

Freeman 4105 Hi-Temp Epoxy Laminating Resin

Section 1 Identification

Product Identifiers

Product name: Freeman 4105 Hi-Temp Epoxy Laminating Resin, Part A

Relevant Identified Uses of the Substance or Mixture

Unfilled high temperature laminating system. For Industrial Use Only

Details of the Supplier of the Safety Data Sheet

Freeman Manufacturing & Supply Company
1101 Moore Road, Avon, OH 44011
Phone (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) and CLP/GHS (No 1272/2008)

Acute Toxicity, Inhalation, Category 4 (H332)
Acute Toxicity, Dermal, Category 4 (H312)
Acute Toxicity, Oral, Category 4 (H302)
Skin Irritation, Category 2 (H315)
Eye Irritation, Category 2 (H319)
Skin Sensitizer, Category 1 (H317)
Hazardous to the Aquatic Environment Chronic Hazard, Category 2 (H411)

Label Elements



Warning

Hazard statements

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P261 Avoid breathing fumes, vapors, or mists.
P264 Wash thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves protective clothing, and eye protection.
P301+P317 IF SWALLOWED: Get medical help.
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+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P317 Get medical help.

Freeman 4105 Hi-Temp Epoxy Laminating Resin

Section 2 Hazards Identification continued

P330 Rinse mouth.
 P333+P317 If skin irritation or rash occurs: Get medical help.
 P337+P317 If eye irritation persists: Get medical help.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P391 Collect spillage.
 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 curative before using.

Other Hazards

Based on available data, not considered to meet the criteria of PBT, vPvB.
 Based on available data, does not have Endocrine Disrupting properties.

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	EC Number	CLP Annex VI Classification	Concentration (%)
4,4'-Isopropylidenedi phenol-Epichlorohydrin Copolymer	25068-38-6	500-033-5	Skin Irritation, Cat. 2 (H315) C ≥ 5% Eye Irritation, Cat. 2 (H319) C ≥ 5% Skin Sens., Cat. 1 (H317) Aquatic Hazard - Chronic, Cat. 2 (H411)	50 - 70
Phenol, polymer with formaldehyde, glycidyl ether	2806-14-4	608-164-0	Skin Irritation - Cat. 2 (H315) Eye Irritation, Cat. 2 (H319) Skin Sens. Cat. 1 (H317) Aquatic Hazard -Chronic, Cat. 2 (H411)	30 - 50
1,4-bis(2,3 epoxypropoxy)butane butanedioldiglycidyl ether	2425-79-8	219-371-7	Acute Toxicity (Dermal) - Cat. 4 (H312) Acute Toxicity (Inhalation) - Cat. 4 (H312) Skin Irritation - Cat. 2 (H315) Eye Irritation - Cat. 2 (H319) Skin Sens. Cat. 1 (H317) Acute Toxicity Estimate (ATE) Oral LD50 (rat): 1,163 mg/kg bw Dermal LD50 (rat): >2,150 mg/kg bw Inhalation LC50 (rat): No Data Available	10 - 20

Exact concentrations are withheld as trade secret. Ingredients are not listed if they are either not hazardous or are below concentration/cut-off thresholds.

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Section 4 First-Aid Measures

Description of First Aid Measures

Eye: 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 if irritation develops or persists.

Skin: 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 and effects, both acute and delayed: May cause an allergic skin reaction.

Indication of any immediate medical attention and special treatment needed: Treat symptoms.

Section 5 Fire-Fighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use water fog, foam, carbon dioxide or dry chemical.

Unsuitable Extinguishing Media: Do not use solid water stream. Solid stream of water into hot product may cause violent steam generation or eruption.

Special Hazards

Unusual Fire and Explosion Hazards: Not classified as flammable or combustible.

Combustion Products: Oxides of carbon, phenolics, aldehydes and other toxic organic compounds.

Special Protective Equipment & Precautions for Fire-Fighters

Wear an approved, positive pressure, self-contained breathing apparatus and full-body protective clothing. Use water to cool fire-exposed containers.

Section 6 Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Non-Emergency Personnel: Remove all ignition sources. Clear other non-emergency personnel from the area. Wear appropriate protective clothing to avoid eye and skin contact and avoid breathing of vapors. Ventilate area. Caution – spill area may be slippery.

