

SECTION 1: Identification of the substance/mixture and of the company/undertaking
1.1. Product identifier

Product form : Mixture
 Product name : 25-500770 RED PUTTY RESIN
 Product code : US30519

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Polyester resin coating with specific properties for manufacturing diverse parts.

1.3. Details of the supplier of the safety data sheet

A. Schulman Inc
 3637 Rdgewood Road
 Fairlawn, OH 44333

Customer service phone : 1-800-54-RESIN

Regulatory Information Contact : ea@us.aschulman.com

1.4. Emergency telephone number

Emergency number : For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night
 Within USA and Canada: 1-800-424-9300 CCN707712
 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

SECTION 2: Hazards identification
2.1. Classification of the substance or mixture
GHS-US classification

Skin Irrit. 2
 Eye Irrit. 2A
 Skin Sens. 1
 STOT RE 2

2.2. Label elements
GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : Causes skin irritation
 May cause an allergic skin reaction
 Causes serious eye irritation
 May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) : Keep away from heat/sparks/open flames/hot surfaces. - No smoking
 Keep cool
 Do not breathe dust/fume/gas/mist/vapors/spray
 Wash ... thoroughly after handling
 Avoid release to the environment
 Wear protective gloves/protective clothing/eye protection/face protection
 Immediately call a poison center/doctor/...
 In case of fire: Use media other than water to extinguish
 Store in a well-ventilated place. Keep container tightly closed
 Dispose of contents/container to ...



2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%
reaction product: bisphenol-A-(epichlorhydrin), epoxy resin (number average molecular weight ≤ 700)	(CAS No) 25068-38-6	≥ 25
Quartz (SiO2): 1-10% fine fraction	(CAS No) 14808-60-7	10 - 25
2-Propenamide, N-(1,1-dimethyl-3-oxobutyl)-	(CAS No) 2873-97-4	5 - 10

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

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Move the affected person away from the contaminated area. Immediately consult a doctor/medical service. If possible, show him this sheet. Failing this, show him the packaging or label. Do not leave affected person unattended.
- First-aid measures after inhalation : Call a physician immediately. If unconscious place in recovery position and seek medical advice.
- First-aid measures after skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Rinse immediately with plenty of water for 15 minutes. If symptoms persist, call a physician.
- First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). If eye irritation persists, consult a specialist.
- First-aid measures after ingestion : In all cases of doubt, or when symptoms persist, seek medical advice. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Do not give milk.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : May cause drowsiness or dizziness. Headache.
- Symptoms/injuries after skin contact : Skin irritation, dermatitis and sensitization. May cause sensitization of susceptible persons by skin contact.
- Symptoms/injuries after eye contact : Causes serious eye irritation.
- Symptoms/injuries after ingestion : May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Alcohol resistant foam. dry chemical powder. Carbon dioxide.
- Unsuitable extinguishing media : high volume water jet.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Do not allow run-off from fire fighting to enter drains or water courses.
- Reactivity : Stable under normal conditions.

5.3. Advice for firefighters

- Firefighting instructions : Comply with local regulations for disposal.
- Protection during firefighting : In case of fire: Wear self-contained breathing apparatus.



Other information : Use water spray/stream to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing.
Emergency procedures : Remove all sources of ignition. Ensure adequate ventilation. Evacuate personnel to a safe area. Special attention should be given to low areas/pits where flammable vapors can accumulate.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Collect the residue by means of a non-combustible absorbent material. Collect all waste in suitable and labeled containers and dispose according to local legislation.
Methods for cleaning up : Collect spillage. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Store in a well-ventilated place. Keep container tightly closed.

6.4. Reference to other sections

See Heading 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Use isolated drainage to prevent discharge to soil. Take precautionary measures against static discharge. The product may charge electrostatically: use earthing leads when transferring from one container to another. In order to rule out potential electrostatic discharge production, the system must be adequately grounded.
Precautions for safe handling : Do not exceed the occupational exposure limits (OEL). Avoid contact with skin and eyes. Provide sufficient air exchange and/or exhaust. Provide good ventilation in process area to prevent formation of vapor.
Hygiene measures : Do no eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight. Containers which are opened should be properly resealed and kept upright to prevent leakage.
Storage temperature : < 25 °C
Heat-ignition : This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been. Explosion-proof electrical equipment and grounded lighting. Electrical equipment should be protected to the appropriate standard.

7.3. Specific end use(s)

(Read the technical data sheet).

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Table with 2 columns: Control parameter, Value. Rows include 25-500770 RED PUTTY RESIN and reaction product: bisphenol-A-(epichlorhydrin), epoxy resin (number average molecular weight ≤ 700) (25068-38-6) with ACGIH and OSHA values.



