

# SAFETY DATA SHEET

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## RENLAM® 569 US

Version	Revision Date:	SDS Number:	Date of last issue: 11/30/2017
1.1	11/14/2018	400001012680	Date of first issue: 11/30/2017

### SECTION 1. IDENTIFICATION

Product name : RENLAM® 569 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 : Component for special laminating systems  
Adhesives



### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with 29 CFR 1910.1200

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

#### GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.

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H360 May damage fertility or 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 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.  
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	13 - 30
dibutyl phthalate	84-74-2	3 - 7

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

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	13 - 30
dibutyl phthalate	84-74-2	3 - 7

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

barium sulfate	7727-43-7	30 - 50
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2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	25 - 30
dibutyl phthalate	84-74-2	5 - 10
cellulose	9004-34-6	1 - 5

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

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

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

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.<br>Show this safety data sheet to the doctor in attendance.<br>Treat symptomatically.<br>Get medical attention if symptoms occur.  |
| If inhaled  | : If inhaled, remove to fresh air.<br>Get medical attention if symptoms occur.   |
| In case of skin contact                                     | : If skin irritation persists, call a physician.<br>If on skin, rinse well with water.<br>If on clothes, remove clothes.   |
| In case of eye contact                                      | : Immediately flush eye(s) with plenty of water.<br>Remove contact lenses.<br>Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist.                                    |
| If swallowed  | : Induce vomiting immediately and call a physician.<br>Keep respiratory tract clear.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>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. |
|------------------------------|---|

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- |   |   |
|---|---|
| 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 oxides<br>Halogenated compounds<br>Sulphur oxides<br>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.<br>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.  |
| Environmental precautions   | : Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>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).<br>Keep in suitable, closed containers for disposal.                             |

## SECTION 7. HANDLING AND STORAGE

- |   |  |
|---|--|
| Advice on protection against fire and explosion | : Normal measures for preventive fire protection.  |
| Advice on safe handling                         | : Do not breathe vapours/dust.<br>Avoid exposure - obtain special instructions before use.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Dispose of rinse water in accordance with local and national regulations.<br>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 |



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used.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
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
barium sulfate	7727-43-7	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
		TWA (Inhalable fraction)	5 mg/m3	ACGIH
dibutyl phthalate	84-74-2	TWA	5 mg/m3	ACGIH
		TWA	5 mg/m3	OSHA Z-1
cellulose	9004-34-6	TWA	10 mg/m3	ACGIH
		TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 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.

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Wash hands before breaks and at the end of workday.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	: paste
Colour	: off-white
Odour	: slight
Odour Threshold	: No data is available on the product itself.
pH	: No data is available on the product itself.
Freezing point	: No data is available on the product itself.
Melting point	: No data is available on the product itself.
Boiling point	: No data is available on the product itself.
Flash point	: > 201 °F / > 94 °C Method: estimated, 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.
Relative vapour density	: No data is available on the product itself.
Relative density	: 1.3 - 1.9
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.

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

Viscosity : No data is available on the product itself.

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

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

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

### SECTION 10. STABILITY AND REACTIVITY

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

Chemical stability : Stable under normal conditions.

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

Conditions to avoid : None known.

Incompatible materials : None known.

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

### SECTION 11. TOXICOLOGICAL INFORMATION

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

#### Acute toxicity

##### Components:

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

Acute oral : LD50 (Rat, female): > 2,000 mg/kg  
toxicityComponents Method: OECD Test Guideline 420  
Assessment: The substance or mixture has no acute oral toxicity

dibutyl phthalate:

Acute oral : LD50 (Rat, male and female): 6,279 mg/kg  
toxicityComponents Method: OECD Test Guideline 401

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

Acute oral : LD50 (Rat, female): > 2,000 mg/kg

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

dibutyl phthalate:  
Acute oral      : LD50 (Rat, male and female): 6,279 mg/kg  
toxicityComponents      Method: OECD Test Guideline 401

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Acute oral      : LD50 (Rat, female): > 2,000 mg/kg  
toxicityComponents      Method: OECD Test Guideline 420  
Assessment: The substance or mixture has no acute oral toxicity

dibutyl phthalate:  
Acute oral      : LD50 (Rat, male and female): 6,279 mg/kg  
toxicityComponents      Method: OECD Test Guideline 401

cellulose:  
Acute oral      : LD50 (Rat): > 5,000 mg/kg  
toxicityComponents

### Components:

dibutyl phthalate:  
Acute inhalation toxicity      : LC50 (Rat, male and female): >= 15.68 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

dibutyl phthalate:  
Acute inhalation toxicity      : LC50 (Rat, male and female): >= 15.68 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

dibutyl phthalate:  
Acute inhalation toxicity      : LC50 (Rat, male and female): >= 15.68 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

cellulose:  
Acute inhalation toxicity      : LC50 (Rat): > 5.8 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

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Assessment: The substance or mixture has no acute inhalation toxicity

### 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

dibutyl phthalate:

Acute dermal toxicity : LD50 (Rabbit): > 20,000 mg/kg

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

dibutyl phthalate:

Acute dermal toxicity : LD50 (Rabbit): > 20,000 mg/kg

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

dibutyl phthalate:

Acute dermal toxicity : LD50 (Rabbit): > 20,000 mg/kg

cellulose:

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

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

### **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.

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dibutyl phthalate:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

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

Species: Rabbit

Assessment: Mild skin irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

dibutyl phthalate:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

barium sulfate:

Species: human skin

Assessment: No skin irritation

Result: No skin irritation

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

Species: Rabbit

Assessment: Mild skin irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

dibutyl phthalate:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

cellulose:

Assessment: No skin irritation

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

dibutyl phthalate:

Species: Rabbit

Result: Normally reversible injuries

Assessment: No eye irritation

Method: OECD Test Guideline 405

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

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

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

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

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Species: Rabbit  
Result: Irritating to eyes.  
Assessment: Mild eye irritant  
Method: OECD Test Guideline 405

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

cellulose:  
Result: No eye irritation  
Assessment: No 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.

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

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.

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

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

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.

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

cellulose:  
Exposure routes: Skin  
Result: Does not cause skin sensitisation.

