SAFETY DATA SHEET

OXALIC ACID

CAS No.: 144-62-7

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

OXALIC ACID
Ethanedioic acid; Oxalic acid anhydrous
CAS: 144-62-7

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Rust and stain removal, bleaching agent, metal cleaning/polishing, textile and leather processing, chemical intermediate, laboratory reagent. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Acute Tox. 4	Acute oral toxicity, Category 4, H302
Acute Tox. 4	Acute dermal toxicity, Category 4, H312
Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Dam. 1	Serious eye damage, Category 1, H318

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

Acute Tox. 4: H302 – Harmful if swallowed.
Acute Tox. 4: H312 – Harmful in contact with skin.
Skin Irrit. 2: H315 – Causes skin irritation.
Eye Dam. 1: H318 – Causes serious eye damage.

Precautionary statements

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352: IF ON SKIN: Wash with plenty of water.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313: If skin irritation occurs, get medical advice/attention.
P501: Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification

Toxic if absorbed systemically in large quantities; may cause hypocalcemia. Dust may be irritating to the respiratory tract.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Oxalic acid (anhydrous)

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 144-62-7	Oxalic acid — Acute Tox. 4: H302, H312; Eye Dam. 1: H318; Skin Irrit. 2: H315 – Warning	≥ 99.6% (technical grade)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Remove person to fresh air. If breathing is difficult, provide oxygen. Seek medical attention if symptoms occur.

By skin contact

Remove contaminated clothing immediately. Wash affected area thoroughly with plenty of soap and water for at least 15 minutes. Seek medical attention if irritation persists.

By eye contact

Rinse eyes immediately with plenty of lukewarm water for at least 15 minutes, holding eyelids apart. Remove contact lenses if present and easy to do. Seek immediate medical attention.

By ingestion/aspiration

Rinse mouth with water. Do NOT induce vomiting. Give water to drink if conscious. Seek immediate medical attention; systemic absorption of large doses can cause hypocalcemia and renal injury – show this SDS to the physician.

Most important symptoms/effects, acute and delayed

Acute and delayed effects are indicated in sections 2 and 11.

Indication of immediate medical attention and special treatment needed, if necessary

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray, carbon dioxide (CO2), dry chemical powder, foam – use extinguishing media suitable for surrounding fire.
Unsuitable: None known specifically.

Specific hazards arising from the chemical

Combustible solid; may decompose on strong heating releasing carbon monoxide, carbon dioxide and irritant fumes. Dust may form explosive mixtures with air under specific conditions.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing. Avoid generating dust; do not use high-pressure water jets that could disperse dust.

Additional provisions

If safe to do so, remove exposed containers or cool with water spray from a safe distance. Prevent fire-fighting water from entering drains or watercourses; contain and collect for disposal.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Evacuate unnecessary personnel. Avoid raising dust; use appropriate PPE (see section 8). Ensure adequate ventilation.

For emergency responders

Wear full protective equipment for large spills, including dust/respiratory protection.

Environmental precautions

Avoid discharge to drains, watercourses and soil. Notify authorities if significant environmental release occurs.

Methods and materials for containment and cleaning up

Sweep/vacuum up carefully (avoid dust dispersion) and place in a labelled container for disposal per section 13. Wash residual area with plenty of water.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Avoid contact with skin, eyes and clothing. Avoid formation/inhalation of dust. Do not eat, drink or smoke while handling.

B. Technical recommendations for the prevention of fires and explosions

Combustible solid – keep away from ignition sources and strong oxidizers. Minimize dust generation and avoid dust accumulation.

C. Technical recommendations on general occupational hygiene

Wash hands and exposed skin after handling and before eating, drinking or smoking. Launder contaminated clothing before reuse.

D. Technical recommendations to prevent environmental risks

Prevent uncontrolled release to drains and watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage temperature	Ambient (below 30°C recommended)
Maximum time	24 months in original sealed packaging

B. General conditions for storage

Store in a cool, dry, well-ventilated place away from direct sunlight, oxidizing agents, alkalis and food/feed materials. Keep container tightly closed.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Oxalic acid CAS: 144-62-7	Time Weighted average concentration (8 hrs)	1 mg/m³ (as oxalic acid, commonly referenced OEL)

Appropriate engineering controls

Use local exhaust ventilation where dust may be generated.

B. Respiratory protection

Use a particulate (dust) respirator (e.g., FFP2/N95) where exposure limits may be exceeded or dust is generated.

