



Safety Data Sheet

RF 1143 Part A

Section 1. Identification

Product Identifier	RF 1143 Part A		
Synonyms	Epoxy Resin System		
Manufacturer Stock Numbers	33524		
Recommended use	Epoxy Resin		
Uses advised against	Can react vigorously with strong oxidizing agents, strong Lewis or mineral acids, strong mineral and organic base, especially primary and secondary aliphatic amines.		
Manufacturer Contact Address	Resin Formulators 18027 Bishop Avenue Carson, CA, 90746 USA		
	Phone	Emergency Phone	Fax
	(310) 204-6159	(800) 424-9300 CHEMTREC	(310) 202-7247
	Email	Website	
	sales@evroberts.com	http://www.evroberts.com	

Section 2. Hazards Identification

Classification	CARCINOGENICITY - Category 2 EYE DAMAGE/IRRITATION - Category 2B FLAMMABLE SOLIDS - Category 2 GERM CELL MUTAGENICITY - Category 2 SENSITIZATION - SKIN - Category 2A SKIN CORROSION/IRRITATION - Category 3 SPECIFIC TARGET ORGAN TOXICITY (Single E - Category 3
Signal Word	Warning

Pictogram



Hazard Statements

Causes mild skin irritation
Flammable solid
May cause respiratory irritation; or May cause drowsiness or dizziness
Moderately irritating to eyes
Suspected of causing cancer (state route of exposure if no other routes of exposure cause the hazard)
Suspected of causing genetic defects (state route of exposure if no other routes of exposure cause the hazard)

Precautionary Statements

Response

Call a poison center/doctor/ ... /if you feel unwell.
If exposed or concerned: Get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If skin irritation occurs: Get medical advice/attention.
In case of fire: Use ... to extinguish.

Prevention

Avoid breathing dust/fume/gas/mist/ vapors/spray.
Do not handle until all safety precautions have been read and understood.
Ground/bond container and receiving equipment.
Keep away from heat.
Obtain special instructions before use.
Use explosion-proof electrical/ventilating/lighting/.../equipment.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/eye protection/face protection
Wear protective gloves/protective clothing/eye protection/face protection.

Storage

Ideal Storage Temperature is 16-38 Degrees C (60-100 Degrees F)
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container to ...
Refer to manufacturer/Supplier for information on recovery/recycling

Ingredients of unknown toxicity

0%

Hazards not Otherwise Classified

Skin

This material is corrosive to eyes and skin. Brief contact may cause burns. Repeated or prolonged skin contact may result in allergic sensitization.

Eye contact

Causes eye burns. May cause blindness. Severe eye irritation.

Ingestion

Corrosive and may cause severe and permanent damage to mouth, throat, and stomach.

Inhalation

Irritating to the nose, throat, and respiratory tract.

Section 3. Ingredients

CAS	Ingredient Name	Weight %
2426-08-6	Oxirane, (butoxymethyl)-	<15 %
65997-17-3	Glass, oxide, chemicals	<50 %
25068-38-6	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane	<65 %

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-Aid Measures

General	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Inhalation	Remove patient from exposure, keep warm and at rest. Obtain medical attention. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is labored, qualified personnel should administer oxygen. Apply artificial respiration if breathing has ceased or shows signs of failing.
Skin Contact	Remove contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists, obtain medical advice. Contaminated clothing should be thoroughly cleaned before reuse. Contaminated leather articles can not be decontaminated and should be destroyed.
Eye Contact	Immediately flush eyes with running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritation persists repeat flushing and obtain medical attention IMMEDIATELY.
Ingestion	Do NOT Induce Vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, if conscience, wash out their mouth with water then give 1 or 2 glasses of water to drink. Refer person to medical personnel for immediate attention.
Note to Physician	In general, emesis induction is unnecessary in high viscosity, low volatility products, e.g. Neat Epoxy Resins. However, symptomatic and supportive therapy may be needed following severe exposure. In such cases, medical follow-up should be maintained for at least 48 hours.