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

dibutyl phthalate:  
Genotoxicity in vitro : Concentration: 100 - 2000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

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



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

dibutyl phthalate:

Genotoxicity in vitro

: Concentration: 100 - 2000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

barium sulfate:

Genotoxicity in vitro

: 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

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

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

dibutyl phthalate:

Genotoxicity in vitro

: Concentration: 100 - 2000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

**Components:**

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

Genotoxicity in vivo

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

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

dibutyl phthalate:

Genotoxicity in vivo

: Exposure time: 13 Weeks  
Dose: 163 - 4278 mg/kg

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Result: negative

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

dibutyl phthalate:

Genotoxicity in vivo : Exposure time: 13 Weeks  
Dose: 163 - 4278 mg/kg  
Result: negative

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

dibutyl phthalate:

Genotoxicity in vivo : Exposure time: 13 Weeks  
Dose: 163 - 4278 mg/kg  
Result: negative

**Carcinogenicity****Components:**

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

Species: Rat, male and female  
Application Route: Oral  
Exposure time: 24 month(s)  
Dose: 15 mg/kg  
Frequency of Treatment: 7 days/week  
Method: OECD Test Guideline 453  
Result: negative

Species: Mouse, male  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 0.1 mg/kg  
Frequency of Treatment: 3 days/week  
Method: OECD Test Guideline 453  
Result: negative

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Version	Revision Date:	SDS Number:	Date of last issue: 11/30/2017
1.1	11/14/2018	400001012680	Date of first issue: 11/30/2017

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

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

Species: Rat, male and female  
Application Route: Oral  
Exposure time: 24 month(s)  
Dose: 15 mg/kg  
Frequency of Treatment: 7 days/week  
Method: OECD Test Guideline 453  
Result: negative

Species: Mouse, male  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 0.1 mg/kg  
Frequency of Treatment: 3 days/week  
Method: OECD Test Guideline 453  
Result: negative

Species: Rat, female  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 1 mg/kg  
Frequency of Treatment: 5 days/week  
Method: OECD Test Guideline 453  
Result: negative

barium sulfate:

Species: Rat, male and female  
Application Route: Oral  
Exposure time: 104 weeks  
Dose: 60 - 75 mg/kg  
Method: OPPTS 870.4200  
Result: negative

Species: Mouse, male and female  
Application Route: Oral  
Dose: 160 - 200 mg/kg  
Method: OPPTS 870.4200  
Result: negative

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

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Species: Mouse, male  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 0.1 mg/kg  
Frequency of Treatment: 3 days/week  
Method: OECD Test Guideline 453  
Result: negative

Species: Rat, female  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 1 mg/kg  
Frequency of Treatment: 5 days/week  
Method: OECD Test Guideline 453  
Result: negative

Carcinogenicity - Assessment : No data available

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

**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.

dibutyl phthalate:

Species: Rat, male and female  
Application Route: Oral  
General Toxicity - Parent: No observed adverse effect level: 385 mg/kg body weight

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Target Organs: Reproductive organs

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

Test Type: Two-generation study

Species: Rat, male and female

Application Route: Oral

Dose: &gt;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.

dibutyl phthalate:

Species: Rat, male and female

Application Route: Oral

General Toxicity - Parent: No observed adverse effect level: 385 mg/kg body weight

Target Organs: Reproductive organs

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

Test Type: Two-generation study

Species: Rat, male and female

Application Route: Oral

Dose: &gt;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.

dibutyl phthalate:

Species: Rat, male and female

Application Route: Oral

General Toxicity - Parent: No observed adverse effect level: 385 mg/kg body weight

Target Organs: Reproductive organs

**Components:**

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

Effects on foetal development

: Species: Rabbit, female

Application Route: Dermal

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

Method: Other guidelines

Result: No teratogenic effects

Species: Rabbit, female

Application Route: Oral

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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

dibutyl phthalate:

Species: Rat, male and female  
Application Route: Oral  
General Toxicity Maternal: Lowest observed adverse effect  
level: 10,000 ppm  
Result: Teratogenic effects

Species: Mouse  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
100 mg/kg body weight  
Result: Teratogenic effects

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

Species: Rabbit, female  
Application Route: Dermal  
General Toxicity Maternal: No observed adverse effect level:  
30 mg/kg body weight  
Method: Other guidelines  
Result: No teratogenic effects

Species: Rabbit, female  
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

dibutyl phthalate:

Species: Rat, male and female  
Application Route: Oral  
General Toxicity Maternal: Lowest observed adverse effect  
level: 10,000 ppm  
Result: Teratogenic effects

Species: Mouse  
Application Route: Oral

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General Toxicity Maternal: No observed adverse effect level:  
 100 mg/kg body weight  
 Result: Teratogenic effects

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

Species: Rabbit, female  
 Application Route: Dermal  
 General Toxicity Maternal: No observed adverse effect level:  
 30 mg/kg body weight  
 Method: Other guidelines  
 Result: No teratogenic effects

Species: Rabbit, female  
 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

dibutyl phthalate:

Species: Rat, male and female  
 Application Route: Oral  
 General Toxicity Maternal: Lowest observed adverse effect  
 level: 10,000 ppm  
 Result: Teratogenic effects

Species: Mouse  
 Application Route: Oral  
 General Toxicity Maternal: No observed adverse effect level:  
 100 mg/kg body weight  
 Result: Teratogenic effects

**Components:**

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

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

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

**STOT - single exposure**

No data available

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**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

dibutyl phthalate:

Species: Rat, male and female

NOEC: 509 mg/m<sup>3</sup>

Application Route: Ingestion

Test atmosphere: dust/mist

Exposure time: 4 Weeks

Number of exposures: 6 h

Method: OECD Test Guideline 412

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



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Application Route: Skin contact  
Exposure time: 13 Weeks  
Number of exposures: 3 d  
Method: Subchronic toxicity

dibutyl phthalate:  
Species: Rat, male and female  
NOEC: 509 mg/m3  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 4 Weeks  
Number of exposures: 6 h  
Method: OECD Test Guideline 412

barium sulfate:  
Species: Rat  
LOEC: >= 104 mg/kg, 40 mg/m3  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 5 h  
Number of exposures: 5 d  
Method: Subchronic toxicity

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

dibutyl phthalate:  
Species: Rat, male and female  
NOEC: 509 mg/m3  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 4 Weeks  
Number of exposures: 6 h

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Method: OECD Test Guideline 412

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

## 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

dibutyl phthalate:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.48 mg/l  
Exposure time: 96 h  
Test Type: static test

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Test substance: Fresh water  
Method: OECD Test Guideline 203

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

dibutyl phthalate:  
Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.48 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

barium sulfate:  
Toxicity to fish : LC50: 174 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

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

dibutyl phthalate:  
Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.48 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

cellulose:  
Toxicity to fish : LC50: > 100 mg/l  
Exposure time: 96 h

**Components:**

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.7 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water

dibutyl phthalate:  
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.99 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Gammarid Acute Toxicity Test

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LC50 (Gammarus salinus (seawater shrimp)): 0.5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Marine water  
Method: Mysid Acute Toxicity Test

