

## Safety Data Sheet

### Freeman 4105 Resin

#### Section 1 Identification

##### Product Identifiers

Freeman 4105 Resin (Part A)

##### Relevant Identified Uses of the Substance or Mixture

Resin of unfilled high temperature laminating system. For Professional / Industrial Use Only

##### Details of the Supplier of the Safety Data Sheet

Freeman Manufacturing & Supply Company  
1101 Moore Road, Avon, OH 44011-4043 USA  
Telephone: +1 (440) 934-1902  
Email: contactus@freemansupply.com

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

#### Section 2 Hazards Identification

##### Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

Skin Irritation, Category 2

Serious Eye Damage, Category 1

Skin Sensitizer, Category 1

Specific Target Organ Toxicity (Respiratory) – Single Exposure, Category 3

##### Label elements



Danger

##### Hazard statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

##### Precautionary statements

P261 Avoid breathing fumes, vapors, or mists.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing must not be allowed out of the workplace.

P280 Wear protective gloves, eye protection and face protection.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

P319 Get medical help if you feel unwell.

P333+P317 If skin irritation or rash occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents and container in accordance with local, regional, and national regulations.

##### Supplemental Information

This is one part of a two-part system. Read and understand the hazard information on Part B before using.

## Safety Data Sheet

### Freeman 4105 Resin

#### Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Epoxy resin	25068-38-6	90-100
2,2'-[1,4- Butanediylbis(oxymethylene)]bis[oxirane]	2425-79-8	10-20

Ingredients are not listed if they are either not hazardous or are below concentration/cut-off 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 if irritation develops or persists. 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 serious eye damage.

##### Indication of Immediate Medical Attention/Special Treatment

Get immediate medical attention if 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.

##### Specific 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.

##### Methods and Materials for Containment and Cleanup

Cover with an inert absorbent material and collect into an appropriate container for disposal. Avoid releases to the environment.

#### Section 7 Handling and Storage

##### Precautions for Safe Handling

Use with adequate ventilation. Avoid contact with the 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.

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### Freeman 4105 Resin

#### Section 7 Handling and Storage

**Safe Storage**

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

#### Section 8 Exposure Controls/Personal Protection

**Occupational Exposure Limits**

None established

**Appropriate Engineering Controls**

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

**Personal Protective Equipment (PPE)**

**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/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

<b>Appearance</b>	Clear amber viscous liquid
<b>Odor</b>	Mild
<b>Odor Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting/Freezing Point</b>	No data available
<b>Boiling Point</b>	>200°C
<b>Flash Point</b>	>110°C
<b>Evaporation Rate</b>	No data available
<b>Flammability Limits</b>	No data available
<b>Vapor Pressure</b>	<1 mm Hg at 20°C
<b>Vapor Density</b>	No data available
<b>Relative Density</b>	1.14
<b>Solubility</b>	Nil to slightly soluble in water
<b>Coefficient: n-Octanol/Water</b>	No data available
<b>Auto-Ignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	8,380 cP at 25°C

#### Section 10 Stability and Reactivity

**Reactivity**

Not normally reactive.

**Chemical Stability**

Stable under recommended conditions.

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### Freeman 4105 Resin

#### Section 10 Stability and Reactivity

**Possibility of Hazardous Reactions**

Masses of  $\geq 1$  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**

Avoid excessive heat.

**Incompatible Materials**

Avoid contact with strong oxidizing agents, acids, alkalis, amines, and mercaptans.

**Hazardous Decomposition Products**

Uncontrolled exothermic reaction of epoxy resin releases carbon monoxide, carbon dioxide, phenolics, and aldehydes.

#### Section 11 Toxicological Information

**Acute Toxicity Values**

Ingredient Name	LD <sub>50</sub> Oral (Rat)	LD <sub>50</sub> Dermal (Rabbit)
Epoxy resin (CAS 25068-38-6)	>2,000 mg/kg	>2,000 mg/kg
2,2'-[1,4-Butanediylbis(oxymethylene)]bis[oxirane] (CAS 2425-79-8)	1,134 mg/kg	1,130 mg/kg

