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MSDS OF OXALIC ACID

1. Product Identification

Synonyms: Ethanedioic acid, dihydrate; oxalic acid dihydrate

CAS No.: 144-62-7 (Anhydrous); 6153-56-6 (Dihydrate)

Molecular Weight: 126.07

Chemical Formula: HOCCOOH.2H₂O

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Oxalic Acid	144-62-7	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

POISON! DANGER! MAY BE FATAL IF SWALLOWED. CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE KIDNEY DAMAGE.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: White (Corrosive)

Potential Health Effects

Oxalic acid is corrosive to tissue. When ingested, oxalic acid removes calcium from the blood. Kidney damage can be expected as the calcium is removed from the blood in the form of calcium oxalate. The calcium oxalate then obstructs the kidney tubules.

Inhalation:

Harmful if inhaled. Can cause severe irritation and burns of nose, throat, and respiratory 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. May be absorbed through the skin.

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.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion:

DO NOT INDUCE VOMITING! Give large quantities of limewater or milk to drink. Never give anything by mouth to an unconscious person. Call a physician immediately.

Skin Contact:

In case of contact, wipe off excess from skin then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

Eye Contact:

Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

5. Fire Fighting Measures

Fire:

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

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.

6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.

Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Pick up spill for recovery or disposal and place in a closed container. Remove unnecessary people. If material comes in contact with water, neutralize liquid with alkaline material (soda ash, lime), then absorb with an inert material (e.g. vermiculite, dry sand, earth) and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer.

7. Handling and Storage

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. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-ACGIH Threshold Limit Value (TLV) :

1 mg/m³ (TWA), 2 mg/m³ (STEL)

-OSHA Permissible Exposure Limit (PEL):

1 mg/m³

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 exposure limit is exceeded, a half-face respirator with an organic vapor cartridge and dust/mist filter may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor cartridge and dust/mist filter may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

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. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Transparent, colorless crystals.

Odor: Odorless.

Solubility: ca. 1g/7mL of water.

Specific Gravity: 1.65 @ 18.5C/4C

pH: No information found.

% Volatiles by volume @ 21C (70F): 0

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

Melting Point: 101.5C (216F)

Vapor Density (Air=1): 4.4

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

Evaporation Rate (BuAc=1): No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Heat will contribute to instability.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition. May also form formic acid.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

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

Conditions to Avoid:

Heat, ignition sources and incompatibilites.

11. Toxicological Information

Oral rat LD50: 375 mg/kg; irritation skin rabbit: 500 mg/24H mild; eye rabbit 250 ug/24H severe; investigated as a reproductive effector.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Oxalic Acid (144-62-7)	No	No	None

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: CORROSIVE,SOLID,ACIDIC,ORGANIC N.O.S.
(OXALIC ACID,DIHYDRATE)

Hazard Class: 8

UN/NA: UN3261

Packing Group: III

Information reported for product/size: 12KG

International (Water, I.M.O.)

Proper Shipping Name: CORROSIVE,SOLID,ACIDIC,ORGANIC N.O.S.
(OXALIC ACID,DIHYDRATE)

Hazard Class: 8

UN/NA: UN3261

Packing Group: III

Information reported for product/size: 12KG

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	Australia
Oxalic Acid (144-62-7)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----				
Ingredient	--Canada--			
	Korea	DSL	NDSL	Phil.
Oxalic Acid (144-62-7)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-		-SARA 313-	
	RQ	TPQ	List	Chemical Catg.
Oxalic Acid (144-62-7)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
Ingredient	GERCLA	-RCRA-	-TSCA-
		261.33	8(d)
Oxalic Acid (144-62-7)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Mixture / Solid)

Australian Hazchem Code: 2X

Poison Schedule: S6

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 3 Flammability: 1 Reactivity: 0

Label Hazard Warning:

POISON! DANGER! MAY BE FATAL IF SWALLOWED. CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE KIDNEY DAMAGE.

Label Precautions:

Do not breathe dust.
Do not get in eyes, on skin, or on clothing.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING! Give large quantities of lime water or milk to drink. 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, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician immediately.