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

dibutyl phthalate:  
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.99 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Gammarid Acute Toxicity Test

LC50 (Gammarus salinus (seawater shrimp)): 0.5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Marine water  
Method: Mysid Acute Toxicity Test

barium sulfate:  
Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 14.5 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

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

dibutyl phthalate:  
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.99 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Gammarid Acute Toxicity Test

LC50 (Gammarus salinus (seawater shrimp)): 0.5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Marine water  
Method: Mysid Acute Toxicity Test

cellulose:  
Toxicity to daphnia and other aquatic invertebrates : EC50: > 100 mg/l  
Exposure time: 48 h

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**Components:**

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

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

dibutyl phthalate:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 0.75 mg/l  
Exposure time: 240 h  
Test Type: static test  
Test substance: Fresh water

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

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

dibutyl phthalate:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 0.75 mg/l  
Exposure time: 240 h  
Test Type: static test  
Test substance: Fresh water

barium sulfate:

Toxicity to algae : EC50: > 100 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

NOEC: > 1.15 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

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

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

dibutyl phthalate:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 0.75 mg/l  
Exposure time: 240 h  
Test Type: static test  
Test substance: Fresh water

**Components:**

dibutyl phthalate:

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M-Factor (Acute aquatic toxicity) : 1

dibutyl phthalate:

M-Factor (Acute aquatic toxicity) : 1

dibutyl phthalate:

M-Factor (Acute aquatic toxicity) : 1

### Components:

dibutyl phthalate:

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.1 mg/l  
Exposure time: 99 d

dibutyl phthalate:

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.1 mg/l  
Exposure time: 99 d

dibutyl phthalate:

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.1 mg/l  
Exposure time: 99 d

### 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

dibutyl phthalate:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia pulex (Water flea)): 0.1 mg/l  
Exposure time: 10 d

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

dibutyl phthalate:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia pulex (Water flea)): 0.1 mg/l  
Exposure time: 10 d

barium sulfate:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 5.8 mg/l  
Exposure time: 21 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 211

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

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Test substance: Fresh water  
Method: OECD Test Guideline 211

dibutyl phthalate:

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia pulex (Water flea)): 0.1 mg/l  
Exposure time: 10 d  
(Chronic toxicity)

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

dibutyl phthalate:

Toxicity to microorganisms : EC50 (Bacteria): 2.2 mg/l  
Exposure time: 24 h

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

dibutyl phthalate:

Toxicity to microorganisms : EC50 (Bacteria): 2.2 mg/l  
Exposure time: 24 h

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

dibutyl phthalate:

Toxicity to microorganisms : EC50 (Bacteria): 2.2 mg/l  
Exposure time: 24 h

**Components:**

dibutyl phthalate:

Toxicity to soil dwelling organisms : LC50: 10 mg/kg  
Exposure time: 504 h

NOEC: 0.5 mg/kg  
Exposure time: 504 h

dibutyl phthalate:

Toxicity to soil dwelling organisms : LC50: 10 mg/kg  
Exposure time: 504 h

NOEC: 0.5 mg/kg  
Exposure time: 504 h

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dibutyl phthalate:  
 Toxicity to soil dwelling organisms : LC50: 10 mg/kg  
 Exposure time: 504 h

NOEC: 0.5 mg/kg  
 Exposure time: 504 h

**Components:**

dibutyl phthalate:  
 Plant toxicity : NOEC: 200 mg/l  
 Exposure time: 3 Weeks  
 Test substance: Natural

EC50: 387 mg/kg  
 Exposure time: 168 h  
 Method: Terrestrial Plants Test: Seedling Emergence and Seedling Growth Test

dibutyl phthalate:  
 Plant toxicity : NOEC: 200 mg/l  
 Exposure time: 3 Weeks  
 Test substance: Natural

EC50: 387 mg/kg  
 Exposure time: 168 h  
 Method: Terrestrial Plants Test: Seedling Emergence and Seedling Growth Test

dibutyl phthalate:  
 Plant toxicity : NOEC: 200 mg/l  
 Exposure time: 3 Weeks  
 Test substance: Natural

EC50: 387 mg/kg  
 Exposure time: 168 h  
 Method: Terrestrial Plants Test: Seedling Emergence and Seedling Growth Test

**Components:**

dibutyl phthalate:  
 Sediment toxicity : (Gammarus pulex (Amphipod)): 826 mg/kg sediment dw  
 Study: Acute  
 Test Type: Other guidelines  
 Water: Fresh water  
 Exposure duration: 10 d

100 mg/kg sediment dw  
 Study: Chronic  
 Water: Marine water  
 Exposure duration: 8 Weeks

dibutyl phthalate:  
 Sediment toxicity : (Gammarus pulex (Amphipod)): 826 mg/kg sediment dw  
 Study: Acute



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Test Type: Other guidelines  
Water: Fresh water  
Exposure duration: 10 d

100 mg/kg sediment dw  
Study: Chronic  
Water: Marine water  
Exposure duration: 8 Weeks

dibutyl phthalate:  
Sediment toxicity

: (Gammarus pulex (Amphipod)): 826 mg/kg sediment dw  
Study: Acute  
Test Type: Other guidelines  
Water: Fresh water  
Exposure duration: 10 d

100 mg/kg sediment dw  
Study: Chronic  
Water: Marine water  
Exposure duration: 8 Weeks

### Components:

dibutyl phthalate:

Toxicity to terrestrial organisms : NOEC: 0.472 mg/kg  
Exposure time: 360 h

dibutyl phthalate:

Toxicity to terrestrial organisms : NOEC: 0.472 mg/kg  
Exposure time: 360 h

dibutyl phthalate:

Toxicity to terrestrial organisms : NOEC: 0.472 mg/kg  
Exposure time: 360 h

Ecotoxicology Assessment  
Acute aquatic toxicity

: No data available

Chronic aquatic toxicity

: No data available

Toxicity Data on Soil

: No data available

Other organisms relevant to  
the environment

: No data available

### **Persistence and degradability**

#### Components:

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

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

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dibutyl phthalate:

Biodegradability

: Inoculum: activated sludge  
Concentration: 21.7 mg/l  
Result: Readily biodegradable.  
Biodegradation: 81 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.C.

Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: > 97 %  
Exposure time: 21 d

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

dibutyl phthalate:

Biodegradability

: Inoculum: activated sludge  
Concentration: 21.7 mg/l  
Result: Readily biodegradable.  
Biodegradation: 81 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.C.

Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: > 97 %  
Exposure time: 21 d

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

dibutyl phthalate:

Biodegradability

: Inoculum: activated sludge  
Concentration: 21.7 mg/l  
Result: Readily biodegradable.  
Biodegradation: 81 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.C.

