

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Identifier:

Substance Name: Oxalic Acid
Synonyms: Ethanedioic acid
Chemical Name and Formula: Oxalic acid dihydrated– $C_2O_4H_2 \cdot 2H_2O$
CAS Number: 6153-56-6
EINECS Number: 205-634-3
Molecular Weight: 126.07 g/mol
REACH Registration number: 01-2119534576-33-XXXX

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

Identified use(s): No further information

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification according to Regulation (EC) 1272/2008: Acute toxicity cat 4 oral and dermal
 Eye Damage 1

Classification according to Directive 67/548/EEC: Xn – harmful

Label elements:

Labelling according to Regulation (EC) No 1272/2008:

Hazard Pictograms:



Signal word: Danger

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Hazard statements:	H302 Harmful if swallowed H312 Harmful in contact with skin H318 Causes serious eye damage
Precautionary statements:	P280 Wear protective gloves/protective clothing/eye protection/face protection. P264 Wash skin thoroughly after handling. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P501 Dispose of contents/container to hazardous waste collection point.

Labelling according to Directive 67/548/EEC:

Indication of danger:



Xn; Harmful

Risk phrases:	R21/22 Harmful in contact with skin and if swallowed. R41 Risk of serious damage to eyes
Safety phrases:	S2 Keep out of reach of children S24/25 Avoid contact with skin and eyes.
Other hazards:	The substance does not meet the criteria for PBT or vPvB substance. No other hazards identified.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances:

Main Constituent:	Oxalic acid dihydrated		
CAS Number	EINECS Number	REACH registration number	ECC Index Number
6153-56-6	205-634-3	01-2119534576-33-XXXX -	607-006-00-8
Impurities:	No impurities relevant for classification and labelling		

4. FIRST AID MEASURES

Description of first aid measures:

General Information:	Never make an unconscious person vomit or drink fluids.
Inhalation:	Remove to fresh air.
Skin contact:	Wash affected area immediately with plenty of water and continue to do so for 15 minutes. Remove contaminated clothing. If necessary seek medical advice.
Eye contact:	Rinse eyes immediately with plenty of water for at least 15 minutes and seek medical advice.
Ingestion:	Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Obtain medical attention.

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Most important symptoms and effects, both acute and delayed:

Prolonged or repeated skin contact may cause dermatitis. If inhaled can cause a burning sensation of nose and throat, coughing, shortness of breath, sore throat.

Indication of any immediate medical attention and special treatment needed:

No further information

5. FIRE-FIGHTING MEASURES

Extinguishing Media:

Suitable extinguishing media: Use Water spray, powder, foam or carbon dioxide as extinguishing media. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special hazards arising from the substance or mixture:

Keep away from sources of ignition. In case of fire toxic fumes may form CO, CO₂.

Advice for fire-fighters:

The fire-fighters must use individual breathing equipment. In case of fire keep drums cool by spraying with water. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Keep dust levels to a minimum. Keep unprotected persons away. Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8). Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8).

Environmental precautions:

Contain the spillage. Keep the material dry if possible. Cover area if possible to avoid an unnecessary dust hazard. Avoid uncontrolled spills to watercourses and drains. Any large spillage into watercourses must be alerted to the Environment Agency or other regulatory body.

Methods and material for containment and cleaning up:

Collect up dry and deposit in waste containers for later disposal according to regulations. Rinse with water. (Extra personal protection: P2 filter respirator for harmful particles).

Reference to other sections:

For more information on exposure controls/personal protection or disposal considerations, please check section 8 and 13 and the annex of this safety data sheet.

7. HANDLING AND STORAGE

Precautions for safe handling:

Advice on safe handling:

Avoid contact with skin and eyes. Wear protective equipment (refer to section 8 of this safety data sheet). Do not wear contact lenses when handling this product. Keep dust levels to a minimum. Minimize dust generation. Enclose dust sources, use exhaust ventilation.

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Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles:

The substance should be stored under dry conditions. Store at room temperature. Keep material separated from strong bases, oxidizing materials, food and feed.

Specific end use(s): No further information

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Ingredients with limit values that require monitoring at the workplace:

OEL (TWA): 1 mg/m³ (ACGIH 1990-1991).

OEL (como STEL): 2 mg/m³ (ACGIH 1990-1991).