Section 5. Fire Fighting Measures

Suitable Extinguishing Media

Extinguishing media:

Use alcohol-resistant foam, water spray or FOG, CO2, dry chemical. Do not use direct water stream on burning liquid.

Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

Hazardous Combustion Products:

Halogenated compounds
aldehydes
acids
carbon oxides

Special Exposure Hazards:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Unsuitable Extinguishing Media

Do not use water jet

Section 6. Accidental Release Measures

Major Spills

For Major Spills, call CHEMTREC at 1-800-424-9300

Spills, Leaks or Releases

Clean up should only be performed by trained personnel. People dealing with major spillages should wear full protective clothing including respiratory protection. Evacuate the area. Prevent further leakage, spillage or entry into drains. Contain and absorb large spillages onto an inert, non-flammable absorbent carrier (such as earth or sand), Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spillage area clean with liquid decontaminant. Notify applicable government authorities if release is reportable.

Environmental Precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air)

Section 7. Handling and Storage

Special Precautions

Emptied containers can contain hazardous product residues. Handle in accordance with the hazard potential of curing agent(s) used. Avoid contact with eyes, avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Launder contaminated clothing before reuse. Contaminated leather articles, including shoes, can not be decontaminated and should be destroyed.

Handling

Avoid personal contact with the product or reaction mixture. Use only with adequate ventilation to ensure that the defined occupational exposure limit is not exceeded. The efficiency of the ventilation must be monitored regularly because of the possibility of blockage. Avoid breathing aerosols, mists and vapors. When the product is sprayed or heated, an approved MSHA/NIOSH positive-pressure, supplied-air respirator may be required.

Storage Requirements

Keep containers properly sealed and when stored indoors, in a well ventilated area. Keep contents away from open flames and high temperatures.

Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Ingredient Name	ACGIH TLV	OSHA PEL	STEL
	Oxirane, (butoxymethyl)-	N/A	N/A	N/A
	Glass, oxide, chemicals	N/A	N/A	N/A
	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane	N/A	none	N/A
Personal Protective Equipment Exposure Limits	Goggles, Gloves, Face Shield, CHEMICAL GOGGLES, PROTECTIVE CLOTHING, EYE WASH AND SAFETY SHOWER Oxirane, 2-(butoxymethyl)-: ACGIH TLV (2005-01-01) Time Weighted Average (TWA): 3 ppm NIOSH REL (1994-06-01) Ceiling 30 mg/m ³ : 5.6 ppm OSHA PEL (1993-06-30) Time Weighted Average (TWA): 270 mg/m ³ 50 ppm			
Recommended Monitoring Procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.			
Engineering Controls	Use with appropriate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.			
Environmental Exposure Controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.			
Hygienic Practices	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.			
Eye Protection	Chemical safety goggles. If there is a potential for splashing, use a full-face shield.			
Skin Protection	The following protective materials are recommended. Gloves - neoprene, nitrile-butadiene rubber, butyl rubber. Thin disposable gloves should be avoided for repeated or long term use. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH.			
Other Protective Equipment Respiratory	Have Eye Bath and Safety Shower available in case of exposure Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.			

Section 9. Physical and Chemical Properties

Physical State	Paste
Color	Yellow
Odor	Sweet Odor
Odor Threshold	N/A
Solubility	Negligible
Partition coefficient Water/n-octanol	N/A
VOC%	N/A
Viscosity	N/A
Specific Gravity	1
Density lbs/Gal	8.34
Pounds per Cubic Foot	N/A
Flash Point	73°C (163.40°F)
FP Method	Setaflash Closed Cup (ASTM D 3828)
Ph	N/A
Melting Point	<77°F (25°C)
Boiling Point	N/A
Boiling Range	N/A
LEL	N/A
UEL	N/A
Evaporation Rate	N/A
Flammability	N/A
Decomposition Temperature	N/A
Auto-ignition Temperature	N/A
Vapor Pressure	<1
Vapor Density	4.5