Inoculum: activated sludge  
Result: Readily biodegradable.  
Biodegradation: > 97 %  
Exposure time: 21 d

Biochemical Oxygen

: No data available

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Demand (BOD)

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

### Components:

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

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

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

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

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

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

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

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

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

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Method: OECD Test Guideline 111  
Remarks: Fresh water

### Components:

dibutyl phthalate:  
Photodegradation : Test Type: Air  
Rate constant: < .00001

dibutyl phthalate:  
Photodegradation : Test Type: Air  
Rate constant: < .00001

dibutyl phthalate:  
Photodegradation : Test Type: Air  
Rate constant: < .00001

Impact on Sewage : No data available  
Treatment

### **Bioaccumulative potential**

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Bioaccumulation : Bioconcentration factor (BCF): 31  
Remarks: Does not bioaccumulate.

dibutyl phthalate:  
Bioaccumulation : Bioconcentration factor (BCF): 0.81  
Test substance: Marine water  
  
Bioconcentration factor (BCF): < 1

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Bioaccumulation : Bioconcentration factor (BCF): 31  
Remarks: Does not bioaccumulate.

dibutyl phthalate:  
Bioaccumulation : Bioconcentration factor (BCF): 0.81  
Test substance: Marine water  
  
Bioconcentration factor (BCF): < 1

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Bioaccumulation : Bioconcentration factor (BCF): 31  
Remarks: Does not bioaccumulate.

dibutyl phthalate:  
Bioaccumulation : Bioconcentration factor (BCF): 0.81  
Test substance: Marine water  
  
Bioconcentration factor (BCF): < 1

### Components:

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

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

dibutyl phthalate:  
Partition coefficient: n-octanol/water : log Pow: 4.46 (86 °F / 30 °C)  
pH: 5 - 8  
Method: Partition coefficient

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

dibutyl phthalate:  
Partition coefficient: n-octanol/water : log Pow: 4.46 (86 °F / 30 °C)  
pH: 5 - 8  
Method: Partition coefficient

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

dibutyl phthalate:  
Partition coefficient: n-octanol/water : log Pow: 4.46 (86 °F / 30 °C)  
pH: 5 - 8  
Method: Partition coefficient

### Mobility in soil

Mobility : No data available

### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Distribution among environmental compartments : Koc: 445

dibutyl phthalate:  
Distribution among environmental compartments : Koc: 1.4

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Distribution among environmental compartments : Koc: 445

dibutyl phthalate:  
Distribution among environmental compartments : Koc: 1.4

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Distribution among environmental compartments : Koc: 445

dibutyl phthalate:  
Distribution among environmental compartments : Koc: 1.4  
Stability in soil : No data available

### Other adverse effects

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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.  
Toxic to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

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

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA

UN/ID No. : UN 3082

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
(BISPHENOL A EPOXY RESIN, DIBUTYL PHTHALATE)

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

### IMDG

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

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

Not applicable for product as supplied.

### National Regulations

### DOT Classification

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

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

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

#### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
------------	---------	--------------------	-----------------------------

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dibutyl phthalate	84-74-2	10	173
1-chloro-2,3-epoxypropane	106-89-8	100	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

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

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

dibutyl phthalate	84-74-2	>= 5 - < 10 %
-------------------	---------	---------------

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

dibutyl phthalate	84-74-2
-------------------	---------

### California Prop. 65

WARNING: This product can expose you to chemicals including 1-chloro-2,3-epoxypropane, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://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, 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	: Not in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On the inventory, or in compliance with the inventory

### Inventories

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

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

No substances are subject to a Significant New Use Rule.

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

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



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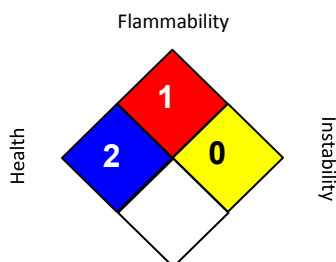
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### SECTION 16. OTHER INFORMATION

#### 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.

Revision Date : 11/14/2018

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

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

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

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

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PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN  
INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

**REN® 569-1 US**

Version	Revision Date:	SDS Number:	Date of last issue:
1.2	06/26/2017	400001012681	12/07/2016
			Date of first issue: 07/06/2016

**SECTION 1. IDENTIFICATION**

Product name : REN® 569-1 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 : MSDS@huntsman.com  
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

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

Recommended use : Hardener

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

Skin corrosion : Category 1B  
Serious eye damage : Category 1  
Skin sensitisation : Category 1  
Reproductive toxicity : Category 1B  
Specific target organ toxicity - repeated exposure (Inhalation) : Category 1 (Respiratory Tract)  
Acute aquatic toxicity : Category 2  
Chronic aquatic toxicity : Category 2

**GHS label elements**

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H360 May damage fertility or the unborn child.

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H372 Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

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.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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:**

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:**

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)
Triethylenetetramine, propoxylated	26950-63-0	13 - 30
trientine	112-24-3	13 - 30
4,4'-isopropylidenediphenol	80-05-7	3 - 7

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Tetraethylenepentamine	112-57-2	1 - 3
Aminoethylpiperazine	140-31-8	1 - 3

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.<br>Consult a physician.<br>Show this safety data sheet to the doctor in attendance.<br>Do not leave the victim unattended.  |
| If inhaled  | : If unconscious, place in recovery position and seek medical advice.<br>If symptoms persist, call a physician.   |
| In case of skin contact                                     | : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.<br>If on skin, rinse well with water.<br>If on clothes, remove clothes.  |
| In case of eye contact                                      | : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.<br>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>Continue rinsing eyes during transport to hospital.<br>Remove contact lenses.<br>Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist. |
| If swallowed  | : Clean mouth with water and drink afterwards plenty of water.<br>Keep respiratory tract clear.<br>Do NOT induce vomiting.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Take victim immediately to hospital.  |
| Most important symptoms and effects, both acute and delayed | : None known.   |

### 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   |

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- |   |   |
|---|---|
| Specific hazards during firefighting          | : Do not allow run-off from fire fighting to enter drains or water courses.   |
| Hazardous combustion products                 | : No data is available on the product itself.   |
| 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.<br>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.  |
| Environmental precautions   | : Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>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).<br>Keep in suitable, closed containers for disposal.                             |

**SECTION 7. HANDLING AND STORAGE**

- |   |  |
|---|--|
| Advice on protection against fire and explosion | : Normal measures for preventive fire protection.  |
| Advice on safe handling                         | : Do not breathe vapours/dust.<br>Avoid exposure - obtain special instructions before use.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>To avoid spills during handling keep bottle on a metal tray.<br>Dispose of rinse water in accordance with local and national regulations.<br>Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |
| Conditions for safe storage                     | : Keep container tightly closed in a dry and well-ventilated place.<br>Containers which are opened must be carefully resealed and kept upright to prevent leakage.   |



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Observe label precautions.  
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : No materials to be especially mentioned.

