



# Safety Data Sheet

RF 4000

## Section 1. Identification

Product Identifier	RF 4000
Synonyms	Epoxy Resin
Manufacturer Stock Numbers	11144
Recommended use	Epoxy Resin
Uses advised against	Can react vigorously with strong oxidizing agents, strong Lewis or mineral acids. In reactions with many curing agents, considerable heat is released.
Manufacturer Contact Address	Resin Formulators 18027 Bishop Avenue Carson, CA, 90746 USA
Phone	(310) 204-6159
Emergency Phone	(800) 424-9300 CHEMTREC
Fax	(310) 202-7247
Email	sales@evroberts.com
Website	http://www.evroberts.com

## Section 2. Hazards Identification

Classification	EYE DAMAGE/IRRITATION - Category 2B SKIN CORROSION/IRRITATION - Category 3
Signal Word	Warning
Pictogram	
Hazard Statements	Causes eye irritation Causes mild skin irritation

## Precautionary Statements

Response	If eye irritation persists: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention.
Prevention	Wash ...thoroughly after handling.
Storage	Store in well-ventilated place.
Disposal	N/A

Ingredients of unknown toxicity 0%

## Hazards not Otherwise Classified

### EMERGENCY OVERVIEW

**Health Hazards:**  
Moderately irritating to skin. May cause sensitization by continuous contact with skin or vapors (especially if heated). Moderately irritating to eyes.

**Physical Hazards:**  
Reacts with strong oxidizing agents, amines, acids (Lewis of mineral). Will exothermic when reacting. This reaction accelerates at higher temperatures.

**Appearance:**  
Clear, light yellow or colored (if pigmented with one of the available colors). Resinous liquid.

**Odor:**  
Slightly sweet odor.

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

## Section 3. Ingredients

CAS	Ingredient Name	Weight %
17557-23-2	Oxirane, 2,2'-[(2,2-dimethyl-1,3-propanediyl)bis(oxymethylene)]bis-	<8 %
25068-38-6	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane	>92 %

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	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

Containers may burst under intense heat. Due to reaction with water, a hazardous build-up of pressure could result if contaminated containers are re-sealed.

#### Extinguishing Media:

Carbon dioxide, dry chemical or appropriate foam. If water is used, very large quantities are required. Reaction between water and hot isocyanate may be vigorous. Contain runoff water with temporary barriers.

#### Fire Fighting Protective Equipment:

Use self-contained breathing apparatus and full protective clothing (Bunker Gear).

#### Flash Point:

200°F (93°C) (Setaflash)

#### Flammable Limits (Lower):

Not available.

#### Flammable Limits (Upper):

Not available.

#### Auto Ignition Temperature:

Not available.

#### Decomposition Temperature:

~600°F (315°C):

#### Rate of Burning:

Not available.

#### Explosive Power:

None.

#### Sensitivity to Mechanical Impact:

None.

#### Sensitivity to Static Discharge:

None.

#### Decomposition Products:

Carbon monoxide, Aldehydes, Acids and other organic substances may be formed during the combustion or thermal or oxidative decomposition. Reaction with some curing agents may produce considerable heat (exotherm), Run-a-way cure reaction may char and decompose the resin system, generating unidentified fumes and vapors, which may be toxic.

### Unsuitable Extinguishing Media

N/A

## 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. Remove and dispose of residues. Notify applicable government authorities if release is reportable. Small spills: Take up with an absorbent material and dispose of properly.

## Section 7. Handling and Storage

Special Precautions	<p>Empty 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, cannot be decontaminated and should be destroyed.</p> <p>Warning: may cause skin and eye irritation. May cause skin sensitization. Minimize bodily contact. Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Heating this material above 300°F in the presence of air may cause slow oxidative decomposition. Above 500°F, polymerization may occur. Some curing agents, eg. Aliphatic amines can produce exothermic reactions which in large masses can cause runaway polymerization and charring of the reactants. Fumes and vapors from these thermal and chemical decompositions vary widely in composition and toxicity. DO NOT BREATHE FUMES. Use a NIOSH-approved respirator.</p>
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.
Storage Temperature	Ideal storage temperature is 16-38°C (60-100°F)
Shelf Life	12 Months @ 77°F (25°C)

## Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Ingredient Name	ACGIH TLV	OSHA PEL	STEL
	Oxirane, 2,2'-[(2,2-dimethyl-1,3-propanediyl)bis (oxymethylene)]bis-	N/A	none	N/A
	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane	N/A	none	N/A
<p>Personal Protective Equipment</p> <p>Preventive Measures</p>	<p>Goggles, Gloves, Apron, Face Shield, Respirator, CHEMICAL GOGGLES, PROTECTIVE CLOTHING</p> <p>Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.</p>			
Engineering Controls	<p>Use local exhaust ventilation to maintain airborne concentrations below the TLV. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it. Follow guidelines in the ACGIH publication "Industrial Ventilation".</p>			
Eye Protection	<p>Chemical safety goggles. If there is a potential for splashing, use a full-face shield.</p>			
Skin Protection	<p>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.</p>			
<p>Respiratory Protection</p> <p>Protective Clothing</p>	<p>Not ordinarily required</p> <p>Avoid contact with eyes. Wear safety goggles as appropriate. Wear chemical resistant clothing as required to minimize contact</p>			

