



Safety Data Sheet

RF 81

Section 1. Identification

Product Identifier	RF 81				
Synonyms	Epoxy Curing Agent				
Manufacturer Stock Numbers	10232				
Recommended use	Epoxy Curing Agent				
Uses advised against	Avoid high temperatures, flames and contact with strong oxidizing agents.				
Manufacturer Contact Address	Resin Formulators 18027 Bishop Avenue Carson, CA, 90746 USA				
Phone	(310) 204-6159	Emergency Phone	(800) 424-9300	Fax	(310) 202-7247
			CHEMTREC		
Email	sales@evroberts.com	Website	http://www.evroberts.com		

Section 2. Hazards Identification

Classification	ACUTE TOXICITY - DERMAL - Category 4 ACUTE TOXICITY - INHALATION - Category 5 ACUTE TOXICITY - ORAL - Category 4 EYE DAMAGE/IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (Single E - Category 3)
Signal Word	Warning
Pictogram	The pictogram section contains two red diamond-shaped hazard symbols. The first symbol shows a hand being splashed with liquid from a container, representing skin irritation or acute toxicity. The second symbol is a large black exclamation mark, representing a general warning of hazard.

Hazard Statements	Causes serious eye irritation Harmful if swallowed Harmful in contact with skin May be harmful if inhaled May cause respiratory irritation; or May cause drowsiness or dizziness
Precautionary Statements	
Response	Call a poison center/doctor/ ... /if you feel unwell. 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 INHALED: Call a POISON CENTER or doctor/... if you feel unwell 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. 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 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	
EMERGENCY OVERVIEW	Health Hazards: Severe Skin Irritant, May cause irritation and/or sensitization through repeated contact. May be harmful if swallowed. Can cause burns to mouth, and throat Severe Respiratory irritant Severe Eye irritant May cause sensitization by inhalation Appearance: Viscous Light Amber Liquid Odor: Amoniacal odor. Read the entire MSDS for a more thorough evaluation of the hazards.

Section 3. Ingredients

CAS	Ingredient Name	Weight %
111-40-0	Diethylenetriamine	<10 %
112-24-3	1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-	<10 %
68410-23-1	Ppolyamide Resin	>80 %

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

Section 4. First-Aid Measures

TARGET ORGANS	Skin, Eyes and Respiratory System
General	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Inhalation	Severe Irritant: LC50 (4h): > 0.07 - < 0.3 ml/kg. Species, Rat Remove patient from exposure, keep warm and at rest. Harmful if inhaled and may cause delayed lung injury. Inhalation of aerosol may cause irritation to the upper respiratory tract. Repeated exposure can cause irritation. May cause Central Nervous System (CNS) Depression. Obtain medical attention immediately. 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	Severe Skin Irritant: LD50: 1000 mg/kg, species, Rabbit Harmful in contact with skin. May cause skin burns and sensitization. Wash affected areas thoroughly with soap and water. Obtain medical attention IMMEDIATELY. Contaminated clothing should be thoroughly cleaned before reuse. Cannot decontaminate leather articles. NOTE TO PHYSICIANS: Application of corticosteroid cream has been effective in treating skin irritation.
Eye Contact	Severe Eye Irritant: Product low vapor in low concentration can cause lacrimation, conjunctivitis and corneal edema when absorbed in the tissue of the eye from the atmosphere. Corneal edema can cause the perception of "Blue haze" or "fog" around lights, although this is a temporary effect and has no known residual effect. Cause eye burns. May cause blindness. Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. Obtain medical attention IMMEDIATELY.
Ingestion	Severe Irritant: LD50: 2000 mg/kg, species, RAT Do NOT Induce Vomiting. May cause gastrointestinal irritation or ulceration. May cause irritation and burns to mouth, throat and stomach. May be moderately toxic if swallowed. May cause CNS depression. Give large amounts of water followed by milk if available. Obtain medical attention IMMEDIATELY.
Signs and Symptoms	Irritation as noted above. Lung damage (scarring, bronchitis, emphysema) may be evidenced by shortness of breath, especially on exertion, and may be accompanied by evidenced by rashes, especially hives and may be evidenced by giddiness, headache, dizziness and nausea; in extreme cases, unconsciousness, respiratory depression and death may occur.

Section 5. Fire Fighting Measures

Suitable Extinguishing Media

Containers may burst under intense heat.
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.

