

Section 1 Identification

Product Identifiers

Freeman 2450 Resin, Part A

Relevant Identified uses of the Substance or Mixture and uses Advised Against

Resin component of polyurethane elastomer. For industrial/professional 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 Number:
CHEMTREC (800) 424-9300

Section 2 Hazards Identification

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

Acute Toxicity (Inhalation), Category 4

Skin Irritation, Category 2

Eye Irritation, Category 2B

Respiratory Sensitization, Category 1

Skin Sensitization, Category 1

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

Specific Target Organ Toxicity (Respiratory Tract) – Repeated Exposure, Category 2

Label Elements



Danger

Hazard Statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H320 Causes eye irritation.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H373 May cause damage to organs (lungs and respiratory system) through prolonged or repeated exposure.

Precautionary Statements

P260 Do not breathe fumes, vapors, mists or sprays.

P264 Wash thoroughly after handling.

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

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

P280 Wear protective gloves, eye protection, and face protection.

P284 In case of inadequate ventilation, wear respiratory 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+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.

P319 Get medical help if you feel unwell.

Section 2 Hazards Identification

P333+P317 If skin irritation or rash occurs: Get medical help.
P337+P317 If eye irritation persists: Get medical help.
P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately.
P362+P364 Take off contaminated clothing and wash 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

Individuals sensitized to isocyanates should discontinue use. Long-term overexposure to isocyanates may cause lung damage. This is one part of a two-part system. Read and understand the hazard information on Part B before using.

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Polymeric methylenediphenyl diisocyanate (MDI)	9016-87-9	85-100

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 for at least 15 minutes, holding the eyelids open to be sure the material is washed out. Get medical attention if irritation develops or persists.

Skin Contact: Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation develops or persists. Launder clothing before re-use. Discard items that cannot be decontaminated.

Inhalation: Remove person to fresh air. Give artificial respiration if needed. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if you feel unwell.

Most Important Symptoms/Effects

Causes skin and eye irritation. Vapors or mists may cause respiratory irritation. May cause allergic skin and/or respiratory reaction in sensitized persons. Symptoms include skin rash, wheezing, shortness of breath and other asthma symptoms. Prolonged inhalation overexposure may damage the lungs and respiratory system.

Indication of Immediate Medical Attention/Special Treatment

Immediate medical attention is required for asthmatic symptoms or serious inhalation exposures. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Persons sensitized to isocyanates should consult a physician regarding working with respiratory irritants or sensitizers.

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 eruption.

Section 5 Fire-Fighting Measures

Specific Hazards

Not classified as flammable or combustible. Product will burn under fire conditions.

Special Protective Equipment & Precautions for Fire-Fighters

Wear positive pressure, self-contained breathing apparatus and full-body protective clothing. Cool fire-exposed containers with water.

Section 6 Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

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

Methods and Materials for Containment and Cleanup

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

Avoid breathing vapors, aerosols and mists. 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.

Safe Storage

Store indoors at temperatures between 60°F and 95°F. Store in original, unopened containers. Protect from atmospheric moisture and water since MDI reacts with water to form carbon dioxide leading to potentially dangerous pressure build up in sealed containers.

Section 8 Exposure Controls/Personal Protection

Occupational Exposure Limits

Ingredient Name	Exposure Limits
Methylenediphenyl Diisocyanate (MDI)	0.02 ppm (C) OSHA PEL 0.005 ppm TWA ACGIH TLV

Appropriate Engineering Controls

Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.

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.

Skin Protection: Wear impervious gloves, such as butyl rubber or nitrile rubber.

Eye Protection: Wear chemical safety 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	Brown liquid
Odor	Musty
Odor Threshold	0.4 ppm (MDI)
pH	Not applicable
Melting/Freezing Point	No data available
Boiling Point	No data available
Flash Point	>200°C (>392°F)
Evaporation Rate	No data available
Flammability Limits	No data available
Vapor Pressure	≤0.00001 mm Hg at 25°C
Vapor Density	No data available
Relative Density	1.20
Solubility	Insoluble in water
Coefficient: n-Octanol/Water	Reacts with water
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	150-200 cP at 25°C

Section 10 Stability and Reactivity

Reactivity

Diisocyanates react with many materials and the rate of reaction increases with temperature. Reaction with water generates carbon dioxide and heat.

Chemical Stability

Stable under recommended conditions.

Possibility of Hazardous Reactions

Elevated temperatures can cause hazardous polymerization. Polymerization can be catalyzed by strong bases or water. Reaction with water generates carbon dioxide, and results in heat and pressure buildup in closed systems.