C. Specific protection for the hands

Chemical-resistant gloves (nitrile or PVC) recommended.

D. Eye and face protection

Chemical safety goggles; face shield for splash-risk operations.

E. Bodily protection

Protective clothing/apron for operations with splash or dust exposure risk; safety footwear.

F. Additional emergency measures

Emergency eyewash station and safety shower should be available in the work area.

Environmental exposure controls

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (crystalline powder)
Appearance	White crystalline solid
Color	White
Odor	Odorless
Odour threshold	Not relevant
Volatility	
Sublimation/decomposition	Sublimes with partial decomposition above approx. 157°C
Vapour pressure at 20°C	Negligible
Evaporation rate	Not relevant (solid)
Product Description	
Density / Relative density at 20°C	1.90 g/cm³
pH (saturated aqueous solution, 20°C)	approx. 1.3 (strongly acidic)
Solubility in water at 20°C	approx. 90–100 g/L
Partition coefficient n-octanol/water (log Pow)	-0.81 (estimated)
Melting point	189–191°C (with decomposition)

** Not relevant / not applicable due to the physical nature of the product.*

Other information

Explosive properties	Not explosive
Oxidising properties	Not oxidising
Corrosive to metals	May be corrosive to certain metals in aqueous solution
Molecular weight	90.03 g/mol (anhydrous)

10. STABILITY AND REACTIVITY

Reactivity

Stable under recommended conditions. Reacts with strong bases (exothermic neutralization) and strong oxidizing agents. Forms soluble complexes with many metal ions (e.g., calcium oxalate, an insoluble precipitate, with calcium).

Chemical stability

Chemically stable under normal conditions of storage, handling and use.

Possibility of hazardous reactions

Reaction with strong oxidizers (e.g., chlorates, permanganates, peroxides) can be vigorous/exothermic. Reaction with silver salts may form shock-sensitive silver oxalate.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Stable	Avoid strong heating (decomposition >157°C)	No special sensitivity	Store in dry conditions

Incompatible materials

Strong Oxidizers	Silver/Mercury salts
Strong Bases	Alkali metals

Hazardous decomposition products

On strong heating/decomposition, may release carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)
Harmful if swallowed. Can cause severe gastrointestinal irritation, and in large doses, systemic toxicity (hypocalcemia, renal damage) due to formation of insoluble calcium oxalate.

B. Inhalation (acute effect)
Dust may cause irritation of nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect)
Causes skin irritation; harmful in contact with skin. Causes serious eye damage.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects
Not classified as a skin or respiratory sensitizer based on available data.

F. Specific target organ toxicity (STOT) – single exposure
Classification criteria for STOT SE are not met based on available data, though respiratory irritation from dust is possible.

G. Specific target organ toxicity (STOT) – repeated exposure
Repeated/prolonged ingestion has been associated with kidney stone formation (calcium oxalate) in animal studies.

H. Aspiration hazard
Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Species
Oxalic acid CAS: 144-62-7	LD50 oral (rat): 375 mg/kg	Rat
	LD50 dermal (rabbit): >2000 mg/kg	Rabbit

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment based on available data.

Toxicity

Acute Toxicity	Species	Genus
LC50 (fish): 355 mg/L (96h)	Not specified	Fish
EC50 (Daphnia): 245 mg/L (48h)	Daphnia magna	Crustacean

Persistence and degradability

Readily biodegradable (naturally occurring organic acid); rapidly metabolized by many microorganisms in soil and water.

Bioaccumulative potential

Low bioaccumulation potential (low log Kow).

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Low (mobile, ionic solid)	Not relevant	No	Mobile in moist soil (dissociates/soluble)

Results of PBT and vPvB assessment

Non-applicable – not assessed as a PBT/vPvB substance.

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralize with lime, soda ash or other suitable alkaline material, forming insoluble calcium oxalate where lime is used, before disposal in accordance with local regulations. Dispose of via a licensed hazardous/chemical waste contractor. Do not discharge directly to drains or watercourses without treatment as permitted by local Pollution Control Board norms.

Refer to national and local regulations on waste management (Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended).

14. TRANSPORT INFORMATION

This product is not classified as a dangerous good for transport under ADR/RID, IMDG or IATA/ICAO regulations. (Note: some jurisdictions may require handling as a marine pollutant/environmentally hazardous substance for bulk shipments – verify with carrier.)

14.1 UN number	Not applicable – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

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

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation
Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H318: Causes serious eye damage.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and labelling data for the substance/CAS number referenced in Section 1.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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