



# Material Safety Data Sheet


Rev. 1

Page 1 of 7

## Section 1 - Product and Company Identification

Product name : OXALIC ACID	
Other names : --	
Product use : scouring agent in textile finishing, stripping, cleaning; for bleach & stain remover; rust, grease, and wax removing agent in metal cleaning; chemical intermediates	
Supplier's name : San Fu Chemical Co., Ltd., Shan Hua Plant	
Supplier's address : 340 Hsiao Hsin Li, Shan Hua, Tainan Hsien, Taiwan, R.O.C.	
Supplier's phone : 06-5837608	Emergency phone : 06-5837608
FAX. : 06-5839498	

## Section 2 - Hazards Identification

Classification :	
1. Acute Toxicity	Category 4 ( Ingestion)
2. Skin Corrosion / Irritation	Category 3
3. Serious Eye Damage/ Eye Irritation	Category 2
The Most Important Hazards and effect	
Label element :	
■ Hazard symbol : Exclamation mark	
■ Signal word : Warning	
Hazard statement :	
1. Harmful if swallowed	
2. May cause moderate skin irritation	
3. May cause eyes irritation	
Precautionary statement :	
1. Wear splash goggles or safety glasses.	
2. Avoid skin and eye contact	
Others Hazard : --	

## Section 3 - Composition/Information On Ingredients

Chemical name : OXALIC ACID
Synonyms : OXALIC ACID DIHYDRATE 、 ETHANEDIOIC ACID 、 ETHANEDIONIC ACID 、 DICARBOXYLIC ACID
CAS No. : 144-62-7
Ingredient contributing to the hazard(%) : 100%

## Section 4 - First Aid Measures

The different exposure routes :
■ Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Avoid perform mouth-to-mouth resuscitation. Get



# Material Safety Data Sheet

Rev. 1

Page 2 of 7

medical aid.

- Skin Contact : Avoid contact with this substance. Wear imperative gloves. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing, shoes, and leather products. Re-use or disposal the contaminated clothes before thoroughly cleaning. Do not re use the contaminated shoes and leather products. Get medical aid immediately.
- Eye Contact : In case of contact, immediately flush eyes with plenty of water for at least 30 minutes. Try not to contaminate the unaffected area. If still feel irritation, flush repeatedly and get medical attention immediately.
- Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Give large quantities of water. If vomiting occurs, make victim lean forward to reduce change of aspiration. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Avoid perform mouth-to-mouth resuscitation. Get doctor.

The most important symptom and effect : Dust and vapor may cause corrosion. If overexposed, it may be hard to recover.

Protection to first-aiders : Never enter the hazard area if not wearing the protective gears. Wear Class C protective clothes to perform first-aid.

Notes to physician : Give oxygen if inhaled. Consider gastric lavage if swallowed.

## Section 5 - Fire Fighting Measures

Extinguishing media : Water spray, dry chemical, alcohol foam, or carbon dioxide.

Specific hazard : Carbon dioxide, carbon monoxide, or formic acid may form when heated to decomposition.

Specific methods : Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

The protection of firefighters : Fire fighters should wear a full protective gear, with a self-contained breathing apparatus with full face piece operated in positive pressure mode.

## Section 6 - Accidental Release Measures

Personal precautions :

1. Restrict access to area until completion of clean up.
2. Ensure clean up is conducted by trained personnel only.
3. Wear appropriate personal protective equipment.

Environmental precautions :

Ventilate area of leak or spill.

Notify the occupational safety health unit or environmental protection unit.

Methods for cleaning up :

1. Avoid contact with spills.
2. Prevent from entering sewers, or confined spaces.
3. Stop or reduce spills or leaks if safe to do so.
4. Absorb with dry earth or sand. Dike if necessary.
5. Small Spill: Cover and soak up with inert absorbent material. The waste absorbent material is hazardous as the product. Store in the appropriate containers with covers and hazardous label. Small amounts of residue may be flushed with plenty of water.
6. Large Spill: Contact the fire department, emergency management agency, or the suppliers



# Material Safety Data Sheet

Rev. 1

Page 3 of 7

immediately.