Emergency Personnel: Remove all ignition sources. Clear non-emergency personnel from the area. Wear appropriate protective clothing to avoid eye and skin contact and avoid breathing of vapors. Ventilate area. Caution – spill area may be slippery.

Environmental Precautions

Hazardous to the aquatic environment. Prevent release to the environment. Report spills and releases as required to appropriate authorities.

Methods and Material for Containment and Cleaning Up

Containment: Cover with an inert absorbent material and collect into an appropriate container for disposal. Do not seal the container since CO₂ is generated on contact with moisture and dangerous pressure buildup can occur.

Clean-up: Decontaminate floor area with a mixture of water plus isopropyl alcohol (20%), household ammonia (10%), and detergent (2%).

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.

Freeman 4105 Hi-Temp Epoxy Laminating Resin

Section 7 Handling and Storage continued

Conditions for Safe Storage, Including any Incompatibilities

Store indoors at temperatures below 49°C (120°F). Store in original containers. Avoid getting moisture into containers. Keep containers tightly closed. Avoid contact with strong oxidizing agents, acids, alkalis, amines and mercaptans.

Section 8 Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits: None Established

Biological Exposure Index: None Established

Derived No Effect Level (DNEL):

Chemical Name	DNEL
1,4-bis(2,3 epoxypropoxy)butane butanedioldiglycidyl ether	4.7 mg/m ³ (inhalation, systemic)

Predicted No Effect Concentration (PNEC): None Established

Engineering Exposure Controls

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.

Personal Protection Measures

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.

Hand Protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Suggested gloves are impervious and made of butyl rubber or nitrile rubber with a breakthrough time greater than 240 minutes with a protection class of 5 or higher and a thickness greater than 0.35 mm.

Protective Clothing: Wear impervious clothing of compatible material such as cotton to prevent skin contact and contamination of personal clothing.

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	Clear amber
Odor	Mild
Odor Threshold	No data available
pH	No data available
Melting/Freezing Point	No data available
Boiling Point	>200°C
Flash Point	>110°C
Evaporation Rate	No data available
Flammability Limits	No data available
Vapor Pressure	<1 mm Hg at 20°C
Vapor Density	Heavier than air

Freeman 4105 Hi-Temp Epoxy Laminating Resin

Section 9 Physical and Chemical Properties continued

Relative Density	1.14
Solubility	Insoluble in water
Coefficient: n-Octanol/Water	No data available
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	8,380 cP at 25°C
Explosive Properties	Not explosive
Oxidizing Properties	Not oxidizing

Section 10 Stability and Reactivity

Reactivity: Not normally reactive.

Chemical Stability: Stable under recommended 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: 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. Exothermic reactions including polymerization may occur in contact with amines, strong acids, strong bases, alcohols, strong oxidizing agents, and excessive heat.

Section 11 Toxicological Information

Information on Toxicological Effects:

Acute Toxicity Values

Chemical Name	LC ₅₀ Inhalation	LD ₅₀ Oral (Rat)	LD ₅₀ Dermal (Rabbit)
4,4'-Isopropylidenediphenol-Epichlorohydrin Copolymer (CAS 25068-38-6)	Not available	>2,000 mg/kg	>2,000 mg/kg
Phenol, polymer with formaldehyde, glycidyl ether (CAS 28064-14-4)	Not available	>2,000 mg/kg	>2,000 mg/kg
1,4-bis(2,3 epoxypropoxy)butane butanedioldiglycidyl ether (CAS 2425-79-8)	>250 ppm (6 hours)	1,134 mg/kg	1,130 mg/kg

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or 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.

STOT-Single Exposure: No data available.

STOT-Repeated Exposure: No data available.

Aspiration Hazard: No data available.

Information on Other Hazards: Based on available data, does not contain Endocrine Disrupting properties.

Freeman 4105 Hi-Temp Epoxy Laminating Resin

Section 12 Ecological Information

Toxicity: Toxic to aquatic life with long lasting effects. Do not release to the environment or waterways.
Persistence and Degradability: No test data; but product is not expected to be readily biodegradable.
Bioaccumulative Potential: No test data; but product is not expected to bioaccumulate.
Mobility in Soil: No data available.
Results of PBT and vPvB Assessment: Based on available data, not considered to meet the criteria of PBT, vPvB.
Endocrine Disruption Properties: Based on available data, does not contain Endocrine Disrupting properties.
Other Adverse Effects: No data available.

