3-Nitrobenzenesulfonyl Chloride MSDS

1. Product Name and Identification

Product Name: 3-Nitrobenzenesulfonyl Chloride

Synonyms: 3-Nitrobenzene-1-sulfonyl chloride

CAS Number: 121-51-7

Relevant Identifiers: UN No. 3261

2. Composition/Ingredients

Chemical Composition:

- **Main Ingredient**: 3-Nitrobenzenesulfonyl Chloride
- **Concentration**: ≥ 99%

CAS Number: 121-51-7

3. Hazards Identification

Classification:

- **Physical Hazards**: Reacts violently with water; emits toxic fumes when decomposing.
- **Health Hazards**:
  - Causes severe skin burns and eye damage.
  - Harmful if inhaled or swallowed.
- **Environmental Hazards**:
  - Hazardous to aquatic life due to pH-altering effects.

Label Elements:

- **Signal Word**: DANGER
- **Hazard Statements**:
  - H314 – Causes severe skin burns and eye damage.
  - H335 – May cause respiratory irritation.
  - H402 – Harmful to aquatic life.

Precautionary Statements:

- Wear appropriate personal protective equipment (PPE).
- Avoid inhalation of vapor or dust.
- Do not allow product to enter waterways.

4. First Aid Measures

- **Inhalation**: Move affected person to fresh air immediately. If breathing is difficult, provide oxygen and seek medical attention.
- **Skin Contact**: Remove contaminated clothing and rinse skin thoroughly with water for at least 15 minutes. Seek medical attention if irritation persists.
- **Eye Contact**: Rinse eyes cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing and seek medical attention immediately.
- **Ingestion**: Do NOT induce vomiting. Rinse mouth with water and seek immediate medical attention.

5. Handling and Storage

Handling:

- Avoid contact with skin, eyes, and clothing.
- Handle in a chemical fume hood to prevent inhalation.
- Use non-reactive tools and containers.

Storage:

- Store in a cool, dry, and well-ventilated area.
- Keep away from water, heat, and incompatible materials such as alkalis.
- Ensure the container is tightly closed to prevent moisture ingress.

6. Exposure Controls/Personal Protection

Exposure Limits:

- No specific occupational exposure limits available. Handle with caution.

Engineering Controls:

- Ensure use of local exhaust ventilation or enclosure mechanisms to control exposure levels.

Personal Protective Equipment (PPE):

- **Respiratory Protection**: Full-face respirator with acid gas/organic vapor cartridges.
- **Skin Protection**: Chemical-resistant gloves (e.g., neoprene or nitrile).
- **Eye Protection**: Safety goggles or face shield.
- **Body Protection**: Full chemical-resistant suit, including closed footwear and aprons.

7. Physical and Chemical Properties

- **Appearance**: Yellow to light brown crystalline solid
- **Odor**: Pungent

- **Boiling Point**: Not applicable (decomposes before boiling)
- **Melting Point**: 90–95°C (194–203°F)
- **Solubility in Water**: Reacts violently with water
- **Vapor Pressure**: Negligible at room temperature
- **Density**: 1.58 g/cm^3
- **pH**: Highly acidic in water (reactive)

8. Stability and Reactivity

Stability:

- Stable under recommended handling and storage conditions.

Conditions to Avoid:

- Exposure to moisture, heat, or direct sunlight should be avoided.

Hazardous Reactions:

- Reacts with water or moisture to produce toxic and corrosive fumes.
- Reacts violently with strong bases.

Decomposition:

- Decomposes to release hydrogen chloride and nitrogen oxides (NOx).

9. Toxicological Information

- **Acute Toxicity**:
  - Harmful if inhaled, ingested, or absorbs through the skin.
  - LD50 (Oral, rat): ~500 mg/kg (estimated)
- **Irritation**:
  - Severe irritation and burns to skin and mucous membranes upon contact.
- **Chronic Toxicity**:
  - Long-term exposure may result in respiratory irritation or damage.
- **Sensitization**:
  - Not classified as a sensitizer but may enhance allergy symptoms.

10. Disposal Considerations

Disposal Methods:

- Dispose of in accordance with local, regional, and national regulations.
- Neutralize small quantities using a weak base under controlled conditions.
- For large amounts, use licensed chemical waste management facilities.

Environmental Precautions:

- Prevent product leakage to water systems or sewers.
- Avoid uncontrolled reactions to minimize environmental impact.

Note: Always check applicable regulations and standards for specific guidance in your location.