Oxalic Acid MSDS

1. Product Name and Identification

Product Name: Oxalic Acid
Synonyms: Ethanedioic Acid, Dicarboxylic Acid
Product CAS Number: 144-62-7
Recommended Use: Used in cleaning agents, rust removal, bleaching, and as a reducing agent in various industrial applications.
Manufacturer/Distributor: [Insert Manufacturer Details Here]
Emergency Contact: [Insert Emergency Contact Information Here]

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2. Composition/Ingredients

Chemical Name: Oxalic Acid
CAS Number: 144-62-7
Chemical Formula: $C_2H_2O_4$
Molecular Weight: 90.03 g/mol
Concentration: 100% (in pure form)
Impurities/Additives: None reported.

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3. Hazards Identification

Classification of the Substance:

- Acute Toxicity (Oral) (Category 4)
- Skin Corrosion/Irritation (Category 1B)
- Serious Eye Damage/Eye Irritation (Category 1)
- Specific Target Organ Toxicity - Repeated Exposure (Category 2)

Label Elements:

- **Signal Word:** Danger
- **Hazard Statements:**
  - H302: Harmful if swallowed.
  - H314: Causes severe skin burns and eye damage.
  - H373: May cause damage to kidneys by repeated exposure if swallowed.

Precautionary Statements:

- **Prevention:**
  - Do not breathe dust or vapors.
  - Wear protective gloves, clothing, and eye/face protection.
  - Wash hands thoroughly after handling.
- **Response:**
  - IF INHALED: Move to fresh air and rest in a position comfortable for breathing. Seek medical help immediately.
  - IF ON SKIN (or hair): Rinse immediately with plenty of water and remove contaminated clothing. Seek medical attention.
  - IF IN EYES: Rinse cautiously with water. Remove contact lenses if present and easy to do. Seek medical attention immediately.
- **Storage and Disposal:**
  - Store in a cool, dry place, tightly sealed within a well-ventilated area.
  - Dispose of contents/container following local regulations.

Other Hazards:

Contact with incompatible substances, such as strong oxidizers or bases, can lead to hazardous reactions.

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4. First Aid Measures

General Advice:

Seek medical assistance promptly for all exposures. Show this MSDS to healthcare providers.

- **Eye Contact:** Immediately rinse eyes with clean water for at least 15 minutes. Remove contact lenses if possible. Seek urgent medical attention.
- **Skin Contact:** Rinse skin thoroughly under water for 15 minutes. Remove all contaminated clothing. Seek medical help if burns or irritation develop.
- **Inhalation:** Move the person to fresh air and provide artificial respiration if they are not breathing. Administer oxygen if breathing is difficult. Seek immediate medical attention.
- **Ingestion:** Do NOT induce vomiting. Rinse mouth with water and give small sips of water if the person is conscious. Contact a physician immediately.

Symptoms of Exposure:

Severe burns to tissue, intense irritation to the respiratory system, difficulty breathing, and kidney damage if ingested in high quantities.

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5. Handling and Storage

Handling:

- Always use in a well-ventilated environment.
- Avoid contact with skin, eyes, and clothing.
- Do not inhale fumes or particles. Take precautions to avoid dust formation.
- Handle only with proper personal protective equipment.

Storage:

- Store in a cool, dry, and well-ventilated area.
- Keep container tightly closed and away from ignition sources, moisture, and incompatible materials such as strong oxidizers and bases.
- Ensure proper labeling and avoid prolonged exposure to air.

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6. Exposure Controls/Personal Protection

Control Parameters:

- **OSHA PEL:** 1 mg/m³ (TWA)
- **ACGIH TLV:** 1 mg/m³ (TWA), 2 mg/m³ (STEL)

Engineering Controls:

- Provide adequate local exhaust ventilation to maintain airborne concentrations below permissible exposure limits.
- Install eye wash stations and emergency showers nearby.

Personal Protective Equipment (PPE):

- **Eye/Face Protection:** Safety goggles or face shields (ANSI-approved).
- **Skin Protection:** Wear chemical-resistant gloves (e.g., nitrile or butyl rubber) and impervious clothing.
- **Respiratory Protection:** Use an approved respirator for hazardous dust, if ventilation is inadequate.

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7. Physical and Chemical Properties

- **Appearance:** White crystalline solid
- **Odor:** Odorless
- **Odor Threshold:** Not applicable
- **pH:** ~1.3 (5% solution)

- **Melting Point:** 101-102°C (decomposes)
- **Boiling Point:** Not applicable (decomposes)
- **Flash Point:** Not flammable
- **Flammability:** Non-flammable solid
- **Vapor Pressure:** Negligible
- **Density:** ~1.9 g/cm³
- **Solubility:** Highly soluble in water (~9% at 25°C)
- **Viscosity:** Not applicable

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8. Stability and Reactivity

Stability:

Stable under recommended storage and handling conditions.

Reactivity:

Reacts with alkaline materials and oxidizing agents.

Conditions to Avoid:

Moisture, high temperatures, and prolonged exposure to air.

Hazardous Reactions:

- Reacts with bases to produce heat and gas.
- Decomposes upon heating to release carbon monoxide and carbon dioxide.

Decomposition Products:

Carbon dioxide (CO_2), Carbon monoxide (CO), water vapor.

Incompatible Materials:

Strong oxidizing agents, ammonia, and alkalis.

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9. Toxicological Information

Acute Toxicity:

- **Oral LD50 (rat):** ~375 mg/kg (harmful if swallowed).
- **Dermal LD50 (rabbit):** ~200-400 mg/kg (causes severe skin irritation or burns).

Skin and Eye Contact:

Can cause significant tissue damage to the skin and eyes upon contact.

Chronic Exposure:

Prolonged or repeated contact may cause kidney damage or systemic toxicity.

Carcinogenicity:

Not classified as carcinogenic by IARC, ACGIH, NTP, or OSHA.

Other Information:

Prolonged inhalation may cause respiratory damage. Symptoms of exposure may include coughing, shortness of breath, and tissue burns.

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10. Disposal Considerations

- Dispose of waste in accordance with federal, state, and local environmental regulations.
- Do not allow material to enter soil, waterways, or sewers.
- Incinerate waste or deliver to an approved hazardous solid waste disposal site.
- Ensure containers are properly labeled and completely emptied before disposal.