Section 13 Disposal Considerations

Waste Treatment Methods

Waste From Residues/Unused Products: Dispose of in accordance with local regulations.
Contaminated Packaging: Dispose of this container to a special waste collection point.
European Waste Catalogue (EWC): According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Other Information: Do not flush to sewer or empty into drains. Waste Codes should be assigned by the user based on the application for which the product was used.

Section 14 Transport Information

US DOT ((NON-BULK PACKAGES (<882LB/<119GAL)

Not Regulated

US DOT (Bulk Packages)

UN Number: UN3082

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

Transportation Hazard Class: 9

Packing Group: III

Environmental Hazards: No

Canadian TDG

UN Number: UN3082

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

Transportation Hazard Class: 9

Packing Group: III

Environmental Hazards: No

Europe ADR/RID

UN Number: UN3082

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

Transportation Hazard Class: 9

Packing Group: III

Environmental Hazards: No

IMDG

UN Number: UN3082

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

Transportation Hazard Class: 9

Packing Group: III

Environmental Hazards: Yes

IATA/ ICAO

UN Number: UN3082

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

Freeman 4105 Hi-Temp Epoxy Laminating Resin

Section 14 Transport Information continued

Transportation Hazard Class: 9

Packing Group: III

Environmental Hazards: Yes

Special Precautions for User

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)

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Section 15 Regulatory Information

Safety, Health and Environment Regulations/Legislation Specific for the Substance or Mixture

The mixture or substance is not subject to Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer, Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC, and Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals.

Seveso III Directive (2012/18/EU) on the control of major-accident hazards: Hazard Category E2

REACH: Substances in this formulation imported to EU in >1 ton/yr. are registered.

Chemical Safety Assessment: A Chemical Safety Assessment has not been conducted.

Chemical Inventories

Canadian Domestic Substances List (DSL): All intentionally added components are either listed or otherwise compliant.

Canadian Non-Domestic Substances List (NDSL): for one or more of the components 1) there is no listing on the public inventory; 2) no information is available; or 3) the component has not been reviewed.

European Inventory of Existing Chemicals (EINECS): All of the components in this product are listed on the EINECS inventory.

European List of Notified Chemical Substances (ELINCS): for one or more of the components 1) there is no listing on the public inventory; 2) no information is available; or 3) the component has not been reviewed.

U.S. Toxic Substances Control Act (TSCA): All intentionally added components are either listed or otherwise compliant.

Section 16 Other Information

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.

Date of Previous Revision: December 14, 2021

Freeman 4105 Hi-Temp Epoxy Laminating Hardener

Section 1 Identification

Product Identifiers

Product name: Freeman 4105 Hi-Temp Epoxy Laminating Hardener, Part B

Relevant Identified Uses of the Substance or Mixture

Unfilled high temperature laminating system. For Industrial Use Only

Details of the Supplier of the Safety Data Sheet

Freeman Manufacturing & 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

Classification in Accordance with 29 CFR 1910.1200 (OSHA HCS) and CLP/GHS (No 1272/2008)

Acute Toxicity, Dermal, Category 4 (H312)
Acute Toxicity, Oral, Category 4 (H302)
Skin Irritation, Category 1 (H314)
Eye Irritation, Category 1 (H318)
Skin Sensitizer, Category 1 (H317)
Carcinogenicity – Category 2 (H351)
Hazardous to the Aquatic Environment – Acute Hazard Category 3 (H402)
Hazardous to the Aquatic Environment – Chronic Hazard Category 3 (H412)

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.

Freeman 4105 Hi-Temp Epoxy Laminating Hardener

Section 2 Hazards Identification continued

P302+P361+P354 IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

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. P317 Get medical help.

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 curative before using.

Other Hazards

Based on available data, not considered to meet the criteria of PBT, vPvB.

Based on available data, does not have Endocrine Disrupting properties.

