Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

M-Factor (Chronic aquatic toxicity) : 1

4,4'-isopropylidenediphenol:

M-Factor (Chronic aquatic toxicity) : 1

Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: semi-static test
Method: OECD Test Guideline 209
GLP: yes

Components:

Diethylenetriamine:

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

Components:

4,4'-isopropylidenediphenol:

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

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability**Components:**

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %

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Exposure time: 28 d
Method: OECD Test Guideline 301B

Diethylenetriamine:
Biodegradability

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

4,4'-isopropylidenediphenol:
Biodegradability

: Result: Not readily biodegradable.
Biodegradation: 1 - 2 %
Exposure time: 28 d

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:

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.

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Components:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine:

Partition coefficient: n-octanol/water : log Pow: 0.704 (73.4 °F / 23.0 °C)
Method: OECD Test Guideline 117
GLP: yes

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

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

Global warming potential (GWP) : No data available

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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 2735
- Proper shipping name : Polyamines, liquid, corrosive, n.o.s.
(DETA-BADGE polymer, DIETHYLENETRIAMINE)
- Class : 8
- Packing group : II
- Labels : Class 8 - Corrosive substances
- Packing instruction (cargo aircraft) : 855
- Packing instruction (passenger aircraft) : 851

IMDG

- UN number : UN 2735
- Proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(DETA-BADGE polymer, DIETHYLENETRIAMINE)
- Class : 8
- Packing group : II
- Labels : 8
- EmS Code : F-A, S-B
- 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

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UN/ID/NA number	: UN 2735
Proper shipping name	: POLYAMINES, LIQUID, CORROSIVE, N.O.S. (DETA-BADGE polymer, DIETHYLENETRIAMINE)
Class	: 8
Packing group	: II
Labels	: Class 8 - Corrosive substances
ERG Code	: 153
Marine pollutant	: yes(DETA-BADGE polymer)

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

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

SARA 311/312 Hazards	: Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitisation Reproductive toxicity Specific target organ toxicity (single or repeated exposure)
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SARA 313	: The following components are subject to reporting levels established by SARA Title III, Section 313:
4,4'-isopropylidenediphenol	80-05-7 >= 20 - < 30 %

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 4,4'-isopropylidenediphenol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV	: On the inventory, or 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	: 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 : 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.

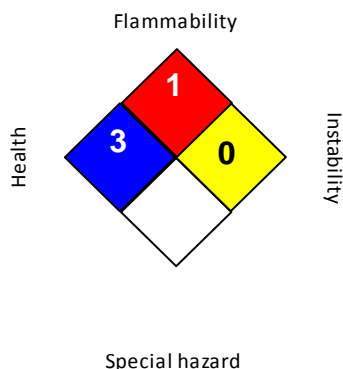
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

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

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	3
FLAMMABILITY		1
PHYSICAL HAZARD		0

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

Revision Date : 01/09/2020

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
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

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

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

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