2-Propenamido, N-(1,1-dimetil-3-oxobutil)- (2873-97-4)	
ACGIH	Not applicable
OSHA	Not applicable

Quartz (SiO2): 1-10% fine fracion (14808-60-7)		
ACGIH	ACGIH TWA (mg/m³)	0,025 mg/m³ (respirable fraction)
IDLH	US IDLH (mg/m³)	50 mg/m³ (respirable dust)
NIOSH	NIOSH REL (TWA) (mg/m³)	0,05 mg/m³ (respirable dust)
OSHA	Not applicable	

8.2. Exposure controls

- Materials for protective clothing : Chemical resistant safety shoes. Overall.
- Hand protection : Wear suitable gloves. PVC gloves. A waterproof cream can protect exposed skin parts. Do not use if contact has already taken place. In the case of wanting to use the gloves again, clean them before taking off and air them well. Before removing gloves clean them with soap and water. Replace when worn.
- Eye protection : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Safety glasses with side shields. Do not wear contact lenses.
- Skin and body protection : Wear anti-static footwear and clothing. Tight protective clothing required. Only wear fitting, comfortable and clean protective clothing. Wash clothing before re-using. Avoid contact with skin. May cause sensitization of susceptible persons by skin contact.
- Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. If excessive exposure exists, use only approved air-purifying or supplied air respirator operated in a positive pressure mode. Consult supplier for specific recommendations.
- Environmental exposure controls : Do not empty into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Color : RED
- Odor : slight
- Odor threshold : No data available
- pH : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : 120 °C
- Flash point : 254 °C
- Relative evaporation rate (butyl acetate=1) : No data available
- Flammability (solid, gas) : No data available
- Explosion limits : No data available
- Explosive properties : No data available
- Oxidizing properties : No data available
- Vapor pressure : No data available
- Relative density : No data available
- Relative vapor density at 20 °C : No data available
- Solubility : No data available
- Log Pow : No data available
- Log Kow : No data available
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available



Viscosity : No data available
Viscosity, kinematic : > 20,5 mm²/s
Viscosity, dynamic : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

10.3. Possibility of hazardous reactions

vapors may form explosive mixture with air.

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Strong acids. Strong bases. Oxidizing agents. Peroxides.

10.6. Hazardous decomposition products

Stable under normal conditions.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Table with 2 columns: Test Name, Result. Includes 2-Propenamide, N-(1,1-dimethyl-3-oxobutyl)- (2873-97-4) with LD50 oral rat, LD50 dermal rabbit, and ATE US (oral).

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitization : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Table with 2 columns: Test Name, Result. Includes Quartz (SiO2): 1-10% fine fraction (14808-60-7) with IARC group, National Toxicology Program (NTP) Status, and In OSHA Hazard Communication Carcinogen list.

Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : May cause drowsiness or dizziness. Headache.

Symptoms/injuries after skin contact : Skin irritation, dermatitis and sensitization. May cause sensitization of susceptible persons by skin contact.



Symptoms/injuries after eye contact : Causes serious eye irritation.
Symptoms/injuries after ingestion : May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

Table with 2 columns: Persistence and degradability, No data available.

12.3. Bioaccumulative potential

Table with 2 columns: Bioaccumulative potential, No data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : No data available.
Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Disposal must be done according to official regulations. Hazardous waste. Solvent.
Sewage disposal recommendations : Do not allow to enter into surface water or drains.
Waste disposal recommendations : Dispose of this material and its container to hazardous or special waste collection point. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
No dangerous good in sense of transport regulations

Additional information

Other information : No supplementary information available.

Transport by sea

UN-No. (IMDG) : 3082
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Class (IMDG) : 9 - Miscellaneous dangerous compounds
Packing group (IMDG) : III - substances presenting low danger
Subsidiary risks (IMDG) : Marine Pollutant

Air transport

UN-No. (IATA) : 3082
Proper Shipping Name (IATA) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Class (IATA) : 9 - Miscellaneous Dangerous Goods
Packing group (IATA) : III - Minor Danger

**SECTION 15: Regulatory information****15.1. US Federal regulations**

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Silicon dioxide	CAS No 112926-00-8	5 - 10
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Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

aluminium oxide	CAS No 1344-28-1	0,1 - 1
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15.2. International regulations

CANADA

reaction product: bisphenol-A-(epichlorhydrin), epoxy resin (number average molecular weight ≤ 700) (25068-38-6)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects
2-Propenamide, N-(1,1-dimethyl-3-oxobutyl)- (2873-97-4)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
Quartz (SiO₂): 1-10% fine fracion (14808-60-7)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