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	EC Number	CLP Annex VI Classification	Concentration (%)
3,6-diazaoctanethyle nediamin triethylenetetram ine	112-24-3	203-950-6	Acute Toxicity (Dermal) – Cat. 4 (H312) Skin Corrosion – Cat. 1B (H314) Skin Sens. – Cat. 1 (H317) Aquatic Hazard (Chronic) – Cat. 3 (H412) Acute Toxicity Estimate (ATE) Oral LD50 (rat): 1,716.2 mg/kg bw Dermal LD50 (rabbit): 1,465.4 mg/kg bw Inhalation LC50 (rat): No data available	85 – 90
2-ethyl-4-methylimidazole	931-36-2	213-234-5	Acute Toxicity (Oral) – Cat. 4 (H302) Skin Irritation – Cat. 2 (H315) Eye Damage – Cat. 1 (H318) Skin Sens. – Cat. 1B (H317) Acute Toxicity Estimate (ATE) Oral LD50 (rat): 754 mg/kg bw (male); 681 mg/kg bw (female) Dermal LD50 (rabbit): > 400 mg/kg bw Inhalation LC50 (rat): No data available	14 - 17

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Section 3 Composition/Information on Ingredients continued

4-methylimidazole	822-36-6	212-497-3	Acute Toxicity (Oral) – Cat. 4 (H302) Skin Corrosion – Cat. 1B (H314) Carcinogen – Cat. 2 (H351) Aquatic Hazard (Acute) – Cat. 1 (H400) Acute Toxicity Estimate (ATE) Oral LD50 (rat): 751 mg/kg Dermal LD50 (rabbit): No data available Inhalation LC50 (rat): No data available	0.1 – 0.4
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Exact concentrations are withheld as trade secret. 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: 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: 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: Rinse mouth. Do NOT induce vomiting. Get medical attention immediately.

Most Important symptoms and effects, both acute and delayed

Harmful if swallowed and in contact with skin.

Indication of any immediate medical attention and special treatment needed

Get immediate medical attention if on skin, in eyes, or swallowed.

Section 5 Fire-Fighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use water fog, foam, carbon dioxide or dry chemical.

Unsuitable Extinguishing Media: Do not use solid water stream. Solid stream of water into hot product may cause violent steam generation or eruption.

Special Hazards

Unusual Fire and Explosion Hazards: Not classified as flammable or combustible.

Combustion Products: Oxides of carbon, aldehydes, and oxides of nitrogen

Special Protective Equipment & Precautions for Fire-Fighters

Wear an approved, positive pressure, self-contained breathing apparatus and full-body protective clothing. Use water to cool fire-exposed containers.

Section 6 Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Non-Emergency Personnel: Remove all ignition sources. Clear other non-emergency personnel from the area. Wear appropriate protective clothing to avoid eye and skin contact and avoid breathing of vapors. Ventilate area. Caution – spill area may be slippery.

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Section 6 Accidental Release Measures continued

Emergency Personnel: Remove all ignition sources. Clear non-emergency personnel from the area. Wear appropriate protective clothing to avoid eye and skin contact and avoid breathing of vapors. Ventilate area. Caution – spill area may be slippery.

Environmental Precautions

Hazardous to the aquatic environment. Prevent release to the environment. Report spills and releases as required to appropriate authorities.

Methods and Material for Containment and Cleaning Up

Containment: Cover with an inert absorbent material and collect into an appropriate container for disposal. Do not seal the container since CO₂ is generated on contact with moisture and dangerous pressure buildup can occur.

Clean-up: Decontaminate floor area with a mixture of water plus isopropyl alcohol (20%), household ammonia (10%), and detergent (2%).

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.

Conditions for Safe Storage, Including any Incompatibilities

Store indoors at temperatures below 49°C (120°F). Store in original containers. Avoid getting moisture into containers. Keep containers tightly closed. Avoid contact with strong oxidizing agents, acids, alkalis, amines and mercaptans.

Section 8 Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits: None Established

Biological Exposure Index: None Established

Derived No Effect Level (DNEL):

Chemical Name	DNEL
3,6-diazaoctanethylenediamin triethylenetetramine	1 mg/m ³ (inhalation, systematic)
2-ethyl-4-methylimidazole	2.8 mg/m ³ (inhalation, systematic)

Predicted No Effect Concentration (PNEC): None Established

Engineering Exposure Controls

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.

Personal Protection Measures

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.

Hand Protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Suggested gloves are impervious and made of butyl rubber or nitrile rubber with a breakthrough time greater than 240 minutes with a protection class of 5 or higher and a thickness greater than 0.35 mm.

