OXALIC ACID

Material Safety Data Sheet

Mallinckrodt Chemical, Inc.
P.O. Box 800
Paris, Kentucky 40362

Emergency Telephone Number
314-539-1600

Effective Date: 04-14-93 Supersedes 04-06-89

PRODUCT IDENTIFICATION:

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

Formula CAS No.: 6153-56-6 (Dihydrate) Molecular Weight: 126.07
TSCA CAS No.: 144-62-7 (Anhydrous)
Hazardous Ingredients: Oxalic acid Chemical Formula: C2H2O4 2H2O

PRECAUTIONARY MEASURES

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT. MAY CAUSE KIDNEY DAMAGE.

Avoid breathing dust.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
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. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

Physical Data — SECTION 1

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)

Vapor Density (Air=1):4.4

Melting Point: 101.5 C (214.7 F)

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

Specific Gravity : 1.65

Evaporation Rate:No information found.

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

Fire and Explosion Information — SECTION 2

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.

Reactivity Data — SECTION 3

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.

Leak/Spill Disposal Information — SECTION 4

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 facilty.

Ensure compliance with local, state and federal regulations.

Health Hazard Information — SECTION 5

A. Exposure/Health Effects

Inhalation: Harmful if inhaled. Can cause severe irritation of nose, throat, respiratorty tract.

Ingestion: Toxic! May cause burns, nausea, severe gastroenteritis and vomiting, shock and convulsions. May cause renal damage, as evidenced by bloody urine. Estimate fatal dose is 5 to 15 grams.

Skin Contact: Can cause severe irritation, possible skin 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. May affect kidneys.

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. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

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 (RTECS, 1993)

Oral rat LD50: 7500 mg/kg; irritation: skin rabbit 500 mg/24H mild; eye rabbit 250 ug/24H severe; investigated as a reproductive effector.

Occupational Control Measures SECTION 6

Airborne Exposure Limits: -OSHA Permissible Exposure Limit (PEL) : 1 mg/m3 (TWA), 2 mg/m3 (STEL) -ACGIH Threshold Limit Value (TLV) : 1 mg/m3 (TWA), 2 mg/m3 (STEL)

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, as appropriate, 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.

Storage and Special Information SECTION 7

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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PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

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OXALA

Addendum to Material Safety Data Sheet

REGULATORY STATUS

Hazard Categories for SARA
Section 311/312 Reporting

Acute	Chronic	Fire	Pressure	Reactive
X	X			

Product or Components of Product:	SARA EHS Sec. 302 RQ	SARA EHS Sec. 302 TPQ	SARA Sec. 313 Chemicals Name List	SARA Sec. 313 Chemicals Chemical Category	CERCLA Sec.103 RQ lbs	RCRA Sec. 261.33
OXALIC ACID (144-62-7)	No	No	No	No	No	No

SARA Section 302 EHS RQ:
Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ:
Threshold Planning Quantity of Extremely Hazardous substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS.

SARA Section 313 Chemicals:
Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.

CERCLA Sec. 103:
Comprehensive Enviromental Response, Compensation and Liability Act (Superfund) Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4

RCRA:
Resource Conservation and Recovery Act. Commercial chemical product wastes designated as acute hazards or toxic under 40 CFR 261.33