Methyl Methacrylate MSDS

1. Product Name and Identification

Product Name: Methyl Methacrylate (MMA)

Synonyms: Methyl 2-methylprop-2-enoate, Methacrylic acid methyl ester

CAS Number: 80-62-6

Relevant Identifiers: EINECS No. 201-297-1, UN No. 1247

2. Composition/Ingredients

Chemical Composition:

- **Methyl Methacrylate** (Main Ingredient): 100%

CAS Number: 80-62-6

3. Hazards Identification

Classification:

- **Physical Hazards**:
  - Highly flammable liquid and vapor.
- **Health Hazards**:
  - May cause irritation to the skin, eyes, and respiratory system.
  - Risk of severe allergic skin reaction.
  - May cause dizziness and drowsiness with excessive exposure.
- **Environmental Hazards**:
  - Harmful to aquatic life with long-term effects.

Signal Word: DANGER

Precautionary Statements:

- Keep away from sparks, open flames, and hot surfaces.
- Avoid breathing vapors. Use only in well-ventilated areas.
- Protect skin with gloves and avoid skin contact.

4. First Aid Measures

- **Inhalation**:
  - Move the affected person to fresh air immediately.

    - If breathing is difficult or symptoms like dizziness persist, seek medical attention.
- **Skin Contact**:
    - Wash thoroughly with soap and water.
    - Remove any contaminated clothing. If irritation develops, consult a doctor.
- **Eye Contact**:
    - Rinse eyes gently with water for at least 15 minutes.
    - If irritation continues, seek medical advice.
- **Ingestion**:
    - Do NOT induce vomiting. Rinse the mouth with water.
    - Seek immediate medical attention.

5. Handling and Storage

Handling:

- Avoid open flames, sparks, and heat sources during handling.
- Use explosion-proof equipment and electrical systems.
- Prevent inhalation of vapors by using adequate ventilation.

Storage:

- Store in a cool, dry, and well-ventilated area away from direct sunlight.
- Use tightly sealed containers to prevent contamination or evaporation.
- Keep away from incompatible materials such as strong oxidizers and acids.

6. Exposure Controls/Personal Protection

Exposure Limits:

- OSHA PEL-TWA (8 hours): 100 ppm
- ACGIH TLV-TWA (8 hours): 50 ppm

Engineering Controls:

- Use local exhaust ventilation or appropriate engineering controls to maintain airborne concentrations below permissible limits.

Personal Protective Equipment (PPE):

- **Respiratory Protection**:
    - When ventilation is inadequate, use a suitable respirator with organic vapor cartridges.
- **Eye/Face Protection**:
    - Safety goggles or a face shield should be worn to avoid eye contact.

- **Skin Protection**:
    - Use protective gloves, such as nitrile or butyl rubber.
- **Body Protection**:
    - Wear chemical-resistant clothing to minimize skin exposure.

7. Physical and Chemical Properties

- **Appearance**: Clear, colorless liquid
- **Odor**: Fruity, ester-like smell
- **Boiling Point**: 100-101°C (212-214°F)
- **Melting Point**: -48°C (-54°F)
- **Solubility in Water**: Slightly soluble (1.6 g/L at 20°C)
- **Vapor Pressure**: 40 mmHg at 20°C
- **Density**: 0.94 g/cm^3 at 20°C
- **Flash Point**: 10°C (50°F) (closed cup)
- **pH**: Not applicable

8. Stability and Reactivity

Stability:

- Stable under recommended storage and normal temperature conditions.
- Avoid exposure to heat, spark, and open flame to prevent polymerization.

Conditions to Avoid:

- Avoid high temperatures, static discharge, and sources of ignition.
- Protect from prolonged exposure to daylight.

Hazardous Reactions:

- Polymerizes violently under exposure to heat or initiators without proper inhibitors.
- Reacts with oxidizing agents, acids, and alkalis, releasing heat and hazardous gases.

Hazardous Decomposition Products:

- Carbon monoxide, carbon dioxide, and other potentially toxic fumes may form during decomposition.

9. Toxicological Information

- **Acute Toxicity**:
    - **Oral LD50** (rat): 7,872 mg/kg
    - **Dermal LD50** (rabbit): > 5,000 mg/kg

        - **Inhalation LC50** (rat, 4 hours): 29.8 mg/L
- **Skin Sensitization**:
    - Known to cause allergic reactions after prolonged contact.
- **Chronic Exposure**:
    - Long-term exposure to vapors or skin contact may damage the liver and kidneys.
- **Carcinogenicity**:
    - Not classified as a known human carcinogen at typical industrial exposure levels.
- **Irritation**:
    - Causes irritation to skin, eyes, and upper respiratory tract.

10. Disposal Considerations

Disposal Guidance:

- Dispose of product and contaminated packaging in compliance with local, state, and federal regulations.
- Incinerate in authorized facilities or contract with a chemical waste management service.
- Avoid releasing contents to drains or natural water systems.

Note: Always handle materials in accordance with existing legal and regulatory requirements in your jurisdiction.