

## Chemical Safety Data Sheet MSDS / SDS

## OXALIC ACID

Revision Date:2024-12-21 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier**

Product name : OXALIC ACID  
CBnumber : CB3323999  
CAS : 68603-87-2  
EINECS Number : 271-678-5  
Synonyms : Ethanedioic acid, Carboxylic acids, di-, C4-6

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

Serious eye damage, Category 1

**Label elements****Pictogram(s)**

□

Signal word : Danger

**Hazard statement(s)**

H318 Causes serious eye damage

**Precautionary statement(s)****Prevention**

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

**Response**

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

**Storage**

none

**Disposal**

none

**Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

**Substance**

Product name	: OXALIC ACID
Synonyms	: Ethanedioic acid, Carboxylic acids, di-, C4-6
CAS	: 68603-87-2
EC number	: 271-678-5
MF	: C2H2O4
MW	: 90.03

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## SECTION 4: First aid measures

**Description of first aid measures****If inhaled**

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

**Following skin contact**

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

**Following eye contact**

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

**Following ingestion**

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

**Most important symptoms and effects, both acute and delayed**

As dust or as a solution, can cause severe burns of eyes, skin, or mucous membranes. Ingestion of 5 grams has caused death with symptoms of nausea, shock, collapse, and convulsions coming on rapidly. Repeated or prolonged skin exposure can cause dermatitis and slow-healing ulcers. (USCG, 1999)

**Indication of any immediate medical attention and special treatment needed**

Treatment should be rapidly instituted by giving a dilute solution of calcium lactate, lime water, finely pulverized chalk, plaster, and/or milk to supply large amounts of calcium to inactivate oxalate by forming an insoluble calcium salt in the stomach. Gastric lavage is controversial, since this may compound an already severe corrosive lesion in the esophagus or stomach. However, if used, gastric lavage should be done with limewater (calcium hydroxide). Intravenous gluconate or calcium chloride solutions should be given to prevent hypocalcemic tetany; in severe cases parathyroid extract also has been given. ... Additionally, acute renal failure should be anticipated, and careful fluid management is necessary. Oxalates

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## SECTION 5: Firefighting measures

### Extinguishing media

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

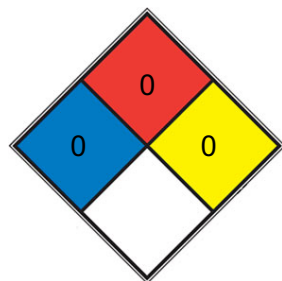
### Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Generates poisonous gases (USCG, 1999)

### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### NFPA 704



HEALTH 0 Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials

FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

SPEC.  
HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

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.

## Methods and materials for containment and cleaning up

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

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## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### 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

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

<b>Component</b>	Carboxylic acids, di-, C4-6
<b>CAS No.</b>	68603-87-2
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 1 mg/cu m. Recommended Exposure Limit: 15 Min Short-Term Exposure Limit: 2 mg/cu m.

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flare resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

## Information on basic physicochemical properties

Physical state	Oxalic acid is an odorless white solid. Sinks and mixes with water. (USCG, 1999)
Colour	ANHYDROUS OXALIC ACID, CRYSTALLIZED FROM GLACIAL ACETIC ACID IS ORTHORHOMBIC, CRYSTALS BEING PYRAMIDAL OR ELONGATED OCTAHEDRA
Odour	Odorless.
Melting point/freezing point	189.5°C (dec.)(lit.)
Boiling point or initial boiling point and boiling range	302.894°C at 760 mmHg
Flammability	Combustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	151.212°C
Auto-ignition temperature	Not flammable (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	50 to 100 mg/mL at 75° F (NTP, 1992)
Partition coefficient n-octanol/water	-0.81
Vapour pressure	<0.01 mm Hg ( 20 °C)
Density and/or relative density	0.99 g/mL at 25°C
Relative vapour density	4.3 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on contact with hot surfaces or flames. This produces formic acid and carbon monoxide. The solution in water is a medium strong acid. Reacts violently with strong oxidants. This generates fire and explosion hazard. Reacts with some silver compounds. This produces explosive silver oxalate. Attacks some forms of plastic.