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Section 8 Exposure Controls/Personal Protection continued

Protective Clothing: Wear impervious clothing of compatible material such as cotton to prevent skin contact and contamination of personal clothing.

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	Amber yellow
Odor	Amine
Odor Threshold	No data available
pH	No data available
Melting/Freezing Point	No data available
Boiling Point	No data available
Flash Point	>129°C
Evaporation Rate	No data available
Flammability Limits	No data available
Vapor Pressure	<1 mm Hg at 20°C
Vapor Density	Heavier than air
Relative Density	0.98
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	27 cP at 25°C
Explosive Properties	Not explosive
Oxidizing Properties	Not oxidizing

Section 10 Stability and Reactivity

Reactivity: Not normally reactive.

Chemical Stability: Stable under recommended 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: Avoid excessive heat and light sources.

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

Information on Toxicological Effects:

Acute Toxicity Values

LC ₅₀ Inhalation	LD ₅₀ Oral (Rat)	LD ₅₀ Dermal (Rabbit)
Not available	731 - 1,700 mg/kg	400 - 1,460 mg/kg

Skin Corrosion/Irritation: Causes severe skin irritation.

Serious Eye Damage/Irritation: Causes serious eye damage.

Freeman 4105 Hi-Temp Epoxy Laminating Hardener

Section 11 Toxicological Information continued

Respiratory or Skin Sensitization: May cause an allergic skin reaction.
Germ Cell Mutagenicity: Components are not classified as mutagens.
Carcinogenicity: Suspected of causing cancer.
Reproductive Toxicity: Components are not classified as reproductive toxins.
STOT-Single Exposure: No data available.
STOT-Repeated Exposure: No data available.
Aspiration Hazard: No data available.

Information on Other Hazards: Based on available data, does not contain Endocrine Disrupting properties.

Section 12 Ecological Information

Toxicity: Harmful to aquatic life with long lasting effects. Do not release to the environment or waterways.
Persistence and Degradability: No test data; but product is not expected to be readily biodegradable.
Bioaccumulative Potential: No test data; but product is not expected to bioaccumulate.
Mobility in Soil: No data available.
Results of PBT and vPvB Assessment: Based on available data, not considered to meet the criteria of PBT, vPvB.
Endocrine Disruption Properties: Based on available data, does not contain Endocrine Disrupting properties.
Other Adverse Effects: No data available.

Section 13 Disposal Considerations

Waste Treatment Methods

Waste From Residues/Unused Products: Dispose of in accordance with local regulations.
Contaminated Packaging: Dispose of this container to a special waste collection point.
European Waste Catalogue (EWC): According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Other Information: Do not flush to sewer or empty into drains. Waste Codes should be assigned by the user based on the application for which the product was used.

Section 14 Transport Information

US DOT, Canadian TDG, EU ADR/RID, IMDG, IATA/ICAO
UN Number: UN1760
UN Proper Shipping Name: Corrosive Liquid, N.O.S. (Triethylenetetramine)
Transportation Hazard Class: 8
Packing Group: III
Environmental Hazards: No
Special Precautions for User: None available
Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Section 15 Regulatory Information

Safety, Health and Environment Regulations/Legislation Specific for the Substance or Mixture

The mixture or substance is not subject to Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer, Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC, and Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals.

Freeman 4105 Hi-Temp Epoxy Laminating Hardener

Section 15 Regulatory Information continued

REACH: Substances in this formulation imported to EU in >1 ton/yr. are registered.

Chemical Safety Assessment: A Chemical Safety Assessment has not been conducted.

Chemical Inventories

Canadian Domestic Substances List (DSL): All intentionally added components are either listed or otherwise compliant.

Canadian Non-Domestic Substances List (NDSL): for one or more of the components 1) there is no listing on the public inventory; 2) no information is available; or 3) the component has not been reviewed.

European Inventory of Existing Chemicals (EINECS): All of the components in this product are listed on the EINECS inventory.

European List of Notified Chemical Substances (ELINCS): for one or more of the components 1) there is no listing on the public inventory; 2) no information is available; or 3) the component has not been reviewed.

U.S. Toxic Substances Control Act (TSCA): All intentionally added components are either listed or otherwise compliant.

Section 16 Other Information

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.

Date of Previous Revision: December 14, 2021