Section 10. Stability and Reactivity

Chemical Stability	Stable under normal conditions.
Hazardous Polymerization	Will not occur
Conditions to Avoid	Avoid heat, flames, sparks and other sources of ignition. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. Avoid exposure - obtain special instructions before use.
Incompatibilities	Strong oxidizing materials Keep away from strong oxidizing agents, strong Lewis or mineral acids.
Other Hazards	Reacts with considerable heat release with some curing agents. Heating this substance above 300 deg. F in the presence of air may cause slow oxidative decomposition; above 500 deg. F polymerization may occur. Some combinations of resins and curing agents can produce exothermic reactions which in large masses can cause runaway polymerization and charring of the reactants, fumes and vapors from the thermal and chemical decompositions vary widely in composition and toxicity.

Section 11. Toxicological Information

Acute Toxicity Data

4,4'-Isopropylidenediphenol:
LD50 Oral - Rat - 11,400 mg/kg
LD50 Dermal - Rat - 2,000 mg/kg

Oxirane, 2-(butoxymethyl)-:
LD50 Oral - Rat - 2,800 mg/kg
LD50 Dermal - Rat – Exposure=8h

Remarks – Inhalation: D17 Eye – Lacrimation K01 Gastrointestinal – Change in structure of function of salivary glands J22 Lung, Thorax, or Respiration – Dyspnea
LD50 Dermal – Rat - >2,150 mg/kg

Irritation Index

Irritation/Corrosion

4,4'-Isopropylidenediphenol Epichlorohydrin Copolymer:
Results: Skin – Erythema/Eschar 404 Acute Dermal Irritation/corrosion
Species: Rabbit
Score: 1.5 – 2
*

Results: Skin Edema 404 Acute Dermal Irritation/corrosion
Species: Rabbit
Score: 1.0 – 1.5
*

Results: Eyes – 405 Acute Eye Irritation/corrosion
Species: Rabbit
Score: 0
*

Results: Eyes – Redness of the conjunctiva
Species: Rabbit
Score: 0.7
*

Results: Skin – Moderate irritation
Species: Rabbit
Exposure: 24 hrs
*

Results: Skin – Severe irritant
Species: Rabbit
Exposure: 24 hrs
*

Results: Eyes – Mild irritant
Species: Rabbit

Oxirane, 2-(butoxymethyl)-:
Results: Eyes – Severe irritant
Species: Rabbit
Exposure: 24 hrs
*

Results: Skin – Mild irritant
Species: Rabbit
Exposure: 72 hrs
*

Results: Skin – Moderate irritant
Species: Rabbit
Exposure: 24 hrs
*

Results: Eyes – Moderate irritant

	Species: Rabbit
Reproductive toxicity	<p>Conclusion/Summary: Not available</p> <p>4,4'-Isopropylidenediphenol Epichlorohydrin Copolymer: Remarks: No adverse reproductive effects were observed in an O.E.C.D. Test Guideline no. 416 GLP two-generation rat oral gavage study conducted up to a high dose level of 750 mg/kg/day that resulted in adult body weight decrements.</p>
Specific target organ toxicity - repeated exposure	<p>Conclusion/Summary: Not available</p> <p>(Single exposure)</p> <p>4,4'-Isopropylidenediphenol Epichlorohydrin Copolymer: Category 3 Target organs: Respiratory tract irritation</p> <p>Oxirane, 2-(butoxymethyl)-: Category 3 Category 2 Target organs: Respiratory tract irritation eyes</p> <p>(Repeated exposure)</p> <p>Oxirane, 2-(butoxymethyl)-: Category 1 Category 2 Target organs: Skin respiratory tract blood system central nervous system (CNS)</p>
Aspiration hazard	No data available
POTENTIAL HEALTH EFFECTS:	
Eye Contact	Causes serious eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin Contact	Causes skin irritation. May cause an allergic skin reaction.
Ingestion	Irritating to mouth, throat and stomach.
Toxicological Symptoms	
Eye Contact	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	No data is available on the product itself.
Skin Irritation	Adverse symptoms may include the following: irritation redness
Ingestion	No data is available on the product itself.
Delayed, Immediate and Chronic Effects	
Short term exposure	Potential immediate effects: Not available Potential delayed effects: Not available
Long term exposure	Potential immediate effects: Not available Potential delayed effects: Not available
Potential chronic health effects	
General	Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	Suspected of causing genetic defects.

