Hexamethyldisilazane (HMDZ) MSDS

1. Product Name and Identification

Product Name: Hexamethyldisilazane (HMDZ)
Synonyms: Hexamethylsilazane, N,N-Bis(trimethylsilyl)amine
Chemical Formula: C6H19NSi2
CAS Number: 999-97-3
Recommended Use: Intermediate in chemical synthesis, surface treatment agent, silylation reagent.
Manufacturer/Supplier Contact Information:

- Address: [Insert specific address]
- Emergency Phone Number: [Insert appropriate phone number]

---

2. Composition/Ingredients

Chemical Composition:

- **Substance Name:** Hexamethyldisilazane
- **Concentration:** ≥99%
- **CAS Number:** 999-97-3
- **Additional Information:** Contains no hazardous impurities above regulatory thresholds.

---

3. Hazards Identification

Hazard Classification:

- Flammable liquids (Category 2)
- Acute toxicity, inhalation (Category 4)
- Skin corrosion/irritation (Category 2)
- Serious eye damage/irritation (Category 1)

GHS Label Elements:

- **Pictograms:**
  ![Flammable Symbol]
  ![Corrosion Symbol]
  ![Exclamation Mark]
- **Signal Word:** Danger

- **Hazard Statements:**
  - H225 Highly flammable liquid and vapor.
  - H332 Harmful if inhaled.
  - H315 Causes skin irritation.
  - H318 Causes serious eye damage.
- **Precautionary Statements:**
  - Keep away from heat, sparks, open flames, and ignition sources. No smoking.
  - Wear protective gloves, clothing, and eye/face protection.
  - Avoid breathing vapors and use only in a well-ventilated area.
  - Wash hands and exposed areas thoroughly after handling.

---

4. First Aid Measures

General Advice: Immediately seek medical attention if exposure occurs. Show the SDS to medical professionals.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Seek immediate medical attention.

Skin Contact: Wash with soap and plenty of water. Remove contaminated clothing and rinse affected areas thoroughly. If irritation persists, consult a physician.

Inhalation: Move the person to fresh air promptly. If breathing difficulties occur, administer oxygen if trained or seek medical attention immediately.

Ingestion: Rinse the mouth with water. Do not induce vomiting. Get medical aid immediately.

---

5. Handling and Storage

Handling:

- Handle in a well-ventilated area or under a compliant fume hood.
- Keep away from heat, sparks, flames, and static discharge; use proper grounding.
- Avoid creating mist or inhaling vapors.
- Prevent direct skin or eye contact.

Storage:

- Store in a cool, dry, and well-ventilated area away from strong oxidizers, acids, water, and moisture.

- Keep container tightly closed when not in use. Protect from direct sunlight and sources of heat.

---

6. Exposure Controls/Personal Protection

Exposure Limits:

- No specific exposure limits established. Handle with care to minimize exposure.

Engineering Controls:

- Use explosion-proof local exhaust ventilation to reduce vapor and mist concentrations.

Personal Protective Equipment (PPE):

- **Eye Protection:** Tight-fitting safety goggles or a full-face shield.
- **Skin Protection:** Chemical-resistant gloves (e.g., nitrile, neoprene) and long-sleeved clothing.
- **Respiratory Protection:** NIOSH-approved respirators for organic vapors in poorly ventilated areas.
- **Hygiene Measures:** Maintain good hygiene practices by washing hands and avoiding eating, drinking, or smoking during use.

---

7. Physical and Chemical Properties

- **Appearance:** Clear, colorless liquid
- **Odor:** Ammonia-like
- **Odor Threshold:** Not established
- **pH:** Not applicable
- **Melting Point/Freezing Point:** -70°C (-94°F)
- **Boiling Point:** 125°C (257°F)
- **Flash Point:** 5.6°C (42°F) (Closed cup)
- **Flammability:** Highly flammable liquid
- **Vapor Pressure:** 40 mmHg at 20°C
- **Vapor Density:** 5.6 (air = 1)
- **Relative Density:** 0.77 g/cm³ at 25°C
- **Solubility in Water:** Reacts violently
- **Partition Coefficient (n-octanol/water):** Not available
- **Auto-Ignition Temperature:** 270°C (518°F)
- **Decomposition Temperature:** Not determined
- **Viscosity:** Low viscosity

8. Stability and Reactivity

Stability: Stable under recommended storage conditions.

Hazardous Reactions: Reacts violently with water, releasing flammable and toxic vapors.

Conditions to Avoid: Heat, flames, static discharge, and contact with moisture or water.

Materials to Avoid: Strong oxidizers, acids, alkalis, water, and alcohols.

Hazardous Decomposition Products: Silica, nitrogen oxides, ammonia, and trace amounts of hydrogen chloride.

---

9. Toxicological Information

Acute Toxicity:

- **Oral LD50 (Rat):** >500 mg/kg
- **Dermal LD50 (Rabbit):** >200 mg/kg
- **Inhalation LC50 (Rat):** 4.6 mg/L (4-hour exposure)

Skin Corrosion/Irritation: Causes irritation and redness upon contact.

Eye Damage/Irritation: Causes severe eye damage and potential vision impairment.

Respiratory Sensitization: May cause respiratory irritation if inhaled.

Carcinogenicity: Not classified as carcinogenic by IARC, NTP, or OSHA.

Other Information: Prolonged or repeated exposure may lead to sensitization, irritation, or central nervous system depression.

---

10. Disposal Considerations

Waste Management: Dispose of contents and containers in compliance with local, state, and federal environmental regulations.

Recommendation: Do not dispose of in sewers, drains, or waterways. Use a licensed waste disposal contractor for proper material handling and disposal.

Packaging Disposal: Do not reuse containers. Dispose of the containers according to applicable regulations.