Oxalic acid SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

* Product Name: Oxalic acid
* Catalog Number: S9354
* CAS Number: 144-62-7
* IUPAC Name: Ethanedioic acid

Relevant identified uses and uses advised against

* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

* Company: Selleck Chemicals
* TollFree: +1 877 796-6397
* Tel: +1 832 582-8158
* Fax: +1 832 582-8590

Emergency telephone number

* Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Acute toxicity (oral): Category 4. H302
Acute toxicity (dermal): Category 4. H312
Skin corrosion: Category 1. H314
Skin irritation: Category 2. H315
Serious eye damage: Category 1. H318
Specific target organ toxicity (single exposure): Category 3. H335
Reproductive toxicity: Category 2. H361
Specific target organ toxicity (single exposure): Category 1. H370
Specific target organ toxicity (single exposure): Category 2. H371
Specific target organ toxicity (repeated exposure): Category 1. H372
Specific target organ toxicity (repeated exposure): Category 2. H373
Acute aquatic toxicity: Category 3. H402
Chronic aquatic toxicity: Category 3. H412

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)

Signal Word Danger

Hazard statement(s)	H302: Harmful if swallowed H312: Harmful in contact with skin H314: Causes severe skin burns and eye damage H315: Causes skin irritation H318: Causes serious eye damage H335: May cause respiratory irritation H361: Suspected of damaging fertility or the unborn child H370: Causes damage to organs H371: May cause damage to organs H372: Causes damage to organs through prolonged or repeated exposure H373: May causes damage to organs through prolonged or repeated exposure H402: Harmful to aquatic life H412: Harmful to aquatic life with long lasting effects
Precautionary statement(s)	None.
Prevention	P203: Obtain, read and follow all safety instructions before use. P260: Do not breathe dust/fume/gas/mist/vapors/spray. P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P264: Wash hands thoroughly after handling. P264+P265: Wash hands thoroughly after handling. Do not touch eyes. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
Response	P301+P317: IF SWALLOWED: Get medical help. P301+P330: IF SWALLOWED: Rinse mouth. P302+P352: IF ON SKIN: wash with plenty of water. P302+P361: IF ON SKIN: Take off immediately all contaminated clothing. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P354: IF IN EYES: Immediately rinse with water for several minutes. P308+P316: IF exposed or concerned: Get emergency medical help immediately. P316: Get emergency medical help immediately. P317: Get emergency medical help. P318: if exposed or concerned, get medical advice. P319: Get medical help if you feel unwell. P321: Specific treatment (see information on this label and safety datasheet)). P330: Rinse mouth. P331: Do NOT induce vomiting. P332+P317: If skin irritation occurs: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P354: Immediately rinse with water for several minutes. P362+P364: Take off contaminated clothing and wash it before reuse. P363: Wash contaminated clothing before reuse.
Storage	P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Oxalic acid

CAS Number: 144-62-7

PubChem CID: 971

Molecular formula: C2H2O4

Molecular weight: 90.03 g/mol

IUPAC name: oxalic acid

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest. Half-upright position. Refer immediately for medical attention.

Skin contact: Remove contaminated clothes. Rinse skin with plenty of water or shower for at least 15 minutes. Refer for medical attention .

Eye contact: Rinse with plenty of water (remove contact lenses if easily possible). Refer immediately for medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO2), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Fires involving this compound may be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

Use water spray, powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

USE WATER SPRAY, DRY CHEM, "ALC RESISTANT" FOAM, OR CARBON DIOXIDE. DUST MAY BE REDUCED WITH WATER SPRAY. AQUEOUS SOLUTION MUST BE CONTAINED FOR DISPOSAL. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL. WATER MAY CAUSE FOAMING OF MOLTEN MATERIAL. /OXALIC ACID DIHYDRATE/

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance, protective gloves and safety goggles. Sweep spilled substance into covered plastic containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water.

Cover with soda ash or sodium bicarbonate. Mix and add water. Neutralize and drain into a drain with sufficient water.

Oxalic acid is a waste chemical stream constituent which may be subjected to ultimate disposal by controlled incineration. Pretreatment involves chemical reaction with limestone or calcium oxide forming calcium oxalate. This may then be incinerated utilizing particulate collection equipment to collect calcium oxide for recycling.

Adequate ventilation.

The worker should immediately wash the skin when it becomes contaminated.

Work clothing that becomes wet or significantly contaminated should be removed and replaced.

Workers whose clothing may have become contaminated should change into uncontaminated clothing before leaving the work premises.

For more Preventive Measures (Complete) data for OXALIC ACID (6 total), please visit the HSDB record page.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Neutralizing Agents for Acids and Caustics: Lime or soda ash (USCG, 1999)

Separated from strong oxidants and food and feedstuffs. Dry. Well closed.