Teratogenicity	No known significant effects or critical hazard.
Developmental effects	No known significant effects or critical hazard.
Fertility effects	No known significant effects or critical hazard.

Section 12. Ecological Information

Ecotoxicity Effects

Toxicity

Reaction product:
Bisphenol-A-(epichlorohydrin); epoxy resin (number average molecular weight <= 700

Result: Acute LC50 1.3 mg/l – 203 Fish, Acute Toxicity Test

Species: Fish – Fish

Exposure: 96 h

Result: Acute EC50 2.1 mg/l – 202 Daphnia sp., Acute Immobilization Test and Reproduction Test

Species: Aquatic invertebrates, Water flea

Exposure: 48 h

Result: Acute NOEC 0.3 mg/l – 211 Daphnia Magna Reproduction Test

Species: Aquatic invertebrates, Water flea

Exposure: 21 h

Result: Acute LC50 >11 mg/l

Species: Aquatic plants - Algae

Exposure: 72 h

Butyl Glycidyl ether:

Result: Acute EC50 3.9 mg/l – Fresh water

Species: Aquatic invertebrates, Water flea

Exposure: 48 h

Conclusion/Summary: Not available

Persistence and degradability

Bioaccumulation:

4,4'-Isopropylidenediphenol- Epichlorohydrin Copolymer

LogPow: 2.64 – 3.78

BCF: 3 – 31 31.00

Potential: low

Oxirane, 2-(butoxymethyl)-

LogPow: 0.63

BCF: -

Potential: low

Mobility in soil:

Soil/water partition coefficient: Not available (KOC)

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal

WASTE DISPOSAL METHOD:

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport Information

UN Number	1993
UN Proper Shipping Name	COMBUSTIBLE LIQUID, N.O.S. (Oxirane, 2-(butoxymethyl)-)
DOT Classification	8
Packing Group	III
Disclaimer	The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.
DOT NOT REGULATED	Not regulated by DOT regulations if 119 gallon capacity or less

Section 15. Regulatory Information

US Regulations

Regulatory Information

TSCA 12(b) - Chemical Export Notification: None required
TSCA 5(a)2 - Final significant new use rules: Not listed
TSCA 5(a)2 - Proposed significant new use rules: Not listed
TSCA 5(e) - Substances consent order: Not listed

SARA 302/304

Composition/information on ingredients

Oxirane, 2,2'-[oxybis(methylene)]bis:
EHS: Yes

Oxirane, 2-(chloromethyl)-:
EHS: Yes

California Prop. 65 Components

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.
WARNING: This product contains a chemical known to the State of California to cause birth defects, or other reproductive harm.

Oxirane, 2-(butoxymethyl)-:
Cancer: No
Reproductive: Yes
No significant risk level: No
Maximum acceptable dosage level: No

Oxirane, 2,2'-[oxybis(methylene)]bis-:
Cancer: No
Reproductive: Yes
No significant risk level: No
Maximum acceptable dosage level: No

Oxirane, 2-(phenoxyethyl)-:
Cancer: Yes
Reproductive: No
No significant risk level: 5 mg/day
Maximum acceptable dosage level: No

Oxirane, 2-(chloromethyl)-:
Cancer: Yes
Reproductive: Yes
No significant risk level: 9 mg/day
Maximum acceptable dosage level: No

TSCA Inventory Status

This product and/or all of its components are either included on or exempt from the TSCA Inventory of Chemical Substances

Regulatory for Canada

WHMIS (Canada)
Class B-3: Combustible liquid with a flash point between 37.8°C (100° F) and 93.3°C (200°F)
Class D-1B: Material causing immediate and serious toxic effects (Toxic)
Class D-2A: Material causing other toxic effects (Very Toxic)
Class D-2B: Material causing other toxic effects (Toxic)

Canadian Lists:
Canadian NPRI: None required.

CEPA Toxic substances: None required.