National regulations

reaction product: bisphenol-A-(epichlorhydrin), epoxy resin (number average molecular weight ≤ 700) (25068-38-6)	
Listed on the AICS (the Australian Inventory of Chemical Substances)	
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)	
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory	
Listed on the Korean ECL (Existing Chemicals List)	
Listed on NZIoC (New Zealand Inventory of Chemicals)	
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)	
Listed on CICR (Turkish Inventory and Control of Chemicals)	
2-Propenamide, N-(1,1-dimethyl-3-oxobutyl)- (2873-97-4)	
Listed on the AICS (the Australian Inventory of Chemical Substances)	
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)	
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory	
Listed on NZIoC (New Zealand Inventory of Chemicals)	
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)	
Listed on CICR (Turkish Inventory and Control of Chemicals)	
Quartz (SiO₂): 1-10% fine fracion (14808-60-7)	
Listed on IARC (International Agency for Research on Cancer)	
Listed on the AICS (the Australian Inventory of Chemical Substances)	
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)	
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory	
Listed on the Korean ECL (Existing Chemicals List)	
Listed on NZIoC (New Zealand Inventory of Chemicals)	
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)	
Listed as carcinogen on NTP (National Toxicology Program)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
Listed on INSQ (Mexican national Inventory of Chemical Substances)	
Listed on CICR (Turkish Inventory and Control of Chemicals)	

15.3. US State regulations

California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer, developmental and/or reproductive harm



Quartz (SiO2): 1-10% fine fracion (14808-60-7)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
Yes	No	No	No	

Quartz (SiO2): 1-10% fine fracion (14808-60-7)
U.S. - Illinois - Toxic Air Contaminant Carcinogens U.S. - Illinois - Toxic Air Contaminants U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New Jersey - Special Health Hazards Substances List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Revision date : 11/01/2016 00:00:00
 Version : 1.6
 SDS Major/Minor : None

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END OF SAFETY DATA SHEET



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product code : US580022

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

A. Schulman Inc
3637 Rdgewood Road
Fairlawn, OH 44333
Customer service phone : 1-800-54-RESIN
Regulatory Information Contact : ea@us.aschulman.com

1.4. Emergency telephone number

Emergency number : For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300 CCN707712
Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

- Acute Tox. 4 (Oral)
Acute Tox. 4 (Dermal)
Skin Corr. 1B
Eye Dam. 1
Skin Sens. 1
Repr. 1B
Lact
Aquatic Acute 3
Aquatic Chronic 3

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

Hazard statements (GHS-US)

Precautionary statements (GHS-US)

- : Danger
: Harmful if swallowed or in contact with skin
Causes severe skin burns and eye damage
May cause an allergic skin reaction
Causes serious eye damage
May damage fertility or the unborn child
May cause harm to breast-fed children
Harmful to aquatic life
Harmful to aquatic life with long lasting effects
: Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Do not breathe dust, fume, gas, mist, spray, vapors
Avoid breathing dust, fume, gas, mist, spray, vapors
Avoid contact during pregnancy/while nursing
Wash hands, forearms and face thoroughly after handling



Do not eat, drink or smoke when using this product
 Contaminated work clothing must not be allowed out of the workplace
 Avoid release to the environment
 Wear protective clothing, protective gloves, eye protection
 If swallowed: Call a doctor, a POISON CENTER if you feel unwell
 If swallowed: rinse mouth. Do NOT induce vomiting
 If on skin: Wash with plenty of water
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
 If inhaled: Remove person to fresh air and keep comfortable for breathing
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If exposed or concerned: Get medical advice/attention
 Immediately call a doctor, a POISON CENTER
 Call a doctor, a POISON CENTER if you feel unwell
 Specific treatment (see Additional information on this label)
 Rinse mouth
 If skin irritation or rash occurs: Get medical advice/attention
 Take off contaminated clothing and wash it before reuse
 Wash contaminated clothing before reuse
 Store locked up
 Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%
Triethylenetetramine	(CAS No) 112-24-3	>= 25
2-(2-aminoethylamino)ethanol, (AEEA)	(CAS No) 111-41-1	1 - 5
1-(2-Aminoethyl) piperazine	(CAS No) 140-31-8	1 - 5
Tetraethylenepentamine	(CAS No) 112-57-2	1 - 5

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

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.
- First-aid measures after skin contact : Wash skin with plenty of water.
- First-aid measures after eye contact : If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- First-aid measures after ingestion : Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide. Water fog. Water mist. Foam. dry chemical powder.



5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Protection during firefighting : Use self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

No additional information available

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

No additional information available

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

ACGIH	Not applicable
OSHA	Not applicable
2-(2-aminoethylamino)ethanol, (AEEA) (111-41-1)	
ACGIH	Not applicable
OSHA	Not applicable
Triethylenetetramine (112-24-3)	
ACGIH	Not applicable
OSHA	Not applicable
Tetraethylenepentamine (112-57-2)	
ACGIH	Not applicable
OSHA	Not applicable
1-(2-Aminoethyl) piperazine (140-31-8)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

No additional information available



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: No data available
Odor	: There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour(s): ammonia-like
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: < 35 °C
Boiling point	: > 277 °C
Flash point	: 148 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Solubility	: Water: Solubility in water of component(s) of the mixture : • 1-(2-Aminoethyl) piperazine: > 1000 g/l (at 20 °C)
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects



Acute toxicity

: Oral: Harmful if swallowed. Dermal: Harmful in contact with skin.