DNEL for workers:

Local effects - acute: DNEL (derived not effect level) dermal: 0.69 mg / cm²

Systemic effects - long term: DNEL (derived not effect level) dermal: 2.29 mg / kg bw / day

Systemic effects - long term: DNEL (derived not effect level) inhalation: 4.03 mg / m³

DNEL for the general population: Local effects - acute: DNEL (derived not effect level) Dermal: 0.35 mg / cm²

Systemic effects - long term: DNEL (derived not effect level) Dermal: 1.14 mg / kg bw / day

Systemic effects - long term: DNEL (derived not effect level) Oral: 1.14 mg / m³

PNEC:

PNEC water (freshwater): 0.1622 mg / L

PNEC water (sea water): 0.01622

PNEC water (intermittent spills): 1.622 mg / L

Exposure controls:

To control potential exposure, generation of dust should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.

Engineering measures:

If user operations generate dust, use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne dust levels below recommended exposure limits.

Eye protection:

Do not wear contact lenses. Tight fitting goggles with side shields, or wide vision full goggles.

Skin protection:

Dermal exposure should be minimized to the extent technically feasible. Wear suitable gloves (nitrile, neoprene, natural rubber, polyvinyl), standard work clothes, long pants, long sleeves, coveralls, closing with accessories and shoes openings resistant to corrosive chemicals and prevent penetration of dust.

Respiratory protection:

Local ventilation to keep levels below established threshold values is recommended. A suitable particle filter mask is recommended, depending on the expected exposure levels

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Thermal hazards: The substance does not represent a thermal hazard, thus special consideration is not required.

Environmental exposure controls: Avoid releasing to the environment. Contain the spillage. Any large spillage into watercourses must be alerted to the regulatory authority responsible for environmental protection or other regulatory body.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Form:	Crystals
Odour:	Odourless
Odour threshold:	Not applicable
pH:	~0.7 (50 g/l)
Melting point:	Not applicable (sublimes at >160oC)
Boiling point/boiling range:	Not applicable (sublimes at >160oC)
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	Non-flammable (study result, EU A.10 method)
Explosive limits:	Non explosive (void of any chemical structures commonly associated with explosive properties)
Vapour pressure:	0.0312 Pa at 25°C
Vapour density:	Not applicable
Relative density:	0.813 (study result, EU A.3 method)
Water solubility:	108 g/l at 25°C (study results)
Partition co-efficient:	-1.7 at 23oC (study results, OECD Guideline 107)
Auto ignition temperature:	No relative self-ignition temperature below 400oC (study result EU A.16 method)
Decomposition temperature:	>160oC
Viscosity:	Not applicable
Oxidising properties:	No oxidising properties
Other information:	Not available

10. STABILITY AND REACTIVITY

Reactivity: On contact with hot surfaces or flames this substance decomposes forming formic acid and carbon monoxide. The solution in water is a medium strong acid.

Chemical stability: Under normal conditions of use and storage, oxalic acid is stable.

Possibility of hazardous reactions: Reacts violently with strong oxidants causing fire and explosion hazard. Reacts with some silver compounds to form explosive silver oxalate. Attacks some forms of plastic.

Conditions to avoid: Minimise exposure to air and moisture to avoid degradation.

Incompatible materials: Alkaline solutions. Ammonia. Halogenates. Oxidizing agents. Metals. Water. Heat.

Hazardous decomposition products: Formic acid. Carbon dioxide. Carbon monoxide.

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11. TOXICOLOGICAL INFORMATION

Oxalic acid is classified as harmful by oral and dermal route and it entails a risk of serious damage to the eye.

Acute toxicity: Oxalic acid is Oral and Dermal Acutely toxic cat. 4.

Oral: LD50 > 375 mg/kg bw (according to the method of Smyth, rat)

Dermal: LD50 > 20000 mg/kg bw (Pesticide Action Network, North America, rabbit)

Inhalation: No data available

Classification for acute toxicity is category 4 for oral and dermal route.

Irritation/Corrosion:

Eye irritation: Oxalic acid entails a risk of serious damage to the eye (OECD 405, rabbit).

Skin irritation: Oxalic acid is not irritating to skin (OECD 404, rabbit).

Based on experimental results, oxalic acid requires classification as severely irritating to the eye [R41, Risk of serious damage to eye; Eye Damage 1 (H318 - Causes serious eye damage)].

Sensitisation: Oxalic acid is not a skin sensitizer (OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)).