**Acute and Chronic Health Effects**

**Eye Contact:** Causes serious eye damage.

**Skin Contact:** Causes skin irritation. May cause allergic skin reaction.

**Inhalation:** May cause respiratory irritation.

**Ingestion:** No data available.

**Respiratory Sensitization:** Components are not classified as respiratory sensitizers.

**Skin Sensitization:** May cause an allergic skin reaction.

**Germ Cell Mutagenicity:** Components are not classified as mutagens.

**Carcinogenicity:** Components are not classified as carcinogens.

**Reproductive Toxicity:** Components are not classified as reproductive toxins.

**Specific Target Organ Toxicity (STOT):** May cause respiratory irritation, drowsiness or dizziness.

#### Section 12 Ecological Information

**Ecotoxicity:** No data available. Avoid release to the environment.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

#### Section 13 Disposal Considerations

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

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### Freeman 4105 Resin

#### Section 14 Transport Information

**DOT**

UN3082, Environmentally hazardous substance, liquid, n.o.s (epoxy resin), 9, III.  
Non-bulk packages (<882lb. or <119 gal) are not regulated for transport by truck.

**IMDG/IATA**

UN3082, Environmentally hazardous substance, liquid, n.o.s (epoxy resin), 9, III, MARINE POLLUTANT.  
Excepted from IMDG and IATA regulations if shipped in quantities of 5L (1.32gal) or less.  
(See IATA SP A197 and IMDG 2.10.2.7)

#### Section 15 Regulatory Information

**U.S. Federal Regulations**

**CERCLA 103 Reportable Quantity:** This product is not subject to reporting under CERCLA.

Some states have more stringent reporting requirements.

**SARA TITLE III, Section 311/312:** See Section 2

**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 components in this product are listed on TSCA.

**U.S. State Regulations**

**California Proposition 65:** ⚠ **WARNING:** This product can expose you to chemicals including Epichlorohydrin, which is known to the State of California to cause cancer and/or reproductive harm.  
For further information see [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

#### Section 16 Other Information

**Training Advice**

All personnel using/handling this product should be trained in proper chemical handling and the need for and use of engineering controls and protective equipment.

**Recommended Uses and Restrictions**

This product is intended for industrial/professional use only.

**Disclaimer**

The following supersedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict of liability arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

Initial release date: December 14, 2021

Date of previous revision: June 29, 2023

Current revision date: February 25, 2025

**Section 1 Identification**

**Product Identifiers**

Freeman 4105 Hardener (Part B)

**Relevant Identified Uses of the Substance or Mixture**

Hardener of unfilled high temperature laminating system. For Professional / Industrial Use Only

**Details of the Supplier of the Safety Data Sheet**

Freeman Manufacturing & Supply Company  
1101 Moore Road, Avon, OH 44011-4043 USA  
Telephone: +1 (440) 934-1902  
Email: contactus@freemansupply.com

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

**Section 2 Hazards Identification**

**GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)**

Acute Toxicity (Oral), Category 4  
Acute Toxicity (Dermal), Category 4  
Skin Corrosion, Category 1  
Serious Eye Damage, Category 1  
Skin Sensitizer, Category 1  
Carcinogenicity, Category 2  
Hazardous to the Aquatic Environment, Acute Hazard Category 3  
Hazardous to the Aquatic Environment, Chronic Hazard Category 3

**Label Elements**



Danger

**Hazard statements**

H302 Harmful if swallowed.  
H312 Harmful in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H351 Suspected of causing cancer.  
H402 Harmful to aquatic life.  
H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P203 Obtain, read and follow all safety instructions before use.  
P260 Do not breathe fumes, vapors, mists, or sprays.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves, protective clothing, eye protection, and face protection.  
P301+P317 IF SWALLOWED: Get medical help.  
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
P302+P361+P354 IF ON SKIN: Take off immediately all contaminated clothing.  
Immediately rinse with water for several minutes.

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### Freeman 4105 Hardener

#### Section 2 Hazards Identification

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P316 Get emergency medical help immediately.

P317 Get medical help.

P318 IF exposed or concerned, get medical advice.

P330 Rinse mouth.

P333+P317 If skin irritation or rash occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of contents and container in accordance with local, regional, and national regulations.

#### Supplemental Information

This is one part of a two-part system. Read and understand the hazard information on resin before using.

#### Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Triethylenetetramine	112-24-3	75-90
2-Ethyl-4-methylimidazole	931-36-2	10-20

Ingredients are not listed if they are either not hazardous or are below concentration/cut-off 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 until no evidence of the chemical remains (at least 15-20 minutes). 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. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

##### Most Important Symptoms/Effects

Harmful if swallowed and in contact with skin.