International Regulations

Chemical Inventories:

Australia inventory (AICS): All components are listed or exempted.

Canada inventory: All components are listed or exempted.

Japan inventory (ENCS): All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Korea inventory (KECI): All components are listed or exempted.

New Zealand Inventory of Chemicals (NZIoC): Not determined.

Philippines inventory (PICCS): All components are listed or exempted.

United States inventory (TSCA 8b): All components are listed or exempted.

Taiwan Inventory (CSNN): All components are listed or exempted.

Section 16. Other Information

Revision Date

9/3/2015

HMIS Rating (Not Regulated) The HMIS Rating for this product is:

Health: 2 Flammability: 2 Reactivity: 0

0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

For Information Purposes Only - No Longer Regulated

Disclaimer

The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication as part of E.V. Roberts' product safety program. It is not intended to constitute performance information concerning the product. No warranty, expressed or implied, or merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

To determine applicability or effects of any law or regulation with respect to the product, user should consult his legal advisor or the appropriate government agency. E.V. Roberts does not undertake to furnish advice on such matters.



Safety Data Sheet

RF 1143 Part B

Section 1. Identification

Product Identifier	RF 1143 Part B		
Synonyms	Epoxy curing agent		
Manufacturer Stock Numbers	33524		
Recommended use	Epoxy Curing Agent		
Uses advised against	Avoid heat, flames, sparks and other sources of ignition. Store away from nitrites. Reacts with acids.		
Manufacturer Contact Address	Resin Formulators 18027 Bishop Avenue Carson, CA, 90746 USA		
	Phone	Emergency Phone	Fax
	(310) 204-6159	(800) 424-9300 CHEMTREC	(310) 202-7247
	Email	Website	
	sales@evroberts.com	http://www.evroberts.com	

Section 2. Hazards Identification

Classification	ACUTE TOXICITY - DERMAL - Category 3 ACUTE TOXICITY - INHALATION - Category 4 ACUTE TOXICITY - ORAL - Category 4 EYE DAMAGE/IRRITATION - Category 1
Signal Word	Danger
Pictogram	The pictogram section contains two red diamond-shaped hazard symbols. The first symbol is a skull and crossbones, representing acute toxicity. The second symbol shows a hand being poured with a flame, representing eye damage/irritation.

Hazard Statements	Causes serious eye damage Harmful if inhaled Harmful if swallowed Toxic in contact with skin
Precautionary Statements	
Response	Call a poison center/doctor/ ... /if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin: Wash with plenty of water/ ... If swallowed: Call a poison center/doctor/ ... / if you feel unwell. Immediately call a poison center/doctor/ ... Rinse mouth. Specific treatment (see ... on this label) Take off immediately all contaminated clothing and wash it before reuse.
Prevention	Avoid breathing dust/fume/gas/mist/ vapors/spray. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wash ...thoroughly after handling. Wear eye protection/face protection. Wear protective Butyl Gloves, Face Shield, Eye Bath and Safety Shower.
Storage	Store locked up.
Disposal	Dispose of contents/container to ...
Ingredients of unknown toxicity	0%
Hazards not Otherwise Classified	
Emergency Overview	Warning: Toxic in contact with skin. Corrosive. Moderate respiratory irritant. Severe skin irritant. Severe eye irritant. May cause sensitization by skin contact.
Potential Health Effects	
Inhalation	Can cause severe eye, skin and respiratory tract burns. May cause nose, throat, and lung irritation. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system.
Eye contact	Causes eye burns. May cause blindness. Severe eye irritation.
Skin contact	Toxic in contact with skin. Causes skin burns.
Ingestion	If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. Harmful if swallowed.
Chronic Health Hazard	This product contains no listed carcinogens according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Prolonged contact may result in chemical burns and permanent damage. Repeated or prolonged contact causes sensitization, asthma and eczemas.
Exposure Guidelines	
Target Organs	Skin. Eyes. Respiratory system.
Symptoms	Repeated and/or prolonged exposure to low concentrations of vapors and/or aerosols may cause: Sore throat.
Aggravated Medical Condition	Eye disease, Skin disorders and Allergies. Adverse skin effects (such as rash, irritation or corrosion) Adverse eye effects (such as conjunctivitis or corneal

damage). Adverse respiratory effects (such as cough, tightness of chest or shortness of breath) and Asthma.

