Hydroxypropyl Methacrylate MSDS

Disclaimer: This Material Safety Data Sheet (MSDS) is intended as a guide for trained personnel and provides information for the safe handling of this product. The user is responsible for determining the appropriateness of this information for their specific application and for ensuring compliance with all applicable laws and regulations.

1. Product Name and Identification

- **Product Name:** Hydroxypropyl Methacrylate
- **CAS Number:** 27813-02-1
- **Synonyms:** HPMA, 2-Hydroxypropyl methacrylate, Methacrylic acid, monoester with propane-1,2-diol
- **Chemical Formula:** $C_7H_{12}O_3$

2. Composition/Ingredients

- **Chemical Name:** Hydroxypropyl Methacrylate (mixture of isomers)
- **Concentration:** Typically supplied at ≥97% purity. Product usually contains a polymerization inhibitor (e.g., MEHQ).
- **Hazardous Component:** Yes

3. Hazards Identification

- **Physical Hazards:** Not classified as a physical hazard. It is a combustible liquid but not easily ignited. Uncontrolled polymerization can lead to a dangerous increase in heat and pressure.
- **Health Hazards:** Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction (sensitization). Inhalation of vapors or mists may cause irritation to the respiratory system.
- **Environmental Hazards:** Harmful to aquatic life. Releases into the environment should be avoided.

4. First Aid Measures

- **Inhalation:** Relocate the affected individual to an area with fresh air. If breathing difficulties or other respiratory symptoms occur, seek medical assistance.
- **Skin Contact:** Immediately remove contaminated clothing. Wash the affected skin area thoroughly with soap and a large volume of water for at least 15 minutes. If irritation or a rash develops, consult a physician.
- **Eye Contact:** Immediately flush the eyes with plenty of clean, lukewarm water for at least 15 minutes, holding the eyelids open to ensure the entire surface is rinsed. Remove contact lenses if present and easy to do. Seek immediate medical attention.

- **Ingestion:** Do not induce vomiting. If the individual is conscious, rinse their mouth with water. Contact a poison control center or seek medical help right away. Never administer anything by mouth to an unconscious person.

5. Handling and Storage

- **Handling:** Use in a well-ventilated area to minimize exposure. Avoid direct contact with skin, eyes, and clothing. Wear appropriate personal protective equipment (PPE). Wash hands thoroughly after handling. An eyewash station and safety shower should be readily accessible.
- **Storage:** Store in a cool, dry, and well-ventilated place, shielded from direct sunlight and heat sources. Keep the container tightly sealed. The product is stabilized; store under air (oxygen) to maintain inhibitor effectiveness. Store separately from incompatible materials like strong acids, bases, and polymerization initiators.

6. Exposure Controls/Personal Protection

- **Exposure Limits:** Follow all applicable national and local regulations for occupational exposure limits.
- **Engineering Controls:** Use local exhaust ventilation or other engineering controls to maintain airborne concentrations below recommended exposure limits.
- **Personal Protective Equipment (PPE):**
    - **Eye/Face Protection:** Wear chemical safety goggles or a face shield where splashing is a possibility.
    - **Skin Protection:** Wear impervious gloves (e.g., butyl rubber, nitrile rubber) and protective clothing like a lab coat to prevent skin contact.
    - **Respiratory Protection:** If engineering controls are not sufficient to control exposure, use a NIOSH-approved respirator with an organic vapor cartridge.

7. Physical and Chemical Properties

- **Appearance:** Clear, colorless liquid
- **Odor:** Mild, ester-like
- **Boiling Point:** Approximately 205-208°C (401-406°F)
- **Melting Point:** -48°C (-54°F)
- **Flash Point:** Approximately 96°C (205°F) (Closed Cup)
- **Solubility:** Slightly soluble in water; miscible with many organic solvents.
- **Specific Gravity:** Approximately 1.03 g/cm^3 @ 20°C (68°F)
- **Vapor Pressure:** <0.1 mmHg @ 20°C (68°F)

8. Stability and Reactivity

- **Stability:** Stable under recommended storage conditions, provided the inhibitor is maintained. Can undergo hazardous polymerization.

- **Reactivity:** Polymerization can be initiated by heat, light, peroxides, or other free-radical initiators.
- **Conditions to Avoid:** Exposure to high temperatures, direct sunlight, UV radiation, and loss of inhibitor. Freezing may cause inhibitor separation.
- **Incompatible Materials:** Strong oxidizing agents, strong acids, strong bases, reducing agents, and polymerization catalysts.
- **Hazardous Decomposition Products:** Thermal decomposition can release irritating and toxic fumes, including carbon monoxide (CO) and carbon dioxide (CO_2).

9. Toxicological Information

- **Acute Effects:**
    - **Oral:** Low toxicity if swallowed. Ingestion may cause gastrointestinal irritation.
    - **Dermal:** Causes skin irritation. May be absorbed through the skin, but systemic toxicity is low.
    - **Inhalation:** Inhalation of vapors or mists may cause irritation to the nose, throat, and lungs.
    - **Eyes:** Causes serious eye irritation, including redness, pain, and potential damage.
- **Chronic Effects:** This material is a skin sensitizer. Prolonged or repeated contact may cause an allergic skin reaction (dermatitis) in susceptible individuals.

10. Disposal Considerations

- **Disposal Method:** Dispose of waste material and containers in strict accordance with all applicable federal, state, and local environmental regulations. This substance should not be discharged into sewers or waterways. Disposal should be managed by a licensed waste disposal company. The potential for polymerization should be considered.
- **Contaminated Packaging:** Empty containers may retain product residue and should be handled as hazardous. Do not reuse containers. They should be disposed of in the same manner as the product.