

# Material Safety Data Sheet

## Freeman 945 Hardener

Date of Preparation: March 23, 2009

Revision:

### Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** Freeman 945 Hardener

**Chemical Family:** Amine

**CAS Number:** N/A

**Other Designations:** N/A

**Intended Use or Product Type:** Heat resistant hardener

**Manufacturer:** Freeman Manufacturing and Supply Company, 1101 Moore Road, Avon, OH 44011,  
Phone (440)934-1902, FAX (440)934-7200, Hours of Operation 8-5, Emergency Phone Number 800-424-9300

**HMIS**

**H** 3

**F** 1

**R** 0

**PPE**<sup>†</sup>

<sup>†</sup>Sec. 8

### ☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Corrosive – causes skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction.  
Can be harmful if absorbed through skin and may be harmful if swallowed.

### Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% vol. or wt.
* Triethylenetetramine	112-24-3	30-60
* m-Xylenediamine	1477-55-0	10-30
* 1-Methylimidazole	616-47-7	3-7
* MXDA/TMD/DGEBA Adduct	68738-77-2	15-40

\* = OSHA Hazardous Ingredient

Ingredient	OSHA		ACGIH	
	PEL	STEL	TWA	STEL
* Triethylenetetramine	none estab.	none estab.	none estab.	none estab.
* m-Xylenediamine	none estab.	none estab.	none estab.	0.1 mg/m3
* 1-Methylimidazole	none estab.	none estab.	none estab.	none estab.
* MXDA/TMD/DGEBA Adduct	none estab.	none estab.	none estab.	none estab.

### Section 3 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance and Odor:** Blue thin liquid; amine odor.

**Vapor Pressure:** 0.0009 mm Hg at 68 °F (20 °C)

**Vapor Density (Air=1):** Not determined

**VOC:** 51.992 g/L

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** 1.04

**Water Solubility:** Moderate

**Boiling Point:** >400°F (204°C)

**% Volatile:** Negligible

**Evaporation Rate:** Not determined

**pH:** Not determined

### Section 4 - Fire-Fighting Measures

**Flash Point:** >200 °F (>93 °C)

**Flash Point Method:** Estimated

**Flammable Limits in Air (Lower - % by volume):** Not established

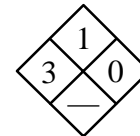
**Flammable Limits in Air (Upper - % by volume):** Not established

**Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire-Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

NFPA



## Section 5 - Stability and Reactivity

**Stability:** Stable

**Conditions to Avoid:** Excessive heat for prolonged periods of time.

**Incompatibility:** Strong oxidizers, acids, and bases

**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.

**Hazardous Polymerization:** Will not occur.

## Section 6 - Health Hazard Information

### Potential Health Effects

**Primary Entry Routes:** Dermal: heated product may produce inhalable vapors.

**Acute Exposure:** Corrosive. Causes skin and eye burns.

**Chronic:** Possible mutagen.

**Overexposure Effects:** Corrosive – causes skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Medical Conditions Aggravated by Exposure:** Skin, pulmonary, and eye conditions.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

### Emergency and First Aid Procedures

**Inhalation:** Remove to fresh air. Call a physician.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Call a physician.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes.

**Ingestion:** If conscious, give 2-4 glasses of water to drink. Do not induce vomiting. Call a physician.

## Section 7 - Spill, Leak, and Disposal Procedures

**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.

**Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.

**Ecological Information:** N/A

**Toxicological Information:**

**Acute Oral Effects (LD50):** Triethylenetetramine = 2500-4340 mg/kg (rat)

**Acute Dermal Toxicity (LD50):** Triethylenetetramine = 550-800 mg/kg (rabbit)

**Sensitization:** May cause allergic skin reaction and respiratory sensitivity in some people.

**Skin Irritation:** Corrosive. Causes burns.

**Eye Irritation:** Corrosive. Causes burns.

**Regulatory Information:**

**US Federal Regulations:**

**Occupational Safety and Health Act (OSHA):** This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazardous Communication Standard 29 CFR 1910,1200. This product is considered to be a hazardous chemical under that standard.

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261) but handle with care due to corrosive effect on skin and eyes.

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

**Revision:**

**Freeman 945 Hardener**

**TSCA Section 8b- Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12b- Export Notification:** This product does not contain any chemicals that are subject to a Section 12b export notification.

**State Regulations:**

**California Proposition 65:** This product does not contain any chemicals currently on the California list of Known Carcinogens and Reproductive Toxins.

Triethylenetetramine ( CAS # 112-24-3) is on the New Jersey and Pennsylvania Right to Know Lists

m-Xylenediamine (CAS # 1477-55-0) is on the New Jersey and Pennsylvania Right to Know Lists.

**Section 8 - Exposure Controls / Personal Protection**

**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

**Respiratory Protection:** Use NIOSH approved organic vapor cartridge respirator when vapor/mist exposure is likely.

**Eye Protection:** Wear splash-proof chemical goggles.

**Skin Protection:** Wear impermeable gloves.

**Section 9 - Special Precautions and Comments**

**Handling and Storage:**

**Signal Word:** Danger!

**Precautions:** Corrosive - causes skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Avoid tasting or swallowing. Keep container closed when not in use. Use adequate ventilation. Wash thoroughly after handling. Notice! Possible mutagen.

**Other Handling Information:** Nuisance dust may be generated when sanding or sawing cured material.

**DOT Transportation Data (49 CFR 172.101):**

**Shipping Name:** Polyamines, liquid, corrosive, n.o.s.

**Technical Shipping Name:**

Triethylene tetramine,  
Metaxylenediamine

**Hazard Class:** 8

**ID No.:** UN 2735

**Packing Group:** PG III

**Label:** Corrosive

**Special Provisions (172.102):**

**Packaging Authorizations**

**a) Exceptions:**

**b) Non-bulk Packaging:** X

**c) Bulk Packaging:**

**Quantity Limitations**

**a) Passenger, Aircraft, or Railcar:**

**b) Cargo Aircraft Only:**

**Vessel Stowage Requirements**

**a) Vessel Stowage:**

**b) Other:**

**Prepared By:**

**Revision Notes:**

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