MSDS

Read the entire MSDS for a more thorough evaluation of the hazards.

Section 3. Ingredients

CAS	Ingredient Name	Weight %
7631-86-9	Fumed Silica	<0.5 %
112-24-3	1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-	<99 %

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-Aid Measures

General advice	Seek medical advice. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.
Eye	Rinse immediately with plenty of water also under the eyelids for at least 20 minutes. Remove contact lenses.
Skin	Immediately remove contaminated clothing, and any extraneous chemical, if possible to do so without delay. Wash off immediately with plenty of water for at least 20 minutes. Cover wound with sterile dressing. Take off contaminated clothing and shoes immediately. NOTE TO PHYSICIANS: Application of corticosteroid cream has been effective in treating skin irritation.
Ingestion	Do not induce vomiting. The victim should drink several glasses of water to dilute the ingested substance. If vomiting occurs naturally, keep airway clear. Get medical attention. Never give anything by mouth if the victim is rapidly losing consciousness, or is unconscious or convulsing.
Inhalation	If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Move to fresh air.

Section 5. Fire Fighting Measures

Suitable Extinguishing Media

Extinguishing media:
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
Dry sand
Limestone powder.

Specific Hazards:

May generate ammonia gas. May generate toxic nitrogen oxide gases. Use of water may result in the formation of very toxic aqueous solutions. Do not allow run-off from fire fighting to enter drains or water courses. Incomplete combustion may form carbon monoxide. Downwind personnel must be evacuated. Burning produces obnoxious and toxic fumes.

Special Protective Equipment for Fire-Fighters

Avoid contact with the skin. A face shield should be worn. Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

Further Information:

Do not allow run-off from fire fighting to enter drains or water courses.

Unsuitable Extinguishing Media

N/A

Section 6. Accidental Release Measures

Personal precautions

Use self-contained breathing apparatus and chemically protective clothing. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.

Environmental Precautions Methods for cleaning up

Construct a dike to prevent spreading
Approach suspected leak areas with caution. Contact Air Products Emergency Response Center for advice. Place in appropriate chemical waste container.

Additional Advice

If possible, stop flow of product

Section 7. Handling and Storage

Handling

Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Avoid contact with skin and eyes. Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Avoid contact with eyes. Use personal protective equipment. When using, do not eat, drink or smoke.

Storage

Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Do not store near acids. Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical measures/Precautions

Do not store in reactive metal containers

Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Ingredient Name	ACGIH TLV	OSHA PEL	STEL
	Fumed Silica	N/A	10 mg/m ³ , TLV-TWA, Inhalation	N/A
	1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-	N/A	1 ppm, skin, TWA 6 mg/m ³ , inhalation	N/A
Personal Protective Equipment Engineering Measures	Goggles, Gloves, Face Shield, CHEMICAL GOGGLES, PROTECTIVE CLOTHING, EYE WASH AND SAFETY SHOWER Provide readily accessible eye wash stations and safety showers. Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.			
Personal Protective Equipment Respiratory Protection Hand protection	Wear appropriate respirator when ventilation is inadequate. Neoprene gloves. Butyl-rubber. Nitrile rubber. Impervious gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.			
Eye protection	Full face shield with goggles underneath. Chemical resistant goggles must be worn.			
Skin and Body Protection	Slicker Suit. Impervious clothing. Full rubber suit (rain gear). Rubber or plastic boots. Long sleeve shirt and trousers without cuffs.			
Environmental exposure controls	Construct a dike to prevent spreading.			
Special Instructions for protection and hygiene	Discard contaminated leather articles. Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Provide readily accessible eye wash stations and safety showers. Wash at the end of each workshift and before eating, smoking or using the toilet.			
Exposure Limits	Triethylenetetramine: Time Weighted Average (TWA):WEEL; 1ppm; 6 mg/m ³ .			