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

Flash Point:
>320°F (160°C)

Flammable Limits (Lower):
Not Available

Flammable Limits (Upper):
Not Available

Rate of Burning:
Not Available

Explosive Power:
None

Sensitivity to Mechanical Impact:
None

Sensitivity to Static Discharge:
None

Combustion Products:
CO, CO₂, NO_x and some HCN

Unsuitable Extinguishing Media

N/A

Section 6. Accidental Release Measures

Major Spills Spills, Leaks or Releases

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

Section 7. Handling and Storage

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 stored indoors, in a cool, dry, well ventilated area. DO NOT STORE NEAR ACIDS. Do not store in reactive containers. Keep contents away from open flames and high temperatures. Do not pressurize drum containers to empty them. Heating this curing agent in the presence of air may cause thermal and oxidative decomposition. With some epoxy resins, it may 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 as required to prevent over exposure. In accordance with 29 CFR 1910-134. Use a full face, atmosphere-supplying respirator or an air purifying respirator for organic vapors.
CAUTION	SEVERE EYE IRRITANT , skin and respiratory tract. May cause skin sensitization. May cause CNS depression. Do not get into eyes, on skin or on clothing. Do not breathe vapors or mists. Containers, even those that have been empties, can cause hazardous product residues. Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Launder contaminated clothing before reuse. Contaminated leather cannot be decontaminated and should be destroyed to prevent reuse.
Storage Temperature	Ideal storage temperature is 16-38°C (60-100°F) Store closed in cool dry, and well ventilated place.
Shelf Life	12 Months @ 77°F (25°C)

Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Ingredient Name	ACGIH TLV	OSHA PEL	STEL
	Diethylenetriamine	1ppm, 4mg/m ³ Time Weighted Average (TWA)	N/A	N/A
	1,2-Ethanediamine, N,N'-bis(2-aminoethyl)-	N/A	1 ppm, skin, TWA 6 mg/m ³ , inhalation	N/A
	Ppolyamide Resin	N/A	N/A	N/A
Personal Protective Equipment Preventive Measures	Goggles, Gloves, Face Shield, Respirator, CHEMICAL GOGGLES, PROTECTIVE CLOTHING, VENTILATION Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.			
Engineering Controls	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".			
Personal Protective Equipment Eye Protection Skin Protection	Chemical safety goggles. Use a full-face shield. 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.			
Respiratory Protection	Use a NIOSH/MSHA approved positive pressure air-supplied respirator equipped with a full facepiece, or an air-supplied hood, if airborne concentrations exceed or are expected to exceed the TLV.			
Exposure Guidelines	Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with this product. Once a person is diagnosed as sensitized, no further exposure to any sensitizer should be permitted.			

Section 9. Physical and Chemical Properties

Physical State	Liquid
Color	Viscous Amber
Odor	Amoniacal
Odor Threshold	N/A
Solubility	Moderate - (1 to 10%)
Partition coefficient Water/n-octanol	N/A
VOC%	N/A
Viscosity	N/A
Specific Gravity	0.97
Density lbs/Gal	N/A
Pounds per Cubic Foot	N/A
Flash Point	> 320°F (> 160°C)
FP Method	N/A
Ph	Alkaline
Melting Point	N/A
Boiling Point	392°F (>200° 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	< 10.34 mmHg @ 70° F (21°C)
Vapor Density	N/A

Section 10. Stability and Reactivity

Hazardous Decomposition Products	Highly unlikely under normal industrial use. See section 5.
Chemical Stability	Stable at room temperature
Conditions to Avoid	Avoid high temperatures. Avoid flames and contact with strong oxidizing agents.
Hazardous Polymerization	Nitrogen oxides, carbon monoxide and unidentified organic compounds may be formed during combustion.

Section 11. Toxicological Information

No Data Available

Section 12. Ecological Information

Environmental effects Antimony trioxide and Decabromodiphenyl oxide are toxic and may persist in the environment

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. 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 2735

UN Proper Shipping Name Amines, liquid, corrosive, n.o.s. (Diethylenetetramine (DETA), triethylenetetramine)

DOT Classification 8

Packing Group III

Emergency Response Guide Number 153 (TETA) & 154 (DETA)

Section 15. Regulatory Information

Regulatory This product is listed on the EPA/TSCA inventory of chemical substances.

EPA SARA Title III Section 312 EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification: Chronic Health Hazard, Acute Health Hazard EPA SARA Title III Section 313 (40 CFR 372) Component above 'de minimus level': NONE

California Prop. 65 Components This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

WHMIS Hazard Classification Very Toxic Material Causing Other Toxic Effects, Corrosive Material

Section 16. Other Information

Revision Date

6/2/2015

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

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