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

Contains no substances with occupational exposure limit values.

**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**

Appearance	: liquid
Colour	: blue, clear
Odour	: amine-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	: > 113 °C Method: closed cup

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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	: No data is available on the product itself.
Lower explosion limit	: No data is available on the product itself.
Vapour pressure	: 0.018662 hPa (25 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: 0.96 - 0.99
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: completely miscible
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.



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

**Components:**

4,4'-isopropylidenediphenol:

Acute inhalation toxicity : LC50 (Rat, male and female): > 170 mg/m3  
Exposure time: 6 h  
Test atmosphere: dust/mist

Acute dermal toxicity - Product : Acute toxicity estimate : 4,438 mg/kg  
Method: Calculation method

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

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

Remarks: Extremely corrosive and destructive to tissue.

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

Remarks: May cause irreversible eye damage.

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

Remarks: Causes sensitisation.

Assessment: No data available

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

Triethylenetetramine, propoxylated:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Species: Chinese hamster ovary cells  
Method: OECD Test Guideline 476  
Result: negative

Test Type: Ames test  
Species: Salmonella typhimurium  
Method: OECD Test Guideline 471  
Result: positive

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Test Type: Chromosome aberration test in vitro  
Species: Chinese hamster ovary cells  
Method: OECD Test Guideline 473  
Result: negative

**trientine:**

Genotoxicity in vitro

: Concentration: 0 - 200 µg/L  
Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

**4,4'-isopropylidenediphenol:**

Genotoxicity in vitro

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

**Tetraethylenepentamine:**

Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 479  
Result: positive

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

Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

**Aminoethylpiperazine:**

Genotoxicity in vitro

: Concentration: 5000 µg/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

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

Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

**Components:****trientine:**

Genotoxicity in vivo

: Application Route: Intraperitoneal injection  
Dose: 0 - 600 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

**4,4'-isopropylidenediphenol:**

Genotoxicity in vivo

: Method: OECD Test Guideline 474  
Result: negative

**Tetraethylenepentamine:**

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Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative

Aminoethylpiperazine:  
Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Dose: 175 - 560 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

### Components:

Triethylenetetramine, propoxylated:

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

Germ cell mutagenicity- : No data available  
Assessment

### Carcinogenicity

#### Components:

trientine:

Species: Mouse, (male)

Application Route: Dermal

Dose: 42 mg/kg

Frequency of Treatment: 3 days/week

Method: OECD Test Guideline 451

Result: negative

Species: Mouse, (male)

Application Route: Dermal

Exposure time: 104 weeks

Dose: 16.8 mg/kg

Frequency of Treatment: 3 days/week

Method: OECD Test Guideline 451

4,4'-isopropylidenediphenol:

Species: Rat, (male and female)

Application Route: Oral

Exposure time: 103 weeks

Frequency of Treatment: 7 daily

Result: negative

Carcinogenicity - : No data available  
Assessment

### **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

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equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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

Triethylenetetramine, propoxylated:

Effects on fertility : Test Type: Fertility  
Species: Rat, male and female  
Strain: wistar  
Application Route: Ingestion  
Dose: 100, 300 and 750 milligram per kilogram  
General Toxicity - Parent: No-observed-effect level: Measured 750 mg/kg body weight  
General Toxicity F1: No-observed-effect level: Measured 750 mg/kg body weight  
Method: OECD Test Guideline 422

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:**

Triethylenetetramine, propoxylated:

Effects on foetal development : Species: Rat, male and female  
Strain: wistar  
Application Route: Ingestion  
Dose: 100, 300 and 750 milligram per kilogram  
General Toxicity Maternal: No-observed-effect level: Measured 300 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level: Measured 750 mg/kg body weight  
Method: OECD Test Guideline 422

trientine:

Species: Rat  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level: > 750 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Species: Rabbit  
Application Route: Dermal  
General Toxicity Maternal: No observed adverse effect level: 125 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic 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

**Tetraethylenepentamine:**

Species: Rabbit, female  
Application Route: Dermal  
General Toxicity Maternal: No-observed-effect level: 50 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:  
750 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

**Components:**

Triethylenetetramine, propoxylated:

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

4,4'-isopropylidenediphenol:

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

Aminoethylpiperazine:

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

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

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****Components:**

Triethylenetetramine, propoxylated:

Exposure routes: Ingestion

Target Organs: Kidney

Assessment: No significant health effects observed at a concentration of 300mg/kg bw/day.

Aminoethylpiperazine:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: Causes damage to organs through prolonged or repeated exposure.



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

Triethylenetetramine, propoxylated:

Species: Rat, male and female

NOAEL: 300 mg/kg

Application Route: Ingestion

Exposure time: 43 - 44 Days

Method: OECD Test Guideline 422

trientine:

Species: Rat, male and female

NOAEL: 50 mg/kg/d

Application Route: Ingestion

Exposure time: 26 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

4,4'-isopropylidenediphenol:

Species: Dog, male and female

: 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

Tetraethylenepentamine:

Species: Rat, male and female

NOAEL: 50 mg/kg/d

Application Route: Ingestion

Exposure time: 26 Weeks

Method: Subchronic toxicity

Species: Rabbit, male and female

NOAEL: 50 mg/kg/d

Application Route: Skin contact

Exposure time: 744 h

Number of exposures: 5 d

Method: Subacute toxicity

Aminoethylpiperazine:

Species: Rat, male and female

NOAEL: 152 mg/kg/d

Application Route: Oral

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Exposure time: 28 d  
Method: OECD Test Guideline 422

Species: Rat, male and female  
NOAEL: > 1000 mg/kg/d  
Application Route: Skin contact  
Exposure time: 29 d  
Number of exposures: 6h/application, 5d/week  
Method: OECD Test Guideline 410

Species: Rat, male and female  
: 0.2 mg/m<sup>3</sup>  
Application Route: Inhalation  
Exposure time: 90 d  
Number of exposures: 6h/d, 5d/week  
Method: OECD Test Guideline 413  
Target Organs: Respiratory Tract  
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Species: Rat, male and female  
: 53.3 mg/m<sup>3</sup>  
Application Route: Inhalation  
Exposure time: 90 d  
Number of exposures: 6h/d, 5d/week  
Method: OECD Test Guideline 413

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

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

Remarks: No data available

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

Triethylenetetramine, propoxylated:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): Measured > 4.1 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 203

trientine:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 330 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: Fish Acute Toxicity Test

4,4'-isopropylidenediphenol:

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

Tetraethylenepentamine:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 420 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

Aminoethylpiperazine:

Toxicity to fish : LC50: 2,190 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water

**Components:**

Triethylenetetramine, propoxylated:

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



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**trientine:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.1 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.2.