## Section 9. Physical and Chemical Properties

Physical State	Liquid
Color	Clear, light yellow
Odor	Slightly sweet odor
Odor Threshold	N/A
Solubility	Negligible
Partition coefficient Water/n-octanol	N/A
VOC%	N/A
Viscosity	N/A
Specific Gravity	1.14
Density lbs/Gal	9.9
Pounds per Cubic Foot	N/A
Flash Point	>200°F (93°C)
FP Method	setaflash
Ph	N/A
Melting Point	Below 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	N/A

## Section 10. Stability and Reactivity

Hazardous Decomposition Products	Carbon monoxide, aldehydes, acids and other organic substances may be formed during the combustion or thermal or oxidative decomposition. Reaction with some curing agents may produce considerable heat (exothermic). Run-A-Way cure reactions may char and decompose the resin system, generating unidentified fumes and vapors which may be toxic.
Chemical Stability	Stable at room temperature
Conditions to Avoid	Can react vigorously with strong oxidizing agents, strong Lewis or mineral acids, and strong mineral and organic bases, especially primary and secondary aliphatic amines.

## Section 11. Toxicological Information

Acute Toxicity Data	Bis A epichlorohydrin: Acute Oral LD50: 11.4g/kg (rat) Acute Dermal LD50: <20g/kg (rabbit) Acute Inhalation LD50: No Deaths, SAT. Air, 8 hr
Inhalation	Not expected to be relevant route of exposure. However, high vapor or aerosol mist concentrations may be irritating to the nose, throat and upper respiratory tract.
Skin Contact	Moderate irritant. Repeated and/or prolonged contact may cause skin sensitization.
Eye Contact	The aerosol, vapor or liquid will irritate human eyes following contact.
Ingestion	Ingestion may cause irritation of the gastrointestinal tract. This product is considered to have a low order of acute oral toxicity.
Chronic Effects	Repeated contact can cause skin sensitization. Preexisting skin, eye and respiratory may be aggravated by exposure to this product.
Carcinogenicity	Epichlorohydrin, CAS 106-89-8, an impurity in this product, (<50 PPM), has been reported to produce cancer in laboratory animals and to produce mutagenic changes in bacteria and cultured human cells. It has been established by the International Agency for Research on Cancer (IARC) as a probable human carcinogen (IARC Group 2A) based on the following conclusions: Human evidence - inadequate; animal evidence - sufficient. It has been classified as an anticipated human carcinogen by the National Toxicology Program (NTP)
Mutagenicity	There is no substantial evidence of mutagenic potential.
Reproductive Effects	No adverse reproductive effects are anticipated.
Teratogenicity and Fetotoxicity	No information is available and no adverse teratogenic embryotoxic effects are anticipated.

## Section 12. Ecological Information

Environmental Release Information	Keep out of surface waters, sewers and waterways entering or leading to surface waters. Notify authorities if any exposure to the general public or environment occurs or is likely to occur.
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## Section 13. Disposal

Disclaimer Part 1	The generation of waste should be avoided or minimized wherever possible.
Disclaimer Part 2	Disposal should be in accordance with local, state, provincial and national regulations. This material is not a hazardous waste under RCRA 40 CFR 261. Small quantities should be treated with a liquid decontaminate. The treated waste is not a hazardous material under RCRA 40 CFR 261. Chemical waste, even small quantities, should never be poured down drains, sewers or waterways.
Disclaimer Part 3	Empty containers should be decontaminated and either passed to an approved drum recycler or destroyed.



## Section 14. Transport Information

UN Number	N/A
UN Proper Shipping Name	N/A
DOT Classification	N/A
Packing Group	N/A
DOT	Not hazardous by DOT regulations

## Section 15. Regulatory Information

**Regulatory** This product is listed on the EPA/TSCA inventory of chemical substances. Protection of stratospheric ozone (pursuant to Section 611 of the Clean Air Act Amendment of 1990); Per 40 CFR Part 82, this product does not contain nor was it directly manufactured with any Class I or Class II ozone depleting substances. In accordance with SARA Title III, Section 313.

## Section 16. Other Information

**Revision Date** 4/13/2015

**HMIS Rating (Not Regulated)** The HMIS Rating for this product is:  
Health: 2 Flammability: 1 Reactivity: 0

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

For Information Purposes Only - No Longer Regulated

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