

**Section 1 Identification**

**Product Identifiers**

Product name: Freeman 2050 Part A

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

Component for Polyurethane Rubber. For Industrial/Professional use only. Not for spray application.

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

Freeman Manufacturing and Supply Company

1101 Moore Road, Avon, OH 44011

Phone (440) 934-1902

FAX (440) 934-7200

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

**Section 2 Hazards Identification**

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

Acute Toxicity, Inhalation, Category 3

Skin Irritation, Category 2

Eye Irritation, Category 2A

Respiratory Sensitization, Category 1

Skin Sensitization, Category 1

Specific Target Organ Toxicity Single Exposure, Category 3

**GHS Label Elements, Including Precautionary Statements**



Signal word

Danger

**Hazard Statements**

Toxic if inhaled.

Causes skin irritation.

Causes serious eye irritation.

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

May cause an allergic skin reaction.

May cause respiratory irritation.

**Precautionary Statements**

**Prevention**

Avoid breathing mist, vapors, or spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

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

In case of inadequate ventilation, wear respiratory protection.

**Section 2 Hazards Identification continued**

**Response**

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice or attention.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get medical advice or attention.

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

**Storage**

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

**Disposal**

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'-methylene di(cyclohexyl isocyanate)	5124-30-1	10-15
4,4'-methylene di(cyclohexyl isocyanate)/polyether polyol prepolymer	Unknown	60-70

**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**

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 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.

**Section 4 First-Aid Measures continued**

**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. Person 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 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.

**Special 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 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 CO<sub>2</sub> 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**

**Safe Handling**

Avoid breathing vapors, aerosols, and mists. Use with properly positioned local exhaust ventilation to prevent exposure. 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 between 55°F and 95°F. Store in original, unopened containers. Protect from atmospheric moisture and water since isocyanates react with water to form CO<sub>2</sub> leading to potentially dangerous pressure build up in sealed containers.

**Section 8 Exposure Controls/Personal Protection**

**Occupational Exposure Limits**

Chemical Name	CAS Number	TWA - ACGIH - TLV	NIOSH
4,4'-methylene di(cyclohexyl isocyanate)	5124-30-1	0.005 ppm	0.01 ppm

**Ventilation**

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

**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 exposure 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 glasses or goggles.

**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**

<b>Appearance</b>	Clear pale yellow or violet liquid
<b>Odor</b>	Mild, acrid
<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>	>149°C (300°F)
<b>Evaporation Rate</b>	No data available
<b>Flammability Limits</b>	No data available
<b>Vapor Pressure</b>	≤ 0.00001 mm Hg @ 20°C
<b>Vapor Density</b>	> 1 (air = 1)
<b>Relative Density</b>	1.07 @ 25°C
<b>Solubility</b>	Insoluble in water; reacts slowly
<b>Coefficient: n-Octanol/Water</b>	Reacts with water
<b>Auto-Ignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	35-750 cP @ 25°C

**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 buildup in closed systems.

**Conditions to Avoid**

Avoid moisture and temperatures below 55°F and above 95°F to protect product integrity and prevent pressure buildup in closed containers.

**Incompatible Materials**

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

**Eye Contact**

Causes serious eye irritation. May cause temporary corneal injury.

**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.

**Chronic Health Effects**

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.

**Acute Toxicity Values**

Chemical Name	LC <sub>50</sub> Inhalation (Rat)	LD <sub>50</sub> Oral (Rat)	LD <sub>50</sub> Dermal (Rat)
4,4'-methylene di(cyclohexyl isocyanate)	434 mg/m <sup>3</sup> (4 hr dust/mist; no vapor data)	>18,200 mg/kg	>7,000 mg/kg

**Section 11 Toxicological Information continued**

**Respiratory Sensitization**

Isocyanates are respiratory sensitizers.

**Skin Sensitization**

Isocyanates are skin sensitizers.

**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 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. Ingredients are not classified as STOT-RE.