Section 9. Physical and Chemical Properties

Physical State	Liquid
Color	Amber
Odor	Fishy
Odor Threshold	N/A
Solubility	Complete
Partition coefficient Water/n-octanol	N/A
VOC%	N/A
Viscosity	20 mPa at 77°F (25°C)
Specific Gravity	1
Density lbs/Gal	0.98
Pounds per Cubic Foot	N/A
Flash Point	>115.56°C
FP Method	N/A
Ph	Alkaline
Melting Point	N/A
Boiling Point	531°F (277° C)
Boiling Range	N/A
LEL	N/A
UEL	N/A
Evaporation Rate	N/A
Flammability	N/A
Decomposition Temperature	N/A
Auto-ignition Temperature	N/A
Vapor Pressure	<0.01 mmHg at 21°C
Vapor Density	5.61

Density

61.179 lb/ft³ (0.98 g/cm³) at 70°F (21°C)

Section 10. Stability and Reactivity

Chemical Stability

Stable under normal conditions.

Hazardous Decomposition Products

Carbon monoxide, aldehydes and acids may be formed during combustion. Reaction with some curing agents may produce considerable heat.

Conditions to Avoid

Can react vigorously with strong oxidizing agents, strong acids, and strong alkalis.

Section 11. Toxicological Information

Acute Health Hazard

Ingestion	LD50 : > 2,500 mg/kg Species : Rat.
Inhalation	No data is available on the product itself.
Skin	LD50 : > 805 mg/kg Species : Rabbit.
Eye Irritation	Severe eye irritation.
Acute Dermal Irritation/corrosion	Severe skin irritation.
Sensitization	May cause sensitization by skin contact. Sensitization has occurred in laboratory animals after repeated exposures.

Section 12. Ecological Information

Ecotoxicity Effects

Aquatic Toxicity	No data is available on the product itself.
Toxicity to other organisms	No data available.
Persistence and degradability	Mobility: No data available Bioaccumulation: No data is available on the product itself.
Waste from residues / unused products	Contact supplier if guidance is required.
Contaminated packaging	Dispose of container and unused contents in accordance with federal, state, and local requirements.

Section 13. Disposal

No Data Available

Section 14. Transport Information

UN Number	2259
UN Proper Shipping Name	Triethylenetetramine
DOT Classification	8
Packing Group	II
Further Information	Note: If regulated as a hazardous material (Dangerous Good) in transportation, please refer to shipping papers or contact Air Products for complete shipping description information.

Section 15. Regulatory Information

OSHA Hazard Communication Standard Regulatory Information

OSHA Hazard Communication Standard (29 CFR 1910.1200) Hazard Classes:
Corrosive, Sensitizer

USA (TSCA) Included on inventory
EU (EINECS) Included on EINECS inventory or polymer
substance, monomers included on EINECS
inventory or no longer polymer
Canadian (DSL) Included on Inventory.
Australia (AICS) Included on Inventory.
Japan (ENCS) Included on Inventory.
South Korea (ECL) Included on Inventory.
China (SEPA) Included on Inventory.
Philippines (PICCS) Included on Inventory.

EPA SARA TITLE III Section 312 (40 CFR 370) Hazard Classification:
Acute Health Hazard, Chronic Health Hazard

EPA SARA TITLE III Section 313 (40 CFR 372)
Component(s) above de minimus level: None

CALIFORNIA PROPOSITION 65

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

WHMIS Hazard Classification:

Toxic material causing Immediate and Serious Toxic Effect, Toxic Material
Causing Other Toxic Effect, Corrosive Material

Section 16. Other Information

Revision Date

9/3/2015

HMIS Rating (Not Regulated) The HMIS Rating for this product is:
Health: 3 Flammability: 1 Reactivity: 0

0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

For Information Purposes Only - No Longer Regulated

Disclaimer

The information contained herein is believed to be accurate. It is provided
independently of any sale of the product for purpose of hazard communication as
part of E.V. Roberts' product safety program. It is not intended to constitute
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