

Section 1 Identification

Product Identifiers

Product name: Freeman 821 Resin

Relevant Identified Uses of the Substance or Mixture

Polymer Matrix for Fiber-Reinforced Plastic (FRP)

Details of the Supplier of the Safety Data Sheet

Freeman Manufacturing and Supply Company

1101 Moore Road, Avon, OH 44011

Phone (440) 934-1902

FAX (440) 934-7200

24 Hour emergency telephone number: CHEMTREC (800) 424-9300

Section 2 Hazards Identification

GHS Classification in Accordance with 29 CFR 1910.1200 (OSHA HCS)

Skin Irritation, Category 2

Eye Irritation, Category 2

Skin Sensitizer, Category 1

Hazardous to the Aquatic Environment Chronic Hazard, Category 2

Hazardous to the Aquatic Environment Acute Hazard, Category 3

GHS Label Elements, Including Precautionary Statements



Signal word

Warning

Hazard statements

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

Harmful to aquatic.

Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Avoid breathing fumes, mist, vapors, and spray.

Wash hands thoroughly after handling.

Avoid release to the environment.

Wear protective gloves, clothing, and eye/face protection.

Response

IF SWALLOWED: Call Poison Center and/or doctor if you feel unwell.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.

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 eye irritation persists: Get medical attention.

Collect spillage.

Section 2 Hazards Identification continued

Disposal

Dispose of contents and containers to an appropriate waste site in accordance with local, regional, and national regulation.

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Bisphenol A Epoxy Resin	25068-38-6	25-45
(((2-Ethylhexyl)oxy)methyl)oxirane	2461-15-6	5-15

Section 4 First-Aid Measures

Description of First Aid Measures

Eye Contact

Immediately flush eyes with plenty of clean water for an extended time, not less than 15 minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion.

Skin Contact

Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. Get medical attention if symptoms occur.

Inhalation

If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

Most Important Symptoms/Effects

Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. See Section 11 for additional information.

Indication of Immediate Medical Attention/Special Treatment

Treat symptomatically.

Section 5 Fire-Fighting Measures

Extinguishing Media

Use water spray, foam, dry chemical, or carbon dioxide.

Special Hazards

Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat. Irritating or toxic substances may be emitted upon burning, combustion, or decomposition. See Section 10 for additional information.

Special Protective Equipment & Precautions for Fire-Fighters

Wear self-contained breathing apparatus (SCBA) equipped with a full face piece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning, or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations. See Section 9 for additional information.

Section 6 Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources. Personal protective equipment must be worn.

Environmental Precautions

Do not flush product into public sewer, water systems, or surface waters.

Methods and Materials for Containment and Cleanup

Stop leak if without risk. Move containers from spill area. Contain by diking with sand, earth, or other non-combustible material. Wear proper personal protective clothing and equipment. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

Section 7 Handling and Storage

Safe Handling

As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Use under well-ventilated conditions. Wash thoroughly after handling this product. Always wash up before eating, smoking, or using the facilities. Avoid eye and skin contact. Avoid inhalation of aerosol, mist, spray, fume, or vapor. Avoid drinking, tasting, swallowing, or ingesting this product. Wash contaminated clothing before reuse. Discard shoes contaminated with this product.

Safe Storage

Keep away from heat, sparks, and open flames. Store dry at 15-40°C, under well-ventilated conditions. Store this material away from incompatible substances (see Section 10). Do not store in open, unlabeled, or mislabeled containers. Keep container closed when not in use. Empty container contains residual product which may exhibit hazards of product. Do not reuse empty container without commercial cleaning or reconditioning.

Section 8 Exposure Controls/Personal Protection

Occupational Exposure Limits

Chemical Name	CAS Number	ACGIH - TWA	ACGIH - STEL
Bisphenol A Epoxy Resin	25068-38-6	Not available	Not available
(((2-Ethylhexyl)oxy)methyl)oxirane	2461-15-6	Not available	Not available

Ventilation

Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist, and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain air concentrations below occupational exposure standards. When necessary use mechanical handling to reduce human contact with materials.

Respiratory Protection

Wear an approved respirator (e.g. an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume, or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SDS.

Section 8 Exposure Controls/Personal Protection continued

Skin Protection

Wear chemical resistant (impervious) gloves; PVC, neoprene, nitrile rubber, EVAL, butyl rubber. Wear chemical resistant protective clothing. Use good laboratory/workplace procedures including personal protective clothing: lab coat and protective gloves.

