

Section 1 Identification

Product Identifiers

Freeman 2400 Resin (Part A)

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

Component for Mold Making 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 Phone 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, Single Exposure (Inhalation), Category 3
Specific Target Organ Toxicity, Repeat Exposure (Inhalation), Category 2

Label Elements



Danger

Hazard Statements

H315 Causes skin irritation.
H320 Causes eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H373 May cause damage to lungs through prolonged or repeated exposure by inhalation.

Precautionary Statements

P260 Do not breathe vapors.
P261 Avoid breathing vapors.
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.
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.

Section 2 Hazards Identification continued

P319 Get medical help if you feel unwell.
P332+P317 If skin irritation occurs: Get medical help.
P333+P317 If skin irritation or rash occurs: Get medical help.
P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately.
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

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 (%)
4,4'-Methylenediphenyl diisocyanate	101-68-8	80-100

Other ingredients are either not classified as health, physical, or environmental hazards, or are present below cut-off/concentration limits.

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 prompt medical attention.

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

Inhalation: Do not breathe vapors. If inhaled, 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.

Most Important Symptoms/Effects

Causes skin and eye irritation. Vapors 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 exposure. 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 not use this product.

Section 5 Fire-Fighting Measures

Extinguishing Media

Use 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

Special Hazards

Not classified as flammable or combustible. Product will burn under fire conditions. Do not allow run-off from firefighting to enter drains or waterways.

Advice for Firefighters

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 Material for Containment and Cleanup

Cover with an inert absorbent material and collect into an appropriate container for disposal. Do not seal the container because carbon dioxide (CO₂) 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%). Do not allow discharge to enter waterways.

Section 7 Handling and Storage

Precautions for Safe Handling

Avoid breathing vapors, aerosols, and mists. Use with properly positioned local exhaust ventilation to prevent exposure. 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. Persons susceptible to skin sensitization problems, asthma, allergies, or chronic or recurrent respiratory disease, should not use this product.

Conditions for Safe Storage, Including any Incompatibilities

Store indoors at temperatures between 55°F and 95°F. Store in original, unopened containers. Protect from atmospheric moisture and water because isocyanates react with water to form carbon dioxide (CO₂) leading to potentially dangerous pressure build-up in sealed containers.

Section 8 Exposure Controls/Personal Protection

Components with Occupational Exposure Limits

Chemical Name	Exposure Limits
4,4'-Methylenediphenyl diisocyanate (101-68-8)	0.005 ppm TWA ACGIH TLV 0.02 ppm (C) OSHA PEL

Appropriate Engineering Controls

Use with properly positioned local exhaust ventilation to prevent exposure and maintain air levels below the occupational exposure limits.

Personal Protective Equipment

Respiratory Protection: If ventilation is not adequate, use an approved respirator with organic vapor cartridges or supplied air. 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.

Safety Data Sheet

Freeman 2400 Resin

Section 8 Exposure Controls/Personal Protection continued

Other Protective Measures

Wear impervious clothing to 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	Clear liquid	Vapor Pressure	No data available
Odor	Mild odor	Vapor Density	No data available
Odor Threshold	No data available	Relative Density	1.20 at 20°C
pH	Not applicable	Solubility	Insoluble in water
Melting Point	No data available	Coefficient: n-Octanol/Water	No data available
Boiling Point	No data available	Auto-Ignition Temperature	No data available
Flash Point	No data available	Decomposition Temperature	No data available
Evaporation Rate	No data available	Viscosity	No data available
Flammability Limits	No data available	VOC content	< 0.2 g/L

Section 10 Stability and Reactivity

Reactivity: Isocyanates react with many chemicals, including alcohols and amines, 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 build-up in closed systems.

Conditions to Avoid: Avoid moisture and temperatures below 55°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, amines, and some metals (e.g., copper and copper alloys).

Hazardous Decomposition Products: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, hydrogen cyanide (hydrocyanic acid).

Section 11 Toxicological Information

Acute Toxicity Values

Chemical Name	LC ₅₀ Inhalation (Rat)	LD ₅₀ Oral (Rat)	LD ₅₀ Dermal (Rat)
4,4'-Methylenediphenyl diisocyanate (101-68-8)	0.56 mg/L 4 hr. (dust/mist)	>2,000 mg/kg	>9,400 mg/kg

Acute Health Effects

Eye Contact: May cause eye irritation.

Skin Contact: Causes skin irritation. Skin contact may cause an allergic skin reaction. Animal studies indicate that skin contact with isocyanates may affect potential respiratory sensitization.

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: Single oral dose toxicity is low. Ingesting large amounts may cause adverse gastrointestinal effects.

Section 11 Toxicological Information

Chronic Health Effects

Respiratory Sensitization: Isocyanates are respiratory sensitizers. 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.

Skin Sensitization: Isocyanates are skin sensitizers. Repeated or prolonged dermal contact with this product may cause allergic skin sensitization in some individuals.

Germ Cell Mutagenicity: Product has not been tested for mutagenicity. No ingredients are classified as mutagens.

Carcinogenicity: Product has not been tested for carcinogenicity. No ingredients are designated as carcinogens by NTP, IARC, or OSHA.

Reproductive Toxicity: Product has not been tested for reproductive toxicity. No ingredients present above cut-off levels are classified as reproductive toxins.

Specific Target Organ Toxicity:

Single Exposure: May cause respiratory irritation.

Repeat Exposure: After repeated exposure, isocyanates may cause respiratory irritation and lung damage.

Aspiration Hazard: No data available

Section 12 Ecological Information

Ecotoxicity: No data available. Do not release into waterways.

Persistence and Degradability: No data available.

Bioaccumulative Potential: Isocyanates are not expected to bioaccumulate.

