Methacrylic Acid MSDS

1. Product Name and Identification

Product Name: Methacrylic Acid

CAS Number: 79-41-4

Recommended Use: Industrial chemical, polymer production

Restrictions on Use: Not recommended for consumer use without appropriate training

Manufacturer/Supplier:

[Include a placeholder for user/company details, e.g., Company Name, Address, Emergency Contact]

2. Composition/Ingredients

Chemical Name: Methacrylic Acid

Synonyms: 2-Methylpropenoic acid

CAS Number: 79-41-4

Composition:

- **Methacrylic Acid:** >95%
- **Non-hazardous Impurities:** <5%

Molecular Formula: $C_4H_6O_2$

Molecular Weight: 86.09 g/mol

3. Hazards Identification

Classification:

- Corrosive to skin (Category 1B)
- Eye damage (Category 1)
- Flammable liquid (Category 3)
- Acute toxicity, inhalation (Category 4)

Label Elements:

- **Signal Word:** Danger
- **Hazard Statements:**
    - Causes severe skin burns and eye damage
    - May cause respiratory irritation

    - Flammable liquid and vapor
- **Precautionary Statements:**
    - Keep away from heat, sparks, and open flames
    - Use protective equipment when handling
    - Avoid breathing mist, vapor, or spray

Other Hazards:

May cause environmental harm, particularly to aquatic life in high concentrations.

4. First Aid Measures

General Advice:

Seek medical attention immediately in all cases of exposure.

- **If inhaled:** Move to fresh air. If breathing is difficult, administer oxygen. Seek medical advice if symptoms persist.
- **If on skin:** Remove contaminated clothing immediately. Rinse affected area with plenty of water. Get medical attention if irritation or burns occur.
- **If in eyes:** Rinse thoroughly with water for at least 15 minutes, lifting eyelids occasionally. Seek immediate medical attention.
- **If ingested:** Do not induce vomiting. Rinse mouth thoroughly with water and contact medical services.

Most Important Symptoms:

Burns, eye damage, difficulty breathing, and irritation of the respiratory tract.

Notes for Physicians:

Treat symptoms. Provide supportive care as required.

5. Handling and Storage

Handling:

- Wear appropriate personal protective equipment (PPE).
- Ensure adequate ventilation when handling the liquid.
- Avoid contact with skin, eyes, and respiratory system. Prevent fires by keeping away from ignition sources.

Storage:

- Store in a cool, dry, and well-ventilated area.
- Keep containers tightly closed and away from incompatible substances such as oxidizers and strong reducing agents.

Storage Temperature: Room temperature (15-25°C). Avoid freezing.

6. Exposure Controls/Personal Protection

Occupational Exposure Limits (OEL):

- **ACGIH TLV:** 20 ppm (8-hour TWA)
- **OSHA PEL:** 40 ppm (8-hour TWA)

Engineering Controls:

- Use fume hoods or local exhaust systems to maintain airborne levels below permissible exposure limits.

Personal Protective Equipment (PPE):

- **Respiratory Protection:** Wear respiratory protection if ventilation is inadequate.
- **Hand Protection:** Wear chemical-resistant gloves (e.g., nitrile or butyl rubber).
- **Eye Protection:** Use safety goggles or a full-face shield.
- **Skin/Body Protection:** Use protective aprons or suits made of chemical-resistant material.

7. Physical and Chemical Properties

- **Appearance:** Clear, colorless liquid
- **Odor:** Pungent, acrylic-like odor
- **Odor Threshold:** ~0.2 ppm
- **pH:** Acidic
- **Melting Point:** ~16°C (60.8°F)
- **Boiling Point:** ~163°C (325.4°F)
- **Flash Point:** 67°C (152.6°F) (closed cup)
- **Flammability:** Flammable
- **Vapor Pressure:** 0.7 kPa at 20°C
- **Density:** 1.014 g/cm³
- **Solubility:** Soluble in water, alcohols, and organic solvents

8. Stability and Reactivity

Reactivity: Reactive with bases and oxidizing agents.

Chemical Stability: Stable under recommended storage conditions.

Hazardous Reactions:

- Polymerization may occur in the presence of heat or light if an inhibitor is absent.
- Releases toxic fumes, including carbon monoxide and carbon dioxide, when degraded at high temperatures.

Conditions to Avoid: High temperatures, open flames, incompatibles, and light exposure.

Materials to Avoid: Strong oxidizers, bases, reducing agents, and combustible materials.

Hazardous Decomposition Products: Carbon oxides and other toxic fumes.

9. Toxicological Information

Routes of Exposure: Inhalation, skin/eye contact, ingestion.

Acute Toxicity:

- **Oral LD50 (Rat):** 1,060 mg/kg
- **Dermal LD50 (Rabbit):** 500-1,500 mg/kg
- **Inhalation LC50 (Rat, 4h):** ~7.1 mg/L

Chronic Effects:

- Long-term exposure may cause respiratory sensitization and skin allergies.

Symptoms: Burns, respiratory distress, nausea, and headache.

Carcinogenicity: Not classified as carcinogenic under EPA, IARC, or OSHA guidelines.

10. Disposal Considerations

Waste Disposal:

Dispose of as hazardous waste per federal, state, or local regulations. Avoid release into waterways.

Packaging Disposal:

Ensure containers are free from residues. Dispose of packaging in accordance with applicable environmental regulations.

This MSDS outlines essential safety information regarding Methacrylic Acid. Always handle chemicals with caution and refer to professional guidelines for continued compliance.