Repeated dose toxicity: Toxicity of oxalic acid via the oral route is addressed by LOAEL of 150 mg/kg bw/day. Toxicity of Oxalic acid via the dermal route is not considered as relevant in view of the anticipated insignificant absorption through skin. Toxicity of Oxalic acid via inhalation is not considered as relevant. Therefore, classification of Oxalic acid for toxicity upon prolonged exposure is not required.

Mutagenicity: Bacterial reverse mutation assay (Ames test, OECD 471): Negative. Mammalian chromosome aberration test: Negative
Oxalic acid is void of any genotoxic potential. Classification for genotoxicity is not warranted.

Carcinogenicity: Oxalic acid is not considered as carcinogenic. Human epidemiological data support lack of any carcinogenic potential of oxalic acid. Classification for carcinogenicity is not warranted.

Toxicity for reproduction Oxalic acid is not toxic to reproduction (experimental result, mouse). Human epidemiological data support lack of any potential for reproductive toxicity of oxalic acid. Classification for reproductive toxicity according to regulation (EC) 1272/2008 is not required.

Further information: No data available

12. ECOLOGICAL INFORMATION

Aquatic Toxicity:

LC50 (96h) for freshwater fish: 160 mg/l (Deutsche Einheitsverfahren zur Wasser, Abwasser und Schlamm- Untersuchung)

EC50 (48h) for freshwater invertebrates: 162.2mg/l (OECD 202, Daphnia)

Toxicity threshold (8 days) for freshwater algae: 80.0 mg/l

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Chronic toxicity to aquatic organisms: The long-term aquatic toxicity study on aquatic invertebrates shall be considered if the substance is poorly water soluble and oxalic acid is soluble in water. Also oxalic acid presents a low toxicity for the short term test.

Toxicity to soil dwelling organisms: The oxalic acid is not supposed to be directly applied to soil and an indirect exposure to soil via sewage sludge transfer is unlikely since the substance is readily biodegradable. As oxalic acid is considered as "readily biodegradable", it can be assumed that it will be biodegraded within the STP process and as a consequence a transfer to the soil compartment is not expected. Therefore, no tests on terrestrial organisms are provided.

Toxicity to terrestrial plants: EC50 (72 h) for terrestrial plants: 8 mm

General effect: Oxalic acid has a low log Kow and is readily biodegradable. The substance is not be classified as hazardous for the environment.

Persistence and degradability:

Biodegradability: Oxalic acid is readily biodegradable, meeting the 10-d window. The biodegradation in seawater occurs at the same rate. Also anaerobic biodegradation occurs rapidly.

Bio accumulative potential: Not relevant for oxalic acid because this substance is ready biodegradable and highly soluble in water, and LogKow is negative.

Mobility in soil: Transport through the medium is rate-limiting. Degradation after 30 days at 20°C is up to 73% (based on CO₂ evolution). Oxalic acid is easily biodegradable in soil.

Results of PBT and vPvB assessment: The hazard assessment of oxalic acid reveals neither a need to classify the substance as dangerous to the environment, nor is it a PBT or vPvB substance, nor are there any further indications that the substance may be hazardous to the environment.

13. DISPOSAL CONSIDERATIONS

Product: Disposal of oxalic acid should be in accordance with local and national legislation. Processing, use or contamination of this product may change the waste management options. Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Packaging: Dispose of container and unused contents in accordance with federal, state and local requirements. The used packing is only meant for packing this product. After usage, empty the packing completely.

14. TRANSPORT INFORMATION

UN Number:

ADR, RID, IMDG, IATA:

ADR/RID/IMDG/IATA: Not classified as dangerous goods

Proper Shipping Name:

ADR, RID, IMDG, IATA:

ADR/RID/IMDG/IATA: Not classified as dangerous goods

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Land transport hazard class:

ADR, RID:

ADR/RID/IMDG/IATA: Not classified as dangerous goods

Maritime transport packing group:

IMDG:

ADR/RID/IMDG/IATA: Not classified as dangerous goods

Air transport ICAO-TI and IATA-DGR ADR/RID/IMDG/IATA: Not classified as dangerous goods

Special precautions for users ADR/RID/IMDG/IATA: Not classified as dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not classified as dangerous goods

15. REGULATORY INFORMATION

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

Authorisations: Not required

Restrictions on use: None

Other EU regulations: Oxalic acid is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.

Chemical safety assessment: A chemical safety assessment has been carried out for this substance.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Source of key data used to compile the data sheet: Supplier information

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.