STORE IN COOL, DRY, WELL-VENTILATED LOCATION. /OXALIC ACID DIHYDRATE/

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and food and feedstuffs. Dry. Well closed.

STORE IN COOL, DRY, WELL-VENTILATED LOCATION. /OXALIC ACID DIHYDRATE/

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

1 mg/m

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles and face shield.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: Oxalic acid is an odorless white solid. Sinks and mixes with water. (USCG, 1999)

b) Odor: Odorless.

c) Odor threshold: No data available

d) pH: No data available

e) Melting point/freezing point: 372 °F (Decomposes) (NTP, 1992)

f) Initial boiling point and boiling range: Sublimes (NIOSH, 2024)

g) Flash point: No data available

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: 0.001 mmHg at 68 °F (NTP, 1992)

l) Vapor density: No data available

m) Relative density: 1.9 at 59 °F (USCG, 1999) - Denser than water; will sink

n) Water solubility: 50 to 100 mg/mL at 75 °F (NTP, 1992)

o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): -0.3

p) Auto-ignition temperature: Not flammable (USCG, 1999)

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 74.6 Å²

Complexity: 71

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Reacts with strong alkalies, strong oxidizing materials, chlorites, and hypochlorites. /Oxalic acid dihydrate/

Strong oxidizers, silver compounds, strong alkalis, chlorites [Note: Gives off water of crystallization at 215 degrees F and begins to sublime].

Strong oxidizers, silver compounds, strong alkalis, chlorites [Note: Gives off water of crystallization at 215 °F and begins to sublime.]

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO□).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

Causes severe skin burns and eye damage (H314).

Serious eye damage/eye irritation:

Causes serious eye damage (H318).

Respiratory or skin sensitization:

No data available.

Germ cell mutagenicity:

No data available.

Carcinogenicity:

No data available.

Reproductive toxicity:

Suspected of damaging fertility or the unborn child (H361).

Specific target organ toxicity (single exposure):

H370, H371, H372, H373

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

No indication of carcinogenicity (not listed by IARC). (L135)

Exposure routes:

The substance can be absorbed into the body by inhalation of its aerosol and by ingestion. Serious local effects by all routes of exposure.

inhalation, ingestion, skin and/or eye contact

Signs and symptoms of exposure:

Cough. Sore throat. Burning sensation. Shortness of breath. Laboured breathing. Headache.

Redness. Pain. Skin burns.

Redness. Pain. Blurred vision. Burns.

Sore throat. Burning sensation. Abdominal pain. Laboured breathing. Convulsions. Paralysis. Cardiac dysrhythmia. Shock or collapse.

irritation eyes, skin, mucous membrane; eye burns; localized pain, cyanosis; shock, collapse, convulsions; kidney damage

Oxalic acid poisoning symptoms include weakness, burning in the mouth, death from cardiovasc

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Oxalic acid is naturally contained as the potassium or calcium salt in plants, vegetables, human urine, animal urine, and kidney stones. It is also the product of the metabolism of many molds. Oxalic acid may be released to the environment in tobacco smoke, automobile exhaust, rendering, in waste streams from pulp bleaching, and by photochemical oxidations of anthropogenic compounds during long range transport. If released to soil, oxalic acid under environmental conditions (pH 5-9) will be in the form of the oxalate ion (pKa1 and pKa2 of 1.25 and 4.28, respectively) and is expected to leach in soil. Photolysis is expected to be an important fate process; the daytime persistence of oxalic acid on soil surfaces is not expected to exceed a few hours. Based upon screening biodegradation tests, biodegradation in soil is expected to be important. If released to water, oxalic acid will not volatilize, adsorb to sediment, bioconcentrate in aquatic organisms, oxidize or hydrolyze. The predominant aquatic fate processes are expected to be photolysis in surface waters and aerobic and anaerobic biodegradation. If released to the atmosphere, removal from air via wet deposition, dry deposition, and photolysis is likely to occur. Exposure of the general population to oxalic acid is expected to occur through consumption of foods in which it is naturally contained, inhalation of contaminated air, and consumption of contaminated groundwater. In occupational

settings, exposure to oxalic acid m

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): -0.3

Low potential for bioaccumulation (Log P < 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Class 8

DOT label: Corrosive

14.4 Packing group

Packing group III

14.5 Environmental hazards

Marine pollutant: No (not classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered (REACH Active)

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Environmental hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: Ethanedioic acid

- New Jersey Worker and Community Right to Know Act: The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces. (N.J.S.A. 34:5A-1 et. seq.)

- FIFRA Requirements: Residues of oxalic acid are exempted from the requirement of a tolerance when used as a calcium chelating hard water inhibitor in accordance with good agricultural practices as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commod

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/10

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.