Eye Protection

Wear chemical safety glasses or goggles.

Other Protective Measures

Eyewash fountains and safety showers are recommended in the work area.

Section 9 Physical and Chemical Properties

Appearance	Liquid
Color	Gray
Odor	Strong
Odor Threshold	No data available
pH	No data available
Melting/Freezing Point	No data available
Boiling Point	No data available
Flash Point	>93°C (Closed Cup)
Evaporation Rate	No data available
Flammability Limits	No data available
Vapor Pressure	<5 mm Hg at 20°C
Vapor Density	Heavier than air
Relative Density	1.98
Solubility	Negligible
Coefficient: n-Octanol/Water	No data available
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	7,800 cP at 25°C

Section 10 Stability and Reactivity

Reactivity

Exothermic reactions including polymerization may occur in contact with amines, strong acids, strong bases, alcohols, strong oxidizing agents, and excessive heat.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

Exothermic reactions including polymerization may occur in contact with amines, strong acids, strong bases, alcohols, strong oxidizing agents, and excessive heat.

Conditions to Avoid

Excessive heat and ignition sources.

Incompatible Materials

Avoid strong acids, bases, and oxidizing agents. Avoid contact with amines.

Hazardous Decomposition Products

Thermal decomposition may produce smoke, carbon monoxide, carbon dioxide, aldehydes, and other products of incomplete combustion. Phenolics.

Section 11 Toxicological Information

Eye Contact

Causes serious eye irritation.

Skin Contact

May cause allergic skin reaction. Causes skin irritation. Repeated or prolonged contact may cause skin irritation and dermatitis.

Inhalation

High airborne concentrations of vapors resulting from heating, misting, or spraying may cause irritation of the respiratory tract and mucous membranes.

Ingestion

Ingestion may cause irritation.

Chronic Health Effects

No data available.

Acute Toxicity Values

Chemical Name	LC ₅₀ Inhalation	LD ₅₀ Oral (Rat)	LD ₅₀ Dermal (Rabbit)
Bisphenol A Epoxy Resin	Not available	>2,000 mg/kg	>2,000 mg/kg
(((2-Ethylhexyl)oxy)methyl)oxirane	Not available	>5,000 mg/kg	>2,000 mg/kg

Skin Corrosion/Irritation

Category 2

Serious Eye Damage/Irritation

Category 2

Respiratory Sensitization

Components are not respiratory sensitizers.

Skin Sensitization

Category 1

Germ Cell Mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity

Single Exposure: No data available.

Repeated Exposure: No data available.

Aspiration Hazard

No data available.

Section 12 Ecological Information

Toxicity

Chemical Name	LC ₅₀ 96 hrs. (Fish)	EC ₅₀ 24 hrs. (Daphnia)	IC ₅₀ 96 hrs. (Bacteria)	LC ₅₀ 24 hrs. (Fish)
Bisphenol A Epoxy Resin	2.4 mg/L	3.6 mg/L	>100 mg/L	No data available
(((2-Ethylhexyl)oxy)methyl)oxirane	No data available	No data available	No data available	14 mg/ml

Persistence and Degradability

Chemical Name	Test	Period	Result
Bisphenol A Epoxy Resin	OECD Derived from OECD 301F (Biodegradation Test)	28 Days	5%
(((2-Ethylhexyl)oxy)methyl)oxirane	Not readily biodegradable		

Bioaccumulative Potential

Chemical Name	Log P _{ow}	BCF	Potential
Bisphenol A Epoxy Resin	3.242	31	Low
(((2-Ethylhexyl)oxy)methyl)oxirane	2.97 (Log K _{ow})	No data available	No data available

Mobility in Soil

Chemical Name	Soil/Water Partition Coefficient (K _{oc})
Bisphenol A Epoxy Resin	445
(((2-Ethylhexyl)oxy)methyl)oxirane	No data available

Section 13 Disposal Considerations

Disposal

Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate. See Section 8 for recommendations on the use of personal protective equipment.