Conditions to Avoid

Avoid moisture and temperatures below 60°F and above 95°F to protect product integrity and prevent pressure build up in closed containers.

Incompatible Materials

Avoid contact with water, acids, bases, alcohols, strong oxidizers, and some metals (e.g., aluminum, zinc, brass, tin copper).

Hazardous Decomposition Products

Possibly isocyanate vapor, carbon monoxide, nitrogen oxides, and traces of hydrogen cyanide. Gases are released during decomposition.

Section 11 Toxicological Information

Acute Toxicity Values

Ingredient Name	LC₅₀ Inhalation (Rat)	LD₅₀ Oral (Rat)	LD₅₀ Dermal (Rat)
Methylenediphenyl Diisocyanate (MDI)	0.49 mg/L (4 hr.) Aerosol	>10,000 mg/kg	>2,000 mg/kg

Section 11 Toxicological Information

Acute Health Effects

Eye Contact: Causes eye irritation.

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

Inhalation: At room temperature, vapors are minimal due to low volatility. Vapors or aerosols (e.g., generated during heating or spraying) may cause respiratory irritation and possibly pulmonary edema. May cause respiratory sensitization. For individuals sensitized to isocyanates, exposure may result in allergic respiratory reactions (e.g., coughing, wheezing, difficulty breathing).

Ingestion: No data available.

Chronic Health Effects

Respiratory Sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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 – Single Exposure: No data available

Specific Target Organ Toxicity – Repeated Exposure: Repeated or prolonged exposure to isocyanates above exposure limits may cause an allergic sensitization of the respiratory tract causing an asthma-like response upon re-exposure. Repeated overexposure to isocyanates has been associated with decreased lung function. Repeated or prolonged dermal contact with this product may cause allergic skin sensitization in some individuals.

Section 12 Ecological Information

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

Persistence and Degradability: Diisocyanates are not readily biodegradable.

Bioaccumulative Potential: Diisocyanates are not expected to bioaccumulate.

Mobility in Soil: In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Section 13 Disposal Considerations

Dispose according to local, state, and federal regulations. Do not dump in drains or sewers. Upon exposure to moisture, product forms an inert, non-hazardous solid.

Section 14 Transport Information

DOT/IMDG/IATA: Not regulated for transport

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: Contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: Diisocyanates Category (N120) 85-100%

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All components in this product are listed on TSCA.

Section 15 Regulatory Information

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.

REACH

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

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: October 15, 2021

Previous revision date: October 15, 2021

Current revision date: February 25, 2025

Safety Data Sheet

Freeman 2450 Hardener

Section 1 Identification

Product Identifiers

Freeman 2450 Hardener, Part B

Relevant Identified Uses of the Substance or Mixture

Hardener component of polyurethane elastomer. For industrial/professional 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 Number:
CHEMTREC (800) 424-9300

Section 2 Hazards Identification

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

Eye Irritation, Category 2A

Label Elements



Warning

Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

P264 Wash thoroughly after handling.

P280 Wear eye protection and face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P317 If eye irritation persists: Get medical help.

Supplemental Information

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

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Propoxylated amine	102-60-3	30-40
2,2'-methliminodiethanol	105-59-9	0-5

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 if irritation develops or persists.

Safety Data Sheet

Freeman 2450 Hardener

Section 4 First-Aid Measures

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: Rinse mouth. Do NOT induce vomiting. Get medical attention if you feel unwell.

Most Important Symptoms/Effects

None known

Indication of Immediate Medical Attention/Special Treatment

Not expected to be required

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. Cool fire-exposed containers with water.

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.

Section 8 Exposure Controls/Personal Protection

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

Appearance	Milky-white liquid
Odor	Slight
Odor Threshold	No data available
pH	No data available
Melting/Freezing Point	No data available
Boiling Point	No data available
Flash Point	>100°C (>212°F)
Evaporation Rate	No data available
Flammability Limits	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Relative Density	1.03
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	1,800 cP at 25°C

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 ignition 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

Acute Toxicity Values

None established

Acute Health Effects

Eye Contact: Causes serious eye irritation.

Skin Contact: May cause mild skin irritation.

Inhalation: May cause mild respiratory irritation.

Ingestion: Harmful if swallowed.

Chronic Health Effects

Respiratory Sensitization: Components are not classified as respiratory sensitizers.

Skin Sensitization: Components are not classified as skin sensitizers.

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: No data available

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

Section 14 Transport Information

DOT/IMDG/IATA: Not regulated for transport

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 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 more information, visit www.P65Warnings.ca.gov.

REACH

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

Safety Data Sheet
Freeman 2450 Hardener

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.

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Previous revision date: October 15, 2021

Current revision date: February 25, 2025