**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)):

**Tetraethylenepentamine:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24.1 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Tested according to Annex V of Directive 67/548/EEC.

**Aminoethylpiperazine:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 58 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202  
Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Components:****Triethylenetetramine, propoxylated:**

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (algae)): Measured 4.1 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 201

ErC10 (Pseudokirchneriella subcapitata (algae)): Measured 0.11 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 201

**trientine:**

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 20 mg/l  
Exposure time: 72 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

**4,4'-isopropylidenediphenol:**

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 2.5 - 3.1 mg/l

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Exposure time: 96 h

Tetraethylenepentamine:  
Toxicity to algae

: ErC50 (Selenastrum capricornutum (green algae)): 6.8 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Aminoethylpiperazine:  
Toxicity to algae

: EC50 (Selenastrum capricornutum (green algae)): > 1,000 mg/l  
Exposure time: 72 h  
Test substance: Fresh water  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity)

: No data available

### Components:

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:

trientine:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

: EC10 (Daphnia magna (Water flea)): 1.9 mg/l  
Exposure time: 21 d  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

### Components:

4,4'-isopropylidenediphenol:  
M-Factor (Chronic aquatic toxicity)

: 1

### Components:

Triethylenetetramine, propoxylated:

Toxicity to microorganisms

: EC10 (activated sludge): 38 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 209

trientine:

Toxicity to microorganisms

: EC50 (activated sludge): 800 mg/l  
Exposure time: 0.5 h  
Test Type: static test  
Test substance: Fresh water

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## Tetraethylenepentamine:

Toxicity to microorganisms : EC50: 97.3 mg/l  
Exposure time: 2 h  
Test Type: static test  
Test substance: Fresh water

**Components:**

## Aminoethylpiperazine:

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 712 mg/kg  
Exposure time: 56 d  
Method: OECD Test Guideline 222

NOEC (Eisenia fetida (earthworms)): 500 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

Acute aquatic toxicity : No data available

**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:**

## Triethylenetetramine, propoxylated:

Biodegradability : Inoculum: Domestic sewage  
Concentration: 100 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 4 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

## trientine:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 162 d  
Method: OECD Test Guideline 301D

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Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 20 %  
Exposure time: 84 d  
Method: Inherent Biodegradability: Modified SCAS Test

4,4'-isopropylidenediphenol:  
Biodegradability

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

Tetraethylenepentamine:  
Biodegradability

: Inoculum: activated sludge  
Result: Not biodegradable  
Biodegradation: 17 %  
Exposure time: 84 d  
Method: Inherent Biodegradability: Modified SCAS Test

Aminoethylpiperazine:  
Biodegradability

: Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

**Components:**

Aminoethylpiperazine:  
Biochemical Oxygen  
Demand (BOD)

: 5 mg/l  
Incubation time: 5 d

**Components:**

Aminoethylpiperazine:  
Chemical Oxygen Demand  
(COD)  
BOD/COD

: 560 mg/l  
: 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:**

Triethylenetetramine, propoxylated:  
Stability in water

: Degradation half life(DT50): > 1 yr (25 °C) pH: 4  
Method: OECD Test Guideline 111

Degradation half life(DT50): > 1 yr (25 °C) pH: 7  
Method: OECD Test Guideline 111

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Degradation half life(DT50): > 1 yr (25 °C) pH: 9  
Method: OECD Test Guideline 111

**Components:**

Aminoethylpiperazine:

Photodegradation

: Test Type: Air

Degradation (direct photolysis): 50 %

Test Type: Water

Impact on Sewage

Treatment

: No data available

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

Aminoethylpiperazine:

Bioaccumulation

: Species: Fish

Remarks: Does not bioaccumulate.

**Components:**

Triethylenetetramine, propoxylated:

Partition coefficient: n-  
octanol/water

: log Pow: -2.42

trientine:

Partition coefficient: n-  
octanol/water

: log Pow: -2.65 (20 °C)

Method: OECD Test Guideline 117

Tetraethylenepentamine:

Partition coefficient: n-  
octanol/water

: log Pow: -3.16

Aminoethylpiperazine:

Partition coefficient: n-  
octanol/water

: log Pow: -1.48 (20 °C)

**Mobility in soil**

Mobility

: No data available

**Components:**

trientine:

Distribution among  
environmental compartments

: Koc: 1584.9 - 5012 Method: OECD Test Guideline 106

Tetraethylenepentamine:

Distribution among  
environmental compartments

: Koc: 3.2 - 3.7 Method: OECD Test Guideline 106

Aminoethylpiperazine:

Distribution among  
environmental compartments

: Koc: ca. 37000

Stability in soil

: No data available

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### Other adverse effects

Environmental fate and pathways : No data available

### Components:

Triethylenetetramine, propoxylated:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

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.  
Toxic to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

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

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

IATA



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UN/ID No. : UN 2735  
Proper shipping name : Polyamines, liquid, corrosive, n.o.s.  
(AMINOETHYLPIPERAZINE, TETRAETHYLENE  
PENTAMINE)  
Class : 8  
Packing group : II  
Labels : Corrosive  
Packing instruction (cargo  
aircraft) : 855  
Packing instruction  
(passenger aircraft) : 851

### IMDG

UN number : UN 2735  
Proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
(TRIETHYLENE TETRAMINE, TETRAETHYLENE  
PENTAMINE)  
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

UN/ID/NA number : UN 2735  
Proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
(AMINOETHYLPIPERAZINE, TETRAETHYLENE  
PENTAMINE)  
Class : 8  
Packing group : II  
Labels : CORROSIVE  
ERG Code : 153  
Marine pollutant : yes(TRIETHYLENE TETRAMINE PROPOXYLATED, 4,4'-  
ISOPROPYLIDENEDIPHENOL)

## SECTION 15. REGULATORY INFORMATION

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

**SARA 311/312 Hazards** : Acute Health Hazard

**SARA 313** : The following components are subject to reporting levels  
established by SARA Title III, Section 313:

4,4'- isopropylidenediphenol	80-05-7	5.829 %
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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 contains a chemical known to the State of California to cause birth defects or other reproductive harm.

4,4'-isopropylidenediphenol

80-05-7

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

CH INV	: The formulation contains substances listed on the Swiss Inventory, 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	: Not in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: 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.