Section 14 Transport Information

UN Number: UN 3082

UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Epoxy Resin)

Section 14 Transport Information continued

Transportation Hazard Class

U.S. DOT:	Not regulated
Canada TDG:	Not regulated
Europe ADR/RID	9
IMDG Code (Ocean)	9
ICAO/IATA (Air)	9

Packing Group: III

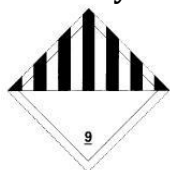
Environmental Hazards

Marine Pollutant:	Yes
Hazardous Substance (USA):	No

Special Precautions for User

Information is not available.

Label for Conveyance



Other Information

For surface shipments within the United States: Not regulated.

Section 15 Regulatory Information

REACH

Annex XIV List of substances subject to authorization, substances of very high concern: None of the components are listed.

Annex XVII Restriction on the manufacture, placing on the market and use of certain dangerous substances, mixtures, and articles: None of the components are listed.

Chemical Inventories

DSL:	Yes
NDSL:	No
EINECS:	Yes
ELINCS:	No
TSCA:	Yes

US State Regulations

California Proposition 65

This product does not contain chemicals known to the State of California to cause cancer and/or reproductive harm. www.P65Warnings.ca.gov.

Section 16 Other Information

Disclaimer

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Section 1 Identification

Product Identifiers

Product name: Freeman 821 Aluminum Filled Epoxy Casting Hardener

Relevant Identified Uses of the Substance or Mixture

Polymer Matrix for Fiber-Reinforced Plastic (FRP).

Details of the Supplier of the Safety Data Sheet

Freeman Manufacturing and Supply Company
1101 Moore Road, Avon, OH 44011
Phone (440) 934-1902
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24 Hour emergency telephone number: CHEMTREC (800) 424-9300

Section 2 Hazards Identification

GHS Classification in Accordance with 29 CFR 1910.1200 (OSHA HCS)

Skin Corrosion, Category 1B
Serious Eye Damage, Category 1
Skin Sensitizer, Category 1

GHS Label Elements, Including Precautionary Statements



Signal word Danger

Hazard statements

Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Causes serious eye damage.

Precautionary statements

Prevention

Do not breathe mists.
Wash hands thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves, clothing, and eye/face protection.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call Poison Center and/or doctor if you feel unwell.
IF ON SKIN: Immediately take off all contaminated clothing. Immediately rinse with water for several minutes. If skin irritation or rash occurs: Get medical help.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Section 2 Hazards Identification continued

Storage

Store locked up.

Disposal

Dispose of contents and containers to an appropriate waste site in accordance with local, regional, and national regulation.

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Tetraethylenepentamine	112-57-2	0-10
Triethylenetetramine	112-24-3	0-10
Trade Secret Ingredients	Proprietary	40-50
Exact concentrations are withheld as trade secret. Other ingredients are not listed because they are either not hazardous or are below cut-off/concentration thresholds.		

Section 4 First-Aid Measures

Description of First Aid Measures

Eye Contact

Rinse thoroughly with water, holding the eyelids open to be sure the material is washed out. Remove contact lenses if safe and easy to do. Continue rinsing. Get medical attention immediately.

Skin Contact

Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention immediately. Wash contaminated clothing before reuse. Discard clothing that cannot be decontaminated.

Inhalation

Remove person to fresh air. Get medical attention if symptoms develop or persist.

Ingestion

Do not induce vomiting unless instructed to do so by a medical professional. Get medical attention if you feel unwell.

Most Important Symptoms/Effects

Causes severe skin burns and eye damage.

Indication of Immediate Medical Attention/Special Treatment

Get immediate medical attention if on skin or in eyes.

Section 5 Fire-Fighting Measures

Extinguishing Media

Use water fog, foam, carbon dioxide, or dry chemical. Do not use solid water stream. Solid stream of water into hot product may cause violent steam generation or spread fire.

Special Hazards

Not classified as flammable or combustible. Product will burn under fire conditions. Combustion products include oxides of carbon, phenolics, aldehydes, and other toxic organic compounds.

Special Protective Equipment & Precautions for Fire-Fighters

Wear positive pressure, self-contained breathing apparatus, and full-body protective clothing.

Section 6 Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Clear unnecessary, unprotected personnel from the area. Wear appropriate protective clothing to prevent eye and skin contact and avoid breathing vapors.

Environmental Precautions

Avoid releases to the environment.

Methods and Materials for Containment and Cleanup

Cover with an inert absorbent material and collect into an appropriate container for disposal.