**Section 12 Ecological Information**

**Toxicity**

Not expected to be dangerous to aquatic organisms.

**Persistence and Degradability**

Product is expected to hydrolyze in water and, upon exposure to air, degrade by photochemical processes.

**Bioaccumulative Potential**

Isocyanates are not expected to bioaccumulate.

**Mobility in Soil**

In the aquatic and terrestrial environmental, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Section 13 Disposal Considerations**

**Disposal**

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

**For U.S.:** Upon disposal, this product is not a RCRA hazardous waste (per 40 CFR 261).

**Section 14 Transport Information**

**U.S. DOT**

Not regulated for transport.

**IMDG**

Not regulated for transport.

**AIR/IATA**

UN3334, Aviation regulated liquid, n.o.s. (4,4'-methylene di(cyclohexyl isocyanate)), 9, PG III.

**Emergency Shipping Information**

Call CHEMTREC, 800-424-9300.

**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. Report all spills in accordance with local, state, and federal regulations.

**SARA TITLE III**

**Section 311/312:** Acute Health, Chronic Health

**Section 313 Toxic Chemicals:** This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements:

Diisocyanates Category (N120) 10-15%

**Section 302 Extremely Hazardous Substances (TPQ):** None.

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

**State Regulations**

**California Proposition 65:** These products do not contain substances known to the State of California to cause cancer and/or reproductive harm.

**Section 16 Other Information**

**Training Advice**

All personnel using/handling these products 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 use only.

**Note on GHS Hazard Pictogram**

In the U.S., the Exclamation Mark pictogram is required on the label for this product owing to its hazard classification. In most other countries, however, the Exclamation Mark pictogram should not appear with the Skull & Crossbones pictogram.

**Disclaimer**

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**Section 1 Identification**

**Product Identifiers**

Product name: Freeman 2050 Part B

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

Component for Polyurethane Mold Rubber. For Industrial/Professional use only.

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

Freeman Manufacturing and Supply Company

1101 Moore Road, Avon, OH 44011

Phone (440) 934-1902

FAX (440) 934-7200

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

**Section 2 Hazards Identification**

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

Eye Irritation, Category 2A

Specific Target Organ Toxicity – Repeated Exposure, Category 2

Hazardous to the Aquatic Environment – Acute Hazard, Category 1

Hazardous to the Aquatic Environment – Long-Term Hazard, Category 1

**GHS Label Elements, Including Precautionary Statements**



Signal word

Warning!

**Hazard Statements**

Causes serious eye irritation.

May cause damage to organs (pancreas) through prolonged or repeated exposure.

Very toxic to aquatic life with long-lasting effects.

**Precautionary Statements**

**Prevention**

Do not breathe vapors, mist, or spray.

Wash thoroughly after handling.

Avoid release to the environment.

Wear eye and face protection.

**Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Collect spillage.

**Disposal**

Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device in accordance with local and national regulations.



**Section 2 Hazards Identification continued**

**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 (%)
Diethyltoluenediamine	68479-98-1	30-75

**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 persists.

**Skin Contact**

Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation persists.

**Inhalation**

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

**Ingestion**

Do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

**Most Important Symptoms/Effects**

May cause eye and possible skin irritation. May be harmful if swallowed.

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

Need for immediate medical attention is not anticipated.

**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.

**Special 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 ignition sources. Clear non-emergency personnel from the area. Wear appropriate protective clothing to prevent eye and skin contact and avoid breathing vapors.

**Section 6 Accidental Release Measures continued**

**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. Report spills and releases as required to appropriate authorities.

**Section 7 Handling and Storage**

**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.

**Safe Storage**

Store indoors at temperatures below 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.

**Ventilation**

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

**Respiratory Protection**

Not needed under normal conditions of use; but, in the absence of good ventilation use an air-purifying respirator with organic vapor cartridges. For possible higher exposure 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 glasses or goggles.