### Chemical stability

Oxalic acid can be dehydrated by careful drying @ 100 deg c, but losses occur through sublimation oxalic acid dihydrate

### Possibility of hazardous reactions

OXALIC ACID is hygroscopic and sensitive to heat. This compound may react violently with furfuryl alcohol, silver, sodium, perchlorate, sodium hypochlorite, strong oxidizers, sodium chlorite, acid chlorides, metals and alkali metals. (NTP, 1992). The heating of mixtures of Oxalic acid and urea has lead to explosions. This is due to the rapid generation of the gases CO<sub>2</sub>, CO, and NH<sub>3</sub> [Praxis Naturwiss. Chem., 1987, 36(8), 41-42]. Oxalic acid and urea react at high temperatures to form toxic and flammable ammonia and carbon monoxide gases, and inert CO<sub>2</sub> gas [Von Bentzinger, R. et al., Praxis Naturwiss. Chem., 1987, 36(8), 41-42].

### Conditions to avoid

no data available

### **Incompatible materials**

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

### **Hazardous decomposition products**

Decomp products incl carbon monoxide & formic acid.

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LDLo Dog oral 1000 mg/kg
- Inhalation: no data available
- Dermal: no data available

### **Skin corrosion/irritation**

no data available

### **Serious eye damage/irritation**

no data available

### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

no data available

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

no data available

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

no data available

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## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### **Persistence and degradability**

Six tests at oxalic acid initial concns of 3.3 to 10 ppm exhibited 75 to 202 %BODT over an incubation period of 5 days in an aerobic screening study using sewage inoculum(1). A 78 and 55.5 %BODT for oxalic acid was measured under aerobic conditions over a period of 5 days in screening tests at 20 deg C using sewage inoculum(2). Oxalic acid at initial concns of 0.00375, 0.0375, and 0.375 ppm exhibited 95, 99, and 100% degradation, respectively, in an aerobic screening study at 25 deg C using sewage inoculum(3). In another screening study using sewage inoculum, 68 and 64 %BODT were measured for oxalic acid at initial concns of 10 and 20 ppm, respectively, over a 5 day incubation period(4). An 89 %BODT was measured for oxalic acid (10 ppm initial concn) in an aerobic screening study using sewage inoculum at 19.5-20.5 deg C over an incubation period of 5 days(5).

### **Bioaccumulative potential**

Based on an average experimental water solubility of 220,000 mg/L at 25 deg C(1) and a regression derived equation(2), the BCF for oxalic acid can be estimated to be approximately 0.6(SRC) and therefore should not be expected to bioconcentrate in aquatic organisms(SRC).

### **Mobility in soil**

Based on an average experimental water solubility of 220,000 mg/L at 25 deg C(1) and a regression derived equation(2), the Koc for undissociated oxalic acid can be estimated to be approximately 5. This Koc value indicates that oxalic acid will have very high mobility in soil(3); therefore, adsorption to soil and sediment may not be an important fate process. Based on pKa1 and pKa2 values of 1.25 and 4.28(4) respectively, oxalic acid will exist primarily as the oxalate ion under environmental conditions (pH 5-9). No experimental data are available to determine whether the oxalate ion will adsorb to sediment or soil more strongly than its estimated Koc value indicates(SRC).

### **Other adverse effects**

no data available

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

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## SECTION 15: Regulatory information

### **Safety, health and environmental regulations specific for the product in question**

#### **European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

#### **EC Inventory**

Listed.

#### **United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**



Listed.

**Vietnam National Chemical Inventory**

Listed.

**IECSC**

Listed.

**Korea Existing Chemicals List (KECL)**

Listed.

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## SECTION 16: Other information

### Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Disclaimer:

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