Section 7 Handling and Storage

Safe Handling

Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not eat, drink, or smoke in the work area. Keep container closed when not in use.

Safe Storage

Store indoors at temperatures below 120°F (49°C). Store in original containers. Avoid getting moisture into containers. Keep containers tightly closed. Store locked up.

Section 8 Exposure Controls/Personal Protection

Occupational Exposure Limits

None established

Ventilation

Use with adequate general or local exhaust ventilation to minimize exposure levels.

Respiratory Protection

If needed, an approved respirator with organic vapor cartridges may be used. Respirator selection and use should be based on contaminant type, form, and concentration. For higher exposures or in an emergency, use a supplied-air respirator. Use respirators in accordance with OSHA's Respiratory Protection Standard (29 CFR 1910.134).

Skin Protection

Wear impervious gloves, such as butyl rubber or nitrile rubber.

Eye Protection

Wear chemical safety glasses or goggles.

Other Protective Measures

Prevent skin contact and contamination of personal clothing. An eye wash facility and washing facility should be available in the work area. Follow applicable regulations and good Industrial Hygiene practice.

Section 9 Physical and Chemical Properties

Appearance	Liquid
Color	Clear amber
Odor	Amine
Odor Threshold	No data available
pH	No data available
Melting/Freezing Point	No data available
Boiling Point	No data available

Section 9 Physical and Chemical Properties continued

Flash Point	No data available
Evaporation Rate	No data available
Flammability Limits	No data available
Vapor Pressure	<20.68 mm Hg at 20°C
Vapor Density	No data available
Relative Density	0.96
Solubility	Nil to slightly soluble in water
Coefficient: n-Octanol/Water	No data available
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available

Section 10 Stability and Reactivity

Reactivity

Not normally reactive.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

Masses of ≥1 lb. (0.5 kg) plus aliphatic amine will cause irreversible polymerization with considerable heat build-up. Material will polymerize with sodium hydroxide.

Conditions to Avoid

Excessive heat.

Incompatible Materials

Avoid contact with strong acids, bases, oxidizing agents, and amines.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide, and oxides of nitrogen.

Section 11 Toxicological Information

Eye Contact

Causes serious eye damage.

Skin Contact

Causes severe skin burns. May cause allergic skin reaction.

Inhalation

No data available.

Ingestion

No data available.

Chronic Health Effects

May cause an allergic skin reaction.

Acute Toxicity Values

Not acutely hazardous.

Respiratory Sensitization

Components are not respiratory sensitizers.

Skin Sensitization

May cause an allergic skin reaction.

Germ Cell Mutagenicity

Components are not mutagens.

Section 11 Toxicological Information continued

Carcinogenicity

Components are not carcinogens.

Reproductive Toxicity

Components are not reproductive toxins.

Specific Target Organ Toxicity

No data available.

Section 12 Ecological Information

Toxicity

No data available. Do not release into waterways.

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility in Soil

No data available.

Section 13 Disposal Considerations

Disposal

Dispose according to local, state, and federal regulations. Do not dump in drains or sewers.

Section 14 Transport Information

UN Number: UN2735

UN Proper Shipping Name: Amines, liquid, corrosive, N.O.S. (Polyamidoamine, aliphatic amine)

Transportation Hazard Class

U.S. DOT:	8
Canada TDG:	8
Europe ADR/RID	8
IMDG Code (Ocean)	8
ICAO/IATA (Air)	8

Packing Group: III

Environmental Hazards

Marine Pollutant:	Yes
Hazardous Substance (USA):	No

Special Precautions for User

Information is not available.

Other Information

N/A

Section 15 Regulatory Information

US Federal Regulations

CERCLA 103 Reportable Quantity

No components subject to CERCLA reporting requirements. Some states have more stringent reporting requirements.

SARA TITLE III Section 311/312

Acute and Chronic Health Hazard.

Section 313 Toxic Chemicals

This product does not contain chemicals subject to SARA Title III Section 313 Reporting requirements.

Section 302 Extremely Hazardous Substances (TPQ)

None

EPA Toxic Substances Control Act (TSCA) Status

All of the components of this product are listed on TSCA.

US State Regulations

California Proposition 65

This product does not contain chemicals known to the State of California to cause cancer and/or reproductive harm. www.P65Warnings.ca.gov.

Section 16 Other Information

Disclaimer

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