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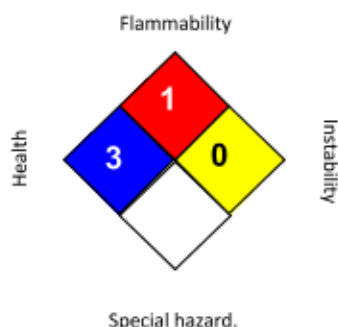
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### SECTION 16. OTHER INFORMATION

#### Further information

##### NFPA:



##### 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 : 06/26/2017

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

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

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

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**REN® 569-2 US**

Version	Revision Date:	SDS Number:	Date of last issue:
1.2	12/07/2016	400001012682	07/06/2016
			Date of first issue: 01/15/2016

**SECTION 1. IDENTIFICATION**

Product name : REN® 569-2 US

**Manufacturer or supplier's details**Company name of supplier : Huntsman Advanced Materials Americas LLC  
Address : P.O. Box 4980

The Woodlands,

TX 77387

United States of America (USA)

Telephone : Non-Emergency: (800) 257-5547

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

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

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

Recommended use : Hardener

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

Skin corrosion : Category 1B

Serious eye damage : Category 1

Skin sensitisation : Category 1

Reproductive toxicity : Category 2

Specific target organ toxicity : Category 1 (Respiratory Tract)  
- repeated exposure  
(Inhalation)

Acute aquatic toxicity : Category 3

Chronic aquatic toxicity : Category 3

**GHS label elements**

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H361 Suspected of damaging fertility or the unborn child.

**REN® 569-2 US**

Version	Revision Date:	SDS Number:	Date of last issue: 12/07/2016
1.3	07/18/2017	400001012682	Date of first issue: 01/15/2016

**SECTION 1. IDENTIFICATION**

Product name : REN® 569-2 US

**Manufacturer or supplier's details**Company name of supplier : Huntsman Advanced Materials Americas LLC  
Address : P.O. Box 4980The Woodlands,  
TX 77387

United States of America (USA)

Telephone : Non-Emergency: (800) 257-5547

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

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Specific target organ toxicity : Category 1 (Respiratory Tract)  
- repeated exposure  
(Inhalation)

Acute aquatic toxicity : Category 3

Chronic aquatic toxicity : Category 3

**GHS label elements**

Hazard pictograms :



Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H360 May damage fertility or the unborn child.

**REN® 569-2 US**

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H372 Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

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.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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:**

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.

**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)
4,4'-isopropylidenediphenol	80-05-7	7 - 13
Tetraethylenepentamine	112-57-2	3 - 7
Aminoethylpiperazine	140-31-8	3 - 7

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



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**SECTION 4. FIRST AID MEASURES**

- |   |   |
|---|---|
| General advice  | : Move out of dangerous area.<br>Consult a physician.<br>Show this safety data sheet to the doctor in attendance.<br>Do not leave the victim unattended.  |
| If inhaled  | : If unconscious, place in recovery position and seek medical advice.<br>If symptoms persist, call a physician.   |
| In case of skin contact                                     | : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.<br>If on skin, rinse well with water.<br>If on clothes, remove clothes.  |
| In case of eye contact                                      | : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.<br>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>Continue rinsing eyes during transport to hospital.<br>Remove contact lenses.<br>Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist. |
| If swallowed  | : Clean mouth with water and drink afterwards plenty of water.<br>Keep respiratory tract clear.<br>Do NOT induce vomiting.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Take victim immediately to hospital.  |
| Most important symptoms and effects, both acute and delayed | : None known.   |

**SECTION 5. FIREFIGHTING MEASURES**

- |                                      |  |
|--------------------------------------|--|
| Suitable extinguishing media         | : No data is available on the product itself.  |
| 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.<br><br>No data is available on the product itself. |

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- |   |   |
|---|---|
| Hazardous combustion products                 | : No data is available on the product itself.<br><br>No hazardous combustion products are known   |
| 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.<br>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.  |
| Environmental precautions   | : Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up               | : Neutralise with acid.<br>Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).<br>Keep in suitable, closed containers for disposal.    |

**SECTION 7. HANDLING AND STORAGE**

- |   |  |
|---|--|
| Advice on protection against fire and explosion | : Normal measures for preventive fire protection.  |
| Advice on safe handling                         | : Do not breathe vapours/dust.<br>Avoid exposure - obtain special instructions before use.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>To avoid spills during handling keep bottle on a metal tray.<br>Dispose of rinse water in accordance with local and national regulations.<br>Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |
| Conditions for safe storage                     | : Keep container tightly closed in a dry and well-ventilated place.<br>Containers which are opened must be carefully resealed and kept upright to prevent leakage.   |

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Observe label precautions.  
Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

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

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

Respiratory protection	: No personal respiratory protective equipment normally required.
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**

Appearance	: liquid
Colour	: blue, clear
Odour	: No data is available on the product itself.
Odour Threshold	: No data is available on the product itself.
pH	: 11.4
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.



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Flash point	: 113 °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	: 0.018662 hPa (25 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: 0.94 - 0.97
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: completely miscible
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 decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: No decomposition if stored and applied as directed.
Conditions to avoid	: No data available



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

**Components:**

4,4'-isopropylidenediphenol:

Acute inhalation toxicity : LC50 (Rat, male and female): > 170 mg/m3  
Exposure time: 6 h  
Test atmosphere: dust/mist

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

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

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

Remarks: Extremely corrosive and destructive to tissue.

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

Remarks: May cause irreversible eye damage.

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

Remarks: Causes sensitisation.

Assessment: No data available

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

4,4'-isopropylidenediphenol:

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

Tetraethylenepentamine:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 479  
Result: positive

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

Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

Aminoethylpiperazine:  
Genotoxicity in vitro

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

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

Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

**Components:**

4,4'-isopropylidenediphenol:  
Genotoxicity in vivo

: Method: OECD Test Guideline 474  
Result: negative

Tetraethylenepentamine:  
Genotoxicity in vivo

: Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative

Aminoethylpiperazine:  
Genotoxicity in vivo

: Application Route: Intraperitoneal injection  
Dose: 175 - 560 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

**Carcinogenicity****Components:**

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

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**ACGIH**

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

**OSHA**

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

**NTP**

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

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

4,4'-isopropylidenediphenol:  
Effects on fertility

: 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:**

4,4'-isopropylidenediphenol:  
Effects on foetal  
development

: Species: Rat, female  
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

Tetraethylenepentamine:

Species: Rabbit, female  
Application Route: Dermal  
General Toxicity Maternal: No-observed-effect level: 50 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:  
750 mg/kg body weight  
Method: OECD Test Guideline 414  
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.

