
MSDS OF HEXAMINE

Section I. Chemical Product and Company Identification

Producer:Chemical Name: Hexamethylenetetramine

- **Synonym:** Hexamine
- **Chemical Formula:** C₆H₁₂N₄

Section II. Composition and Information on Ingredients

Material	CAS#	%	OSHA	ACGIH
Hexamine	100-97-0	100%	Not 15 mg/m ³ *	Not 15 mg/m ³ *

Section III Hazards Identification:

- **Accute Health Effects:** Irritating to the skin and eyes on contact. Inhalation will cause irritation to the lungs and mucus membrane. Irritation to the eyes will cause watering and redness. Reddening, scaling, and itching are characteristics of skin inflammation. Follow safe industrial hygiene practices and always wear protective equipment when handling this compound.
- **Chronic Health Effects:** Prolonged skin contact may produce a rash to affected area(in particular the wrist, ankles, beltline, and collar area of the neck) similar in appearance to poison ivy. Hexamine may decompose to formaldehyde in the presence of perspiration (slightly acidic pH 4-6.5). The formaldehyde is trapped in the sweat pores of the skin and then oxidized to formic acid, which is believed to be the actual agent responsible for the skin rash. (WARNING: Formaldehyde may be a potential cancer hazard).

Accute Health Effects: Hexamine could decompose to formaldehyde, which is a listed potential carcinogen.

Section IV. First Aid Measures

1

- **First Aid For Eye:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
- **First Aid For Skin:** In case of contact, flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.
- **First Aid For Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- **First Aid For Ingestion:** If swallowed, call a physician immediately.

Section V. Fire and Explosion Data

- **Flammability:** Non Flammable
- **Flash Points:** 250°C Closed Cup
- **Auto-Ignition:** 410°C
- **Flammable Limits:** Not Applicable
- **Extinguishing Media:** Water spray, Dry Chemical, Carbon Dioxide, and Foam
- **Fire Fighting Procedure:** Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- **Fire/Explosion Hazards:** Concentrated dust may form a cloud and produce an explosive hazard. This product is combustible and can be readily ignited when a flame is applied. It is a severe relative explosive hazard, 14% is the limiting oxygen concentration in an air/CO₂ atmosphere required to prevent ignition of dust clouds by electric spark.

Section VI. Accidental Release Measures

- **Spill Or Leak Procedures:** Utilize recommended protective clothing and equipment. Clean spills in a manner that does not disperse dust into the air. Spill area can be washed with water. Collect wash water for approved disposal. Keep from entering water or ground water

Section VII. Handling and Storage

- **Storage Temperatures:** Store at ambient temperature
- **Shelf Life:** Unlimited in tightly closed container.
- **Special Sensitivity:** None
- **Handling/Storage Precautions:** Avoid breathing dust. Avoid getting in eyes or on skin. Wash thoroughly after handling. Store in a dry place away from direct sunlight, heat and incompatible materials (see Section X). Reseal containers immediately after use. Store away from food and beverages.

Section VIII. Exposure Controls/Personal Protection

- **Eye Protection:** Safety glasses or goggles.
- **Skin Protection:** PVC gloves with impervious boots, apron or coveralls. Employees should

2

wash their hands and face before eating, drinking or using tobacco products.

- **Respirator:** Work ambient concentrations should be monitored and if the recommended exposure limit is exceeded, a NIOSH/MSHA approved dust respirator must be worn.
- **Ventilation:** Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.

- **Additional Protective Measures:** Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous chemicals.

Section IX. Physical and Chemical Properties

- **Physical Form:** Crystalline Solid
- **Color:** White
- **Odor:** Odorless
- **Molecular Weight:** 140.20
- **Boiling Point:** 285-295°C (Sublimes)
- **Melting/Freezing Point:** 285-295°C (Sublimes)
- **Solubility In Water:** Soluble
- **Specific Gravity:** 1.27

Section X. Stability And Reactivity

- **Stability:** Stable
- **Hazardous Polymerization:** Will Not occur
- **Incompatibilities:** Acids, Strong Oxidizing agents. This product may also decompose with heat (150-300°C) while in the presence of water. Under the above conditions free Formaldehyde and Ammonia may be liberated.
- **Instable Conditions:** Excessive temperatures (see Incompatibilities).
- **Decomposition Temperature:** 800°C (1472°F)
- **Decomposition products:** Hydrogen Cyanide is the major decomposition product at temperatures greater than 800°C. Carbon monoxide, Ammonia, Carbon Dioxide, Formaldehyde, and Nitrogen Oxide may be present also.

Section XI. Toxicological Information

- **RTECS Number:** MN4725000
- **Routes of Exposure:** Eye contact. Ingestion. Inhalation. Skin contact.
- **Toxicity Data:** IVN-RAT LD50:9200 mg/kg ORL-MUS LD50:569 mg/kg SCU-MUS LD50:215 mg/kg
- **Chronic Toxic Effects:** Prolonged skin contact may produce a rash to affected area (in particular the wrist, ankles, beltline, and collar area of the neck) similar in appearance to

3

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- (slightly acidic pH 4-6.5). The formaldehyde is trapped in the sweat pores of the skin and then oxidized to formic acid, which is believed to be the actual agent responsible for the skin rash. (WARNING: Formaldehyde may be a potential cancer hazard).

- **Acute Toxic Effects:** Irritating to the skin and eyes on contact. Inhalation will cause irritation to the lungs and mucus membrane. Irritation to the eyes will cause watering and redness. Reddening, scaling, and itching are characteristics of skin inflammation. Follow safe industrial hygiene practices and always wear protective equipment when handling this compound.

Section XII. Ecological Information

- **Ecotoxicity:** Not available at this time.

Section XIII. Disposal Considerations

- **Waste Disposal Method:** Waste disposal should be in accordance with existing federal, state and local environmental regulations.

Section XIV. Transportation Information

- **Proper Shipping Name:** Hexamine
- **UN Number:** 1328
- **Class:** 4.1
- **P.G.:** III
- **Label Code:** 4.1

Section XV. Regulatory Information

- **OSHA Status:** This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
- **TSCA Chemical Inventory:** This compound is on the EPA Toxic Substance Control Act (TSCA) inventory List
- Section 302 Extremely Hazardous Substances: None
 - Section 311/312 Hazardous Categories: None
 - Section 313 Toxic Chemicals: None

Section XVI. Other Information

- **Prepared By:** J.D. Sun
- **Date:** Mar. 16, 2016
- **Reason For Issue:** Updated Format