**Other Protective Measures**

Avoid contaminating work surfaces and/or touching contaminated surfaces. 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**

<b>Appearance</b>	Clear yellow to amber liquid
<b>Odor</b>	Slightly pungent
<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>	>176.7°C (350°F)
<b>Evaporation Rate</b>	No data available
<b>Flammability Limits</b>	No data available
<b>Vapor Pressure</b>	< 0.1 mm Hg @ 25°C
<b>Vapor Density</b>	No data available

**Section 9 Physical and Chemical Properties continued**

<b>Relative Density</b>	1.02 @ 25°C
<b>Solubility</b>	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>	500-1500 cP @ 25°C

**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**

**Eye Contact**

Causes serious eye irritation.

**Skin Contact**

May cause mild skin irritation. Dermal exposure is the most likely route of exposure.

**Inhalation**

Vapors and mists may cause mild respiratory irritation.

**Ingestion**

Not fully determined, but single oral dose toxicity is low. Ingesting large amounts may cause adverse gastrointestinal effects.

**Chronic Health Effects**

May cause adverse effects in the pancreas.

**Acute Toxicity Values**

Chemical Name	LC <sub>50</sub> Inhalation (Rat)	LD <sub>50</sub> Oral (Rat)	LD <sub>50</sub> Dermal (Rabbit)
Diethyltoluenediamine	2.45 mg/L/1 hr.	738 mg/kg	>2000 mg/kg

**Skin Corrosion/Irritation**

Components are not skin irritants.

**Eye Damage/Irritation**

Diethyltoluenediamine is a serious eye irritant.

**Respiratory Irritation**

Components are not classified as respiratory irritants.

**Section 11 Toxicological Information continued**

**Respiratory Sensitization**

Components are not respiratory sensitizers.

**Skin Sensitization**

Components are not skin sensitizers.

**Germ Cell Mutagenicity**

Components are not known mutagens.

**Carcinogenicity**

Components are not known carcinogens.

**Reproductive Toxicity**

Components are not known reproductive toxins.

**Specific Target Organ Toxicity**

Single Exposure: No data available.

Repeat Exposure: In animal studies, diethyltoluenediamine caused adverse effects in the pancreas at 8-10 mg/kg. At higher doses, adverse effects were also seen in the liver and thyroid.

**Section 12 Ecological Information**

**Toxicity**

Chemical Name	LC <sub>50</sub> 48 hrs. (Fish)	EC <sub>50</sub> 48 hrs. (Daphnia)
Diethyltoluenediamine	200 mg/L	0.5 mg/L

**Persistence and Degradability**

Not readily biodegradable.

**Bioaccumulative Potential**

Not expected to bioaccumulate.

**Mobility in Soil**

No data available.

**Section 13 Disposal Considerations**

**Disposal**

Dispose according to local, state, and federal regulations. Upon mixing in proper ratio with Freeman 2050 Part A, product forms an inert, non-hazardous solid.

**For U.S.:** Upon disposal, the Part B and cured rubber are not RCRA regulated hazardous wastes (per 40 CFR 261).

**Section 14 Transport Information**

**U.S. DOT**

Not a hazardous material (49 CFR 171).

**IMDG**

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Diethyltoluenediamine), 9, III.

**AIR/IATA**

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Diethyltoluenediamine), 9, III.

**Emergency Shipping Information**

Call CHEMTREC, 800-424-9300.

**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. Report all spills in accordance with local, state, and federal regulations.

**SARA TITLE III**

**Section 311/312:** Acute Health, Chronic Health

**Section 313 Toxic Chemicals:** This product contains no chemicals subject to SARA Title III Section 313 Reporting requirements.

**Section 302 Extremely Hazardous Substances (TPQ):** None.

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

**State Regulations**

**California Proposition 65:** These products do not contain substances known to the State of California to cause cancer and/or reproductive harm.

**Section 16 Other Information**

**Training Advice**

All personnel using/handling these products 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.