Aminoethylpiperazine:  
Reproductive toxicity -  
Assessment

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

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

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****Components:**

Aminoethylpiperazine:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: Causes damage to organs through prolonged or repeated exposure.

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

4,4'-isopropylidenediphenol:

Species: Dog, male and female

NOEC: 75 mg/kg, 10 mg/m<sup>3</sup>

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

Tetraethylenepentamine:

Species: Rat, male and female

NOAEL: 50 mg/kg/d

Application Route: Ingestion

Exposure time: 26 Weeks

Method: Subchronic toxicity

Species: Rabbit, male and female

NOAEL: 50 mg/kg/d

Application Route: Skin contact

Exposure time: 744 h

Number of exposures: 5 d

Method: Subacute toxicity

Aminoethylpiperazine:

Species: Rat, male and female

NOAEL: 152 mg/kg/d



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Application Route: Oral  
Exposure time: 28 d  
Method: OECD Test Guideline 422

Species: Rat, male and female  
NOAEL: > 1000 mg/kg/d  
Application Route: Skin contact  
Exposure time: 29 d  
Number of exposures: 6h/application, 5d/week  
Method: OECD Test Guideline 410

Species: Rat, male and female  
NOEC: 0.2 mg/m<sup>3</sup>  
Application Route: Inhalation  
Exposure time: 90 d  
Number of exposures: 6h/d, 5d/week  
Method: OECD Test Guideline 413  
Target Organs: Respiratory Tract  
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Species: Rat, male and female  
NOEC: 53.3 mg/m<sup>3</sup>  
Application Route: Inhalation  
Exposure time: 90 d  
Number of exposures: 6h/d, 5d/week  
Method: OECD Test Guideline 413

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

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**Neurological effects**

No data available

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

Remarks: No data available

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

4,4'-isopropylidenediphenol:

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

Tetraethylenepentamine:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 420 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

Aminoethylpiperazine:

Toxicity to fish : LC50: 2,190 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water

**Components:**

4,4'-isopropylidenediphenol:

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

(Ceriodaphnia dubia (Water flea)):

Tetraethylenepentamine:

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 24.1 mg/l  
aquatic invertebrates Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Tested according to Annex V of Directive 67/548/EEC.

Aminoethylpiperazine:

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 58 mg/l  
aquatic invertebrates Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202

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Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Components:

4,4'-isopropylidenediphenol:

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

Tetraethylenepentamine:

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 6.8 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Aminoethylpiperazine:

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): > 1,000 mg/l  
Exposure time: 72 h  
Test substance: Fresh water  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity)

: No data available

### Components:

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.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : No data available

### Components:

4,4'-isopropylidenediphenol:

M-Factor (Chronic aquatic toxicity) : 1

### Components:

Tetraethylenepentamine:

Toxicity to microorganisms : EC50: 97.3 mg/l  
Exposure time: 2 h  
Test Type: static test  
Test substance: Fresh water

### Components:

Aminoethylpiperazine:



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Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 712 mg/kg  
Exposure time: 56 d  
Method: OECD Test Guideline 222

NOEC (Eisenia fetida (earthworms)): 500 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  
Acute aquatic toxicity : No data available

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

Tetraethylenepentamine:  
Biodegradability : Inoculum: activated sludge  
Result: Not biodegradable  
Biodegradation: 17 %  
Exposure time: 84 d  
Method: Inherent Biodegradability: Modified SCAS Test

Aminoethylpiperazine:  
Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

#### **Components:**

Aminoethylpiperazine:  
Biochemical Oxygen Demand (BOD) : 5 mg/l  
Incubation time: 5 d

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### Components:

Aminoethylpiperazine:  
Chemical Oxygen Demand (COD) : 560 mg/l  
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:

Aminoethylpiperazine:  
Photodegradation : Test Type: Air  
Degradation (direct photolysis): 50 %  
Test Type: Water  
Impact on Sewage Treatment : No data available

### **Bioaccumulative potential**

#### Components:

Aminoethylpiperazine:  
Bioaccumulation : Species: Fish  
Remarks: Does not bioaccumulate.

#### Components:

Tetraethylenepentamine:  
Partition coefficient: n-octanol/water : log Pow: -3.16  
Aminoethylpiperazine:  
Partition coefficient: n-octanol/water : log Pow: -1.48 (20 °C)

### **Mobility in soil**

Mobility : No data available

#### Components:

Tetraethylenepentamine:  
Distribution among environmental compartments : Koc: 3.2 - 3.7  
Method: OECD Test Guideline 106

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Aminoethylpiperazine:  
Distribution among : Koc: ca. 37000  
environmental compartments  
Stability in soil : No data available

### Other adverse effects

Environmental fate and : No data available  
pathways

Results of PBT and vPvB : No data available  
assessment

Endocrine disrupting : No data available  
potential

Adsorbed organic bound : No data available  
halogens (AOX)

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

Global warming potential : No data available  
(GWP)

## 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.

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

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### IATA

UN/ID No.	: UN 2735
Proper shipping name	: Polyamines, liquid, corrosive, n.o.s. (AMINOETHYLPIPERAZINE, TETRAETHYLENE PENTAMINE)
Class	: 8
Packing group	: II
Labels	: Corrosive
Packing instruction (cargo aircraft)	: 855
Packing instruction (passenger aircraft)	: 851

### IMDG

UN number	: UN 2735
Proper shipping name	: POLYAMINES, LIQUID, CORROSIVE, N.O.S. (AMINOETHYLPIPERAZINE, TETRAETHYLENE PENTAMINE)
Class	: 8
Packing group	: II
Labels	: 8
EmS Code	: F-A, S-B
Marine pollutant	: no

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

Not applicable for product as supplied.

### National Regulations

### DOT Classification

UN/ID/NA number	: UN 2735
Proper shipping name	: POLYAMINES, LIQUID, CORROSIVE, N.O.S. (AMINOETHYLPIPERAZINE, TETRAETHYLENE PENTAMINE)
Class	: 8
Packing group	: II
Labels	: CORROSIVE
ERG Code	: 153
Marine pollutant	: no

## SECTION 15. REGULATORY INFORMATION

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

<b>SARA 311/312 Hazards</b>	: 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	8.7 %
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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 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](http://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, 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
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.

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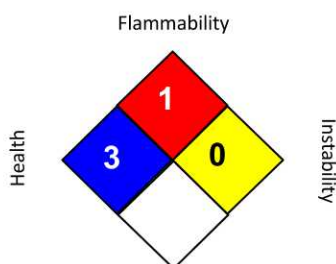
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### SECTION 16. OTHER INFORMATION

#### Further information

##### NFPA:



##### 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 : 07/18/2017

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