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RESIN FORMULATORS

Material Safety Data Sheet

Section 1 – Chemical Product and Company Identification

Product Name: RF 80
 Product Use: Epoxy Curing Agent
 Date Effective: 08-31-2009

Manufactured by:

E.V. Roberts
Resin Formulators
 18027 Bishop Ave.,
 Carson, CA 90746
 (800) 374-3872
In an emergency call CHEMTREC @ 800-424-9300

Section 2 – Composition/Information on Ingredients

Hazardous Ingredient(s)	%(by wt.)	ACGIH TLV	CAS NO.
Benzyl dimethylamine	>99 %	None Established	103-83-3

Section 3 – Hazards Identification

Preparation Hazards and Classification:

Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes burns. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

USA: This product is a hazardous material as defined by 29 CFR 1910.1200. OSHA Hazard Communication Evaluation.

Canada: This is a controlled product under WHMIS.

European Communities (EC): This substance is classified in the Annex I of Directive 67/548/EEC. This substance is considered dangerous and has been classified according to Directive 1999/33/EC and its adaptations. Classification: Flammable; Harmful; Corrosive.

Appearance, Color and Odor:

Colorless to light yellow liquid. Amine odor.

Primary Route(s) of Exposure:

Inhalation, Ingestion, Eye contact, Skin contact

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls

Inhalation: Harmful by inhalation. Vapors and/or mists are expected to be severely irritating to the respiratory tract and may cause burns. Symptoms may include burning sensation in the chest.

Ingestion: Harmful if swallowed. Substance is expected to cause burns to the gastrointestinal tract.

Skin: Causes severe irritation and burns. Harmful when absorbed through the skin. May cause allergic skin reactions in sensitized individuals.

Eyes: Causes severe irritation and eye burns. Injury may be permanent.

CHRONIC (long term): see Section 11 for additional toxicological data.

Prolonged or repeated inhalation of vapors or mists of this product may cause bronchitis to develop with cough, phlegm and shortness of breath.

Medical Conditions

Not available

Aggravated by Exposure:

Section 4 – Toxicological Information & First Aid Measures

Acute Toxicity Data

Ingredient	LD ₅₀ Oral (mg/kg)	LD ₅₀ Dermal (mg/kg)	LC ₅₀ Inhalation (mg/m ³ , 4 hrs.)
Benzyl dimethylamine	265 (rat)	1 660 (rabbit)	Not available

Chronic Toxicity Data

Carcinogenicity:

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Ingredient	ACGIH	IARC	NTP	OSHA
Benzyl dimethylamine	Not listed	Not listed	Not listed	Not listed

Carcinogenicity Designations:

ACGIH: American Conference of Governmental Industrial Hygienists
 IARC: International Agency for Research on Cancer
 NTP: National Toxicity Program
 OSHA: Occupational Safety and Health Administration

Irritation: Product is severely irritating to eyes, skin, respiratory system and gastrointestinal tract.

Sensitization: May cause sensitization by skin contact.

Neurological Effects: Not available

Teratogenicity: Not available

Reproductive Toxicity: Not available

Mutagenicity (Genetic Effects): Not available

Toxicologically Synergistic Materials: Not available

<u>Inhalation:</u>	Remove source of contamination or move victim to fresh air. Take proper precautions (e.g. remove any sources of ignition). If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Immediately transport victim to an emergency care facility.
<u>Eye Contact:</u>	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 60 minutes, by the clock, while holding the eyelid(s) open. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
<u>Skin Contact:</u>	Flush contaminated area with lukewarm, gently flowing water for at least 60 minutes by the clock. If irritation persists, repeat flushing. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts).
<u>Ingestion:</u>	NEVER give anything by mouth. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Quickly transport victim to an emergency care facility.