Mobility in Soil: No data available.

Section 13 Disposal Considerations

Dispose according to local, state, and federal regulations. Upon exposure to moisture, product forms an inert, non-hazardous solid.

Section 14 Transport Information

DOT

NA3082, Other regulated substances, liquid, n.o.s (MDI), 9, III

Reportable Quantity: 5,000 lb.

IMDG / IATA

Not regulated for transport.

Section 15 Regulatory Information

US Federal Regulations

CERCLA 103 Reportable Quantity: RQ for MDI is 5,000 lb. Some States have more stringent requirements. Report spills in accordance with local, state, and federal regulations.

SARA Title III Section 311/312: See Section 2

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: 4,4'-Methylenediphenyl diisocyanate, CAS 101-68-8, 80-100%

Section 302 Extremely Hazardous Substances (TPQ): None

Section 15 Regulatory Information

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, birth defects, or other reproductive harm.

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.

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 Issue: June 30, 2022

Date of Previous Revision: April 21, 2023

Date of Current Revision: December 17, 2024

Safety Data Sheet

Freeman 90 Hardener

Section 1 Identification

Product Identifiers

Freeman 90 Hardener (Part B)

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

Component for Mold Making 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 Phone Number
CHEMTREC: (800) 424-9300

Section 2 Hazards Identification

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

Specific Target Organ Toxicity, Repeat Exposure, Category 2

Label Elements



Warning

Hazard Statements

H373 May cause damage to the organs through prolonged or repeated exposure.

Precautionary Statements

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

P319 Get medical help if you feel unwell.

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 A before using.

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
2,2'-oxydiethanol	111-46-6	5-15

Other ingredients are either not classified as health, physical, or environmental hazards, or are present below cut-off/concentration limits.

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 or symptoms of exposure develop. Launder clothing before re-use.

Inhalation: Do not breathe vapors. If inhaled, remove person to fresh air. Get medical attention if symptoms develop or persist.

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

Section 4 First Aid Measures

Most Important Symptoms/Effects

None known.

Indication of Immediate Medical Attention/Special Treatment

Not expected.

Section 5 Fire-Fighting Measures

Extinguishing Media

Use 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.

Special Hazards

Not classified as flammable or combustible. Product will burn under fire conditions. Do not allow run-off from firefighting to enter drains or waterways.

Advice for Firefighters

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 Material for Containment and Cleanup

Cover with an inert absorbent material and collect into an appropriate container for disposal. Avoid release to the environment. Report spills and releases as required to the appropriate authority.

Section 7 Handling and Storage

Precautions for Safe Handling

Avoid breathing vapors, aerosols, and mists. Use with adequate ventilation to prevent exposure. 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 between 60°F and 95°F. Store in original, unopened containers. Avoid getting moisture in the containers. Keep containers tightly closed.

Section 8 Exposure Controls/Personal Protection

Components with Occupational Exposure Limits

None established.

Appropriate Engineering Controls

Use with properly positioned local exhaust ventilation to prevent exposure and maintain air levels below the occupational exposure limits.

Personal Protective Equipment

Respiratory Protection: If ventilation is not adequate, use an approved respirator with organic vapor cartridges or supplied air. 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.

Safety Data Sheet

Freeman 90 Hardener

Section 8 Exposure Controls/Personal Protection

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

Eye Protection: Wear chemical safety goggles.

Other Protective Measures

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	Vapor Pressure	No data available
Odor	No data available	Vapor Density	No data available
Odor Threshold	No data available	Relative Density	1.20 at 20°C
pH	Not applicable	Solubility in Water	Slightly soluble
Melting Point	No data available	Coefficient: n-Octanol/Water	No data available
Boiling Point	No data available	Auto-Ignition Temperature	No data available
Flash Point	No data available	Decomposition Temperature	No data available
Evaporation Rate	No data available	Viscosity	No data available
Flammability Limits	No data available	VOC content	< 0.2 g/L

Section 10 Stability and Reactivity

Reactivity: Not normally reactive.

Chemical Stability: Stable under recommended conditions.

Possibility of Hazardous Reactions: Reaction with strong oxidizers generates heat.

Conditions to Avoid: Avoid excessive heat.

Incompatible Materials: Avoid contact with strong oxidizers.

Hazardous Decomposition Products: Thermal decomposition will generate oxides of carbon and nitrogen, organic acids, and other toxic organic compounds.

Section 11 Toxicological Information

Acute Toxicity Values

Not acutely hazardous.

Acute Health Effects

Eye Contact: May cause eye irritation.

Skin Contact: May causes mild skin irritation.

Inhalation: Vapors and mists may cause mild respiratory irritation.

Ingestion: No data available.

Chronic Health Effects

Carcinogenicity: No ingredients are designated as carcinogens by NTP, IARC, or OSHA.

Reproductive Toxicity: No ingredients present above cut-off levels are classified as reproductive toxins.

Germ Cell Mutagenicity: No ingredients are classified as mutagens.

Respiratory Sensitization: No ingredients are classified as respiratory sensitizers.

Skin Sensitization: No ingredients are classified as skin sensitizers.

Specific Target Organ Toxicity

Single Exposure: No data available

Repeated Exposure: May cause damage to the organs through prolonged or repeated exposure.

Aspiration Hazard: No data available

Safety Data Sheet

Freeman 90 Hardener

Section 12 Ecological Information

Ecotoxicity:	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

Dispose according to local, state, and federal regulations. 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

US Federal Regulations

CERCLA 103 Reportable Quantity: This product is not subject to reporting under CERCLA. Some States have more stringent requirements. Report spills in accordance with local, state, and federal regulations.

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 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, birth defects, or other reproductive harm.

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.

Disclaimer

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