##### Indication of Immediate Medical Attention/Special Treatment

Get immediate medical attention if swallowed, 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.

##### Special Protective Equipment & Precautions for Fire-Fighters

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

## Safety Data Sheet

### Freeman 4105 Hardener

#### 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.

**Methods and Materials for Containment and Cleanup**

Cover with an inert absorbent material and collect into an appropriate container for disposal. Avoid releases to the environment.

#### Section 7 Handling and Storage

**Precautions for 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

**Appropriate Engineering Controls**

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

**Personal Protective Equipment (PPE)**

**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

<b>Appearance</b>	Yellow to amber liquid
<b>Odor</b>	Amine
<b>Odor Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting/Freezing Point</b>	No data available
<b>Boiling Point</b>	No data available
<b>Flash Point</b>	>264°F (>129°C)
<b>Evaporation Rate</b>	No data available
<b>Flammability Limits</b>	No data available
<b>Vapor Pressure</b>	<1 mm Hg at 25°C
<b>Vapor Density</b>	No data available
<b>Relative Density</b>	0.98
<b>Solubility</b>	Nil to slightly soluble in water

### Section 9 Physical and Chemical Properties

<b>Coefficient: n-Octanol/Water</b>	No data available
<b>Auto-Ignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	27 cP at 25°C

### Section 10 Stability and Reactivity

#### Reactivity

Not normally reactive.

#### Chemical Stability

Stable under recommended storage conditions.

#### Possibility of Hazardous Reactions

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

#### Conditions to Avoid

Excessive heat and sources of ignition.

#### Incompatible Materials

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

#### Hazardous Decomposition Products

Carbon monoxide, carbon dioxide, aldehydes, and oxides of nitrogen.

### Section 11 Toxicological Information

#### Acute Toxicity Values

Chemical Name	LC <sub>50</sub> Inhalation (Rat)	LD <sub>50</sub> Oral (Rat)	LD <sub>50</sub> Dermal (Rabbit)
Triethylenetetramine	Not available	1,700 mg/kg	1,460 mg/kg
2-Ethyl-4-methylimidazole	Not available	731 mg/kg	>400 mg/kg

#### Acute and Chronic Health Effects

**Eye Contact:** Causes serious eye damage.

**Skin Contact:** Harmful in contact with skin. Causes severe skin burns. May cause allergic skin reaction.

**Inhalation:** May cause mild respiratory irritation.

**Ingestion:** Harmful if swallowed.

**Respiratory Sensitization:** Components are not respiratory sensitizers.

**Skin Sensitization:** May cause an allergic skin reaction.

**Germ Cell Mutagenicity:** Components are not mutagens.

**Carcinogenicity:** Suspected of causing cancer

**Reproductive Toxicity:** Components are not classified as reproductive toxins.

**Specific Target Organ Toxicity (STOT):** No data available.

### Section 12 Ecological Information

**Ecotoxicity:** Harmful to aquatic life with long lasting effects. Do not release into waterways.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

## Safety Data Sheet

### Freeman 4105 Hardener

#### Section 13 Disposal Considerations

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

#### Section 14 Transport Information

**DOT**

UN1760, Corrosive liquid, n.o.s., (triethylenetetramine), 8, III.  
 LTD QTY if shipped in quantities of 5L (1.32gal) or less.

**IMDG/IATA**

UN1760, Corrosive liquid, n.o.s., (triethylenetetramine), 8, III.

#### Section 15 Regulatory Information

**U.S. Federal Regulations**

**CERCLA 103 Reportable Quantity:** This product is not subject to reporting under CERCLA.  
 Some states have more stringent reporting requirements.

**SARA Title III Section 311/312:** See Section 2

**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 components in this product are listed on TSCA.

**U.S. State Regulations**

**California Proposition 65:** This product does not contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. For further information see [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

#### Section 16 Other Information

**Training Advice**

All personnel using/handling this product should be trained in proper chemical handling and the need for and use of engineering controls and protective equipment.

**Recommended Uses and Restrictions**

This product is intended for industrial/professional use only.

**Disclaimer**

The following supersedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict of liability arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

Initial release date: December 14, 2021

Date of previous revision: June 29, 2023

Current revision date: February 25, 2025