Section 5 - Fire Fighting Measures

<u>Extinguishing Media:</u>	Dry chemical, alcohol or polymer foam or CO ₂ . Use water spray to cool fire exposed containers. Water may be ineffective on fire.
<u>Unusual Fire and Explosion Hazards:</u>	Sensitivity to mechanical impact: Not available Sensitivity to static discharge: Not available Combustible liquid. Containers may build pressure and explode under fire conditions. May form flammable or explosive mixtures with air at temperatures above the product's flash point. Vapors may travel to a source of ignition and flash back.
<u>Fire Fighting Instructions:</u>	As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear.
<u>Hazardous Combustion Products:</u>	During a fire, irritating and toxic gases may be generated. Products of combustion may include nitrogen oxides, carbon monoxide, carbon dioxide and dense smoke.

Section 6 – Accidental Release Measures

<u>Personal Precautions:</u>	Wear proper personal protective equipment as indicated in Section 8. Prevent skin and eye contact. Prevent inhalation of vapors and mists. Keep unnecessary and unprotected people away from spill area. Ventilate the area. Protect water intakes. Remove all ignition sources.
<u>Environmental Precautions:</u>	Prevent material from contaminating soil and from entering sewers or waterways. Refer to permit discharge limitations if applicable. Notify local health and pollution control agencies.
<u>Methods for Containment:</u>	Isolate the spill area. Stop the leak if it is safe to do so. Contain with vermiculite, dry sand or earth.
<u>Methods for Clean-up:</u>	Clean up spills immediately. Absorb spill with vermiculite, dry sand or earth and place in a suitable covered container for disposal. Ventilate and wash the area after clean-up is complete. If spilled in water substance floats; skim off the surface of water and collect in covered containers for disposal.

Section 7 – Handling and Storage and Special Precautions

<u>Handling:</u>	Use only in a well-ventilated area or chemical fume hood. Do not get on skin or in eyes. Do not ingest or inhale. Wash thoroughly with detergent and water after handling, before eating, drinking, smoking or using the toilet. Remove contaminated clothing and wash before reuse. Keep away from sparks, heat and flames. Bond and ground containers when handling the material at or above flash point. Follow all MSDS and label precautions even after the container is emptied because they may retain product residues.
<u>Storage:</u>	Store in a cool, dry area, out of direct sunlight. Keep containers closed when not in use. Keep away from heat and ignition sources.

Section 8 – Exposure Controls/Personal Protection**Exposure Limits**

<u>Ingredient</u>	<u>ACGIH TLV</u> <u>(8-hr. TWA)</u>	<u>U.S. OSHA PEL</u> <u>(8-hr. TWA)</u>	<u>Ontario (Canada)</u> <u>TWAEV</u>	<u>UK OEL</u> <u>(8-hr. TWA)</u>
Benzyltrimethylamine	Not established	Not established	Not established	Not established

Other Exposure Guidelines: Russia, STEL = 5 mg/m³

Exposure Controls

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of mist or vapor.

Personal Protection:

Respiratory Protection: Wear an approved air-purifying respirator as needed to control exposure. Wear a positive pressure supplied air respirator for uncontrolled releases or when the air-purifying respirator limitations may be exceeded.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 or Canadian Standards Association (CSA) Standards 294.4-93 must be followed whenever workplace conditions warrant a respirator's use.

Skin Protection: Wear chemical protective gloves and body-covering, chemical protective clothing to prevent contact with the skin. Wear impervious coveralls, aprons and boots when necessary to prevent contact with the skin.

Eye Protection: Wear chemical safety goggles. Wear a face-shield when necessary to prevent contact with skin and eyes.

Other Protective Equipment:

Have a safety shower and eye-wash fountain readily available in the immediate work area

Hygiene Measures:

Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Launder contaminated clothing before re-wearing or discard. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

Section 9 – Chemical and Physical Properties

Physical State:	Liquid	Vapor Pressure: <u>(mm Hg)</u>	1.8 @ 25°C (77°F)
Appearance:	Colorless to light yellow	Vapor Density: <u>(Air = 1)</u>	4.7
pH:	Not available	Solubility in Water:	Sparingly soluble
Relative Density: <u>(water = 1)</u>	0.89 @ 77°F	Water / Oil distribution <u>coefficient:</u>	Not available
Boiling Point:	176 °C (349 °F)	Odor Type:	Amine
Freezing Point:	-75 °C (-103 °F)	Odor Threshold:	Not available
Viscosity:	Not available	Evaporation Rate: <u>(n-Butyl Acetate = 1)</u>	Not available
Oxidizing Properties:	Not available	Auto Ignition Temperature (°C):	Not available
Flash Point and Method (°C):	54 °C (130 °F) Closed Cup	Flammability Limits (%):	Not available

