

Mallinckrodt Material Safety Data

Emergency Phone Number: 314-982-5000

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Mallinckrodt, Inc., Science Products Division, P. O. Box M, Paris, KY 40361.

OXALIC ACID

PRODUCT IDENTIFICATION:

Synonyms: Ethanedioic acid; ortho-oxalic acid; oxalic acid dihydrate

Formula CAS No.: 6153-56-6 (Dihydrate)

TSCA CAS No.: 144-62-7 (Anhydrous)

Molecular Weight: 126.07

Chemical Formula: $C_2H_2O_4 \cdot 2H_2O$

Hazardous Ingredients: None.

PRECAUTIONARY MEASURES

WARNING! HARMFUL IF SWALLOWED. CAUSES IRRITATION.

Wash thoroughly after handling.

Do not get in eyes, on skin, or on clothing.

This substance is classified as a POISON under the Federal Caustic Poison Act.

EMERGENCY/FIRST AID

If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.

SEE SECTION 5.

DOT Hazard Class: Corrosive Material

SECTION 1 Physical Data

Appearance: Transparent, colorless crystals.

Odor: Odorless.

Solubility: 10 g/100 ml water @ 15°C (59°F)

Boiling Point: Sublimes @ 149°-160°C (300°-320°F)

Melting Point: 101.5°C (214.7°F)

Specific Gravity: 1.65

Vapor Density (Air = 1): 4.4

Vapor Pressure (mm Hg): <0.001 @20°C (68°F)

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:

Oxalic Acid is a combustible solid below 101°C (215°F)

Explosion:

Reacts explosively with strong oxidizing materials and some silver compounds.

Fire Extinguishing Media:

Water spray, dry chemical, alcohol foam, or carbon dioxide. Foam or water on molten oxalic acid may cause frothing. Water spray may be used to keep fire exposed containers cool.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:

Heat will contribute to instability.

Hazardous Decomposition Products:

May form carbon monoxide, carbon dioxide and formic acid when heated to decomposition.

Hazardous Polymerization:

No information found.

Incompatibilities:

Alkalies, chlorites, hypochlorites, oxidizing agents, furfuryl alcohol and silver compounds.

SECTION 4 Leak/Spill Disposal Information

Ventilate area or leak or spill. Clean-up personnel may require protective clothing and respiratory protection from dust.

Spills: Sweep up and containerize for reclamation or disposal. Avoid dust dispersal. Trace residue may be neutralized with sodium bicarbonate or soda ash.

Disposal: Whatever cannot be saved for reclamation may be disposed as hazardous waste in a RCRA approved waste disposal facility.

Ensure compliance with local, state and federal regulations.

NFPA Ratings: Health: 2 Flammability: 1 Reactivity: 0

Effective Date: 07-15-85

OXALIC ACID

SECTION 5 Health Hazard Information**A. EXPOSURE / HEALTH EFFECTS****Inhalation:**

May cause irritation of mucous membranes.

Ingestion:

Toxic! May cause burns, nausea, severe gastroenteritis, shock and convulsions. May cause renal damage. Estimate fatal dose is 5 to 15 grams.

Skin Contact:

Can cause severe burns.

Eye Contact:

Oxalic acid is an eye irritant. It may produce corrosive effects.

Chronic Exposure:

May cause inflammation of the upper respiratory tract. Prolonged skin contact can cause dermatitis, cyanosis of the fingers and possible ulceration.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems, or impaired kidney or respiratory function may be more susceptible to the effects of the substance.

B. FIRST AID**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

If swallowed, DO NOT induce vomiting. Give large quantities of water or milk if available. Call a physician immediately. Never give anything by mouth to an unconscious person.

Skin Exposure:

Remove any contaminated clothing. Wipe off excess from skin. Wash skin with plenty of water for at least 15 minutes. Get medical attention promptly.

Eye Exposure:

Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

Oral rat LD50 : 375 mg/kg Irritation : skin rabbit
500 mg/24H Moderate . eye rabbit 250 micrograms/24H
Severe

SECTION 6 Occupational Control Measures**Airborne Exposure Limits:**

OSHA Permissible Exposure Limit (PEL) :

1 mg/m³ (TWA)

ACGIH Threshold Limit Value (TLV) :

1 mg/m³ (TWA); 2mg/m³ (STEL) (Anhydrous)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)

If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities.

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OXALA