ATE US (oral)	1716,000 mg/kg body weight
ATE US (dermal)	1465,000 mg/kg body weight

Triethylenetetramine (112-24-3)	
LD50 oral rat	2500 mg/kg
LD50 dermal rabbit	550 mg/kg
ATE US (oral)	2500,000 mg/kg body weight
ATE US (dermal)	550,000 mg/kg body weight

Tetraethylenepentamine (112-57-2)	
ATE US (oral)	500,000 mg/kg body weight
ATE US (dermal)	1100,000 mg/kg body weight

1-(2-Aminoethyl) piperazine (140-31-8)	
LD50 oral rat	1001 mg/kg
LD50 dermal rabbit	866 mg/kg
ATE US (oral)	1001,000 mg/kg body weight
ATE US (dermal)	866,000 mg/kg body weight

- Skin corrosion/irritation : Causes severe skin burns and eye damage.
- Serious eye damage/irritation : Causes serious eye damage.
- Respiratory or skin sensitization : May cause an allergic skin reaction.
- Germ cell mutagenicity : Not classified
- Carcinogenicity : Not classified

- Reproductive toxicity : May damage fertility or the unborn child. May cause harm to breast-fed children.
- Specific target organ toxicity (single exposure) : Not classified

- Specific target organ toxicity (repeated exposure) : Not classified

- Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Triethylenetetramine (112-24-3)	
LC50 fish 1	570 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])
EC50 Daphnia 1	31,1 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	495 mg/l (Exposure time: 96 h - Species: Pimephales promelas)

Tetraethylenepentamine (112-57-2)	
LC50 fish 1	420 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [static])
EC50 Daphnia 1	24,1 mg/l (Exposure time: 48 h - Species: Daphnia magna)

1-(2-Aminoethyl) piperazine (140-31-8)	
LC50 fish 1	1950 - 2460 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	32 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	> 1000 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])
NOEC chronic algae	31 mg/l

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential



Triethylenetetramine (112-24-3)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-1,4
Tetraethylenepentamine (112-57-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	< 1
1-(2-Aminoethyl) piperazine (140-31-8)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-1,48

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- Sewage disposal recommendations : Do not allow to enter into surface water or drains.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN2259 Triethylenetetramine, 8, II
- UN-No.(DOT) : UN2259
- Proper Shipping Name (DOT) : Triethylenetetramine
- Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
- Hazard labels (DOT) : 8 - Corrosive



- Packing group (DOT) : II - Medium Danger
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
- DOT Packaging Bulk (49 CFR 173.xxx) : 242
- DOT Special Provisions (49 CFR 172.102) : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.
 IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
 T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)
 TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, Tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 154
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L



DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters", 52 - Stow "separated from" acids

Additional information

Other information : No supplementary information available.

Transport by sea

UN-No. (IMDG) : 2259

Class (IMDG) : 8 - Corrosive substances

Air transport

UN-No. (IATA) : 2259

Class (IATA) : 8 - Corrosives

SECTION 15: Regulatory information

15.1. US Federal regulations

2-(2-aminoethylamino)ethanol, (AEEA) (111-41-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Triethylenetetramine (112-24-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Tetraethylenepentamine (112-57-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

1-(2-Aminoethyl) piperazine (140-31-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

2-(2-aminoethylamino)ethanol, (AEEA) (111-41-1)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Class E - Corrosive Material

Triethylenetetramine (112-24-3)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects
Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Class E - Corrosive Material

Tetraethylenepentamine (112-57-2)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects
Class E - Corrosive Material

1-(2-Aminoethyl) piperazine (140-31-8)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects
Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Class E - Corrosive Material

National regulations

**2-(2-aminoethylamino)ethanol, (AEEA) (111-41-1)**

Listed on the AICS (the Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Triethylenetetramine (112-24-3)

Listed on the AICS (the Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Tetraethylenepentamine (112-57-2)

Listed on the AICS (the Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

1-(2-Aminoethyl) piperazine (140-31-8)

Listed on the AICS (the Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

15.3. US State regulations**2-(2-aminoethylamino)ethanol, (AEEA) (111-41-1)**

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Pennsylvania - RTK (Right to Know) List

Triethylenetetramine (112-24-3)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Pennsylvania - RTK (Right to Know) List



Tetraethylenepentamine (112-57-2)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Pennsylvania - RTK (Right to Know) List

1-(2-Aminoethyl) piperazine (140-31-8)

U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Version :
SDS Major/Minor :

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