Section 10 – Stability and Reactivity

<u>Stability:</u>	Stable under normal temperatures and pressures.
<u>Conditions to Avoid:</u>	Avoid contact with incompatible materials, excess heat and ignition sources.
<u>Incompatible Materials:</u>	Strong oxidizing agents, strong acids, acid anhydrides and acid chlorides.
<u>Hazardous Decomposition Products:</u>	Decomposition products may include carbon monoxide, carbon dioxide and nitrogen oxides.
<u>Possibility of Hazardous Reactions:</u>	Not available

Section 11 - Regulatory Information

USA

TSCA Status: This substance is listed on the TSCA inventory.

SARA Title III:

Sec. 302/304: None
 Sec. 311/312: None
 Sec. 313: None
 CERCLA RQ: None

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*.

WHMIS Classification: D1B -- Material Causing Immediate and Serious Toxic Effects (toxic)
 B3 - Combustible Liquid
 E - Corrosive

NSNR Status (New Substance Notification Regulations): This substance is listed on the Canadian Domestic Substance List (DSL).

NPRI Substances (National Pollutant Release Inventory): None

EC Classification for the Substance/Preparation:

Symbol:



Harmful



Corrosive

Risk Phrases: R10: Flammable
 R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
 R34: Causes burns.
 R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S35: Wear suitable protective clothing
 S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
 S61: Avoid release to the environment. Refer to special instructions/safety data sheet.

Section 12 - Ecological Information

<u>Ecotoxicity:</u>	Listed in Germany as Water Hazard Class 2: Hazardous to waters.
<u>Mobility:</u>	Not available
<u>Persistence and degradability:</u>	Not available
<u>Bioaccumulative potential:</u>	Not available
<u>Other adverse effects:</u>	Not available

Section 13 – Disposal Considerations

<u>Waste Disposal Method:</u>	Do NOT dump into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage.
<u>USA:</u>	Dispose of in accordance with local, state and federal laws and regulations. RCRA Waste numbers: None listed
<u>Canada:</u>	Dispose of in accordance with local, provincial and federal laws and regulations
<u>EC:</u>	Waste must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Section 14 – Transportation Information

U.S. Hazardous Materials Regulation (DOT 49CFR)

DOT Proper Shipping Name: BENZYL DIMETHYLAMINE

DOT Hazard Classification: *Primary: 8*
Secondary: 3

Product Identification Number: UN2619

Packing Group: II

Reportable Quantity for US Shipments: None

DOT Special Provisions: B2, IB2, T7, TP2

DOT Packaging Exceptions: 173.154

DOT Non-bulk Packaging: 173.202

DOT Bulk Packaging: 173.243

Canadian Transportation of Dangerous Goods (TDG)

TDG Proper Shipping Name: BENZYLDIMETHYLAMINE

TDG Hazard Classification: *Primary: 8*
Secondary: 3

Product Identification Number: UN2619

Packing Group: II

Limited Quantity Index: 0.5 L

Passenger Carrying Road or
Railway Vehicle Index: 1 LADR/RID: BENZYLDIMETHYLAMINE, 8 (3), UN2619, IIIMDG: BENZYLDIMETHYLAMINE, 8 (3), UN2619, IIMarine Pollutants: Not applicableICAO/IATA: UN2619, BENZYLDIMETHYLAMINE, 8 (3), IIIATA Packing Instructions:Passenger/Cargo: 808
Cargo Only: 812
Limited Quantity: Y808Maximum Net Quantity per Package:Passenger/Cargo: 1 L
Cargo Only: 30 L
Limited Quantity: 0.5 L

Section 15 – Other Information

HMIS Rating: Health: 3 Flammability: 2 Reactivity: 0
NFPA Rating: Health: 3 Flammability: 2 Reactivity: 0 Other: None

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

Full Text of R-phrases
appearing in Section 2:R10: Flammable
R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
R34: Causes burns.
R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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