N,N-Dimethylacrylamide MSDS

Disclaimer: This Material Safety Data Sheet (MSDS) is provided for informational purposes only. It is intended for use by trained personnel with professional expertise. The user is solely responsible for evaluating the information and using the product safely, in compliance with all applicable laws and regulations.

1. Product Name and Identification

- **Product Name:** N,N-Dimethylacrylamide
- **CAS Number:** 2680-03-7
- **Synonyms:** DMAA, N,N-Dimethyl-2-propenamide
- **Chemical Formula:** C_5H_9NO

2. Composition/Ingredients

- **Chemical Name:** N,N-Dimethylacrylamide
- **Purity:** Typically supplied at ≥99% concentration. May contain a polymerization inhibitor.
- **Hazardous Component:** Yes

3. Hazards Identification

- **Physical Hazards:** Combustible liquid. Not classified as flammable, but will burn if heated. Uncontrolled polymerization can generate heat and pressure, potentially rupturing containers.
- **Health Hazards:** Toxic if swallowed. Harmful in contact with skin or if inhaled. Causes serious eye damage and skin irritation. May cause an allergic skin reaction. Suspected of causing genetic defects. Suspected of damaging fertility or the unborn child.
- **Environmental Hazards:** Harmful to aquatic life. Avoid release into the environment.

4. First Aid Measures

- **Inhalation:** Immediately move the exposed person to fresh air and keep them comfortable for breathing. If breathing is difficult or if symptoms persist, seek immediate medical attention.
- **Skin Contact:** Immediately take off all contaminated clothing. Rinse skin thoroughly with soap and plenty of water for at least 15-20 minutes. Seek immediate medical attention.
- **Eye Contact:** Immediately and cautiously rinse eyes with large amounts of water for at least 20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get immediate medical attention, preferably from an eye specialist.

- **Ingestion:** Do NOT induce vomiting. If the person is conscious, rinse their mouth with water. Seek immediate medical attention or call a poison control center. Never give anything by mouth to an unconscious person.

5. Handling and Storage

- **Handling:** Use only in a well-ventilated area or under a chemical fume hood. Avoid breathing vapors, mist, or spray. Avoid all contact with skin, eyes, and clothing. Wear appropriate personal protective equipment (PPE). Wash hands and other exposed areas thoroughly after handling.
- **Storage:** Store in a cool, dry, and well-ventilated area, away from direct sunlight and heat. Keep container tightly closed. Store away from incompatible materials such as strong acids, bases, oxidizing agents, and polymerization initiators. Product is typically stabilized; monitor inhibitor levels over time.

6. Exposure Controls/Personal Protection

- **Exposure Limits:** Consult applicable national and local regulations for specific occupational exposure limits.
- **Engineering Controls:** Use local exhaust ventilation to keep airborne concentrations below exposure limits. Ensure that eyewash stations and safety showers are readily accessible in the work area.
- **Personal Protective Equipment (PPE):**
    - **Eye/Face Protection:** Wear chemical safety goggles and a face shield to protect against splashes.
    - **Skin Protection:** Wear impervious gloves (e.g., butyl rubber, Viton®) and protective clothing, such as a lab coat or chemical-resistant apron, to prevent skin contact.
    - **Respiratory Protection:** If engineering controls are insufficient, use a NIOSH-approved respirator with an organic vapor cartridge.

7. Physical and Chemical Properties

- **Appearance:** Clear, colorless liquid
- **Odor:** Faint, amine-like odor
- **Boiling Point:** 171-172°C (340-342°F)
- **Melting Point:** Not available
- **Flash Point:** 70°C (158°F) (Closed Cup)
- **Solubility:** Miscible with water and most organic solvents.
- **Specific Gravity:** Approximately 0.96 g/cm^3 @ 20°C (68°F)
- **Vapor Pressure:** 0.68 mmHg @ 25°C (77°F)

8. Stability and Reactivity

- **Stability:** Stable under recommended storage conditions, typically contains an inhibitor to prevent polymerization. Uninhibited material can polymerize violently, especially when heated.
- **Reactivity:** Can undergo hazardous polymerization. Reacts with strong oxidizing agents, acids, and bases.
- **Conditions to Avoid:** High temperatures, direct sunlight, sources of ignition, and loss of inhibitor. Contact with incompatible materials.
- **Incompatible Materials:** Strong oxidizing agents, strong acids, strong bases, reducing agents, and free-radical initiators.
- **Hazardous Decomposition Products:** Upon combustion or thermal decomposition, can emit toxic fumes of carbon oxides (CO, CO_2) and nitrogen oxides (NOx).

9. Toxicological Information

- **Acute Effects:**
    - **Oral:** Toxic if swallowed. May cause severe gastrointestinal irritation.
    - **Dermal:** Harmful in contact with skin. Causes skin irritation and can be absorbed through the skin, contributing to systemic toxicity.
    - **Inhalation:** Harmful if inhaled. Vapors can irritate the respiratory system.
    - **Eyes:** Causes serious, potentially permanent eye damage.
- **Chronic Effects:** Suspected of causing genetic mutations based on available data. Suspected teratogen (may harm the unborn child). May cause sensitization by skin contact, leading to an allergic reaction on subsequent exposures.

10. Disposal Considerations

- **Disposal Method:** This material and its container must be disposed of as hazardous waste. Disposal must be carried out in strict accordance with all applicable federal, state, and local regulations. Do not allow product to enter drains or waterways. Engage a licensed professional waste management company for disposal.
- **Contaminated Packaging:** Empty containers may retain product residue and should be handled as hazardous waste. Do not reuse empty containers.