## Section 7 - Handling and Storage

### Handling :

1. Wash thoroughly after handling.
2. Handling amount of usage should be kept to a minimum.
3. Label the container, and keep the container closed while not use.
4. Use only with adequate ventilation.
5. Minimize dust generation and accumulation.
6. Do not get in eyes, on skin, or on clothing.
7. Do not ingest or inhale.
8. Never add water to this product.

### Storage :

1. Careful handle the empty containers because there may be residue left inside.
2. Working area and storage area should have proper fire extinguishers and equipments to deal with the leakage emergency.
3. Store in a dry, cool, and well-ventilated place.
4. Stay away from heat, ignition sources, and incompatible substances.
5. Keep container tightly closed, and prevent from physical damage.
6. Restrict access to storage area.
7. Post appropriate warning signs.
8. Check regularly for spills and leaks.

## Section 8 - Exposure Controls & Personal Protection

Engineering measures : Facilities storing or utilizing the material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentration below the permissible limits.

### Control parameters

TWA	STEL	Ceiling	Biological standards
1 gm/m <sup>3</sup>	2 mg/m <sup>3</sup>	--	--

### Personal protective equipment :

#### ■ Respiratory protection :

1. 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.
2. 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.
3. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator.
4. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

#### ■ Hand protection : Wear impervious protective gloves

#### ■ Eye protection : Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible.



# Material Safety Data Sheet

Rev. 1

Page 4 of 7

■ Skin and body protection : Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Hygiene measures :

1. Immediately take off the contaminated clothes after handling.
2. Clean thoroughly before reuse or disposal.
3. Must advise the danger to the laundry worker.
4. Wash hand thoroughly after handing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Crystals	Odor : Odorless
Colour : Colorless	Melting Point : 101.5°C
pH value : 1.3 (0.1M)	Boiling point/boiling range : 149°C ~160°C
Flammability: --	Flash point : /
Decomposition temp : --	Test method : /
Autoignition temp : --	Explosion properties : /
Vapor pressure : <0.001 mm Hg@20°C	Vapor density : 4.62
Density : 1.90 (water =1)	Solubility : 100 g/l of water
log Kow : -0.81 ~ -0.43	Evaporation Rate : very low

## Section 10 - Stability & Reactivity Data

Stability : Stable under ordinary conditions of use and storage. Heat will contribute to instability.
Possible hazardous reactions under specific conditions : <ol style="list-style-type: none"><li>1. Reacts with strong alkalis, strong oxidizing materials, chlorites, and hypochlorites.</li><li>2. Strong oxidizers, silver compounds, strong alkalis, chlorites</li></ol>
Conditions to avoid : Heat, ignition sources and incompatibilities.
Materials to avoid : Alkalis, chlorites, hypochlorites, oxidizing agents, furfuryl alcohol and silver compounds.
Hazardous decomposition products : Carbon dioxide and carbon monoxide may form when heated to decomposition. May also form formic acid.

## Section 11 - Toxicological Information

Route of exposure : Eye 、 Skin 、 Ingestion 、 Inhalation
Symptoms : irritation, sore throat, coughing, headaches, vomiting, difficulty in breathing.
Immediate Toxicity : <ul style="list-style-type: none"><li>● Skin: Causes skin irritation. Harmful if absorbed through the skin. Rare chemical burns may occur from oxalic acid and may cause hypocalcemia. Gangrene has occurred in the hands of people working with oxalic acid solutions without rubber gloves. The skin lesions are characterized by cracking of the skin and the development of slow-healing ulcers. The skin may be bluish in color, and the nails brittle and yellow.</li><li>● Eyes: May cause severe eye irritation. May result in corneal injury.</li></ul>



# Material Safety Data Sheet

Rev. 1

Page 5 of 7

- Inhalation: Inhalation of oxalic acid produces irritation of the respiratory tract, ulceration of the mucous membranes, headaches, nervousness, cough, vomiting, emaciation, back pain (due to kidney injury), and weakness.
- Ingestion: Oxalic acid is toxic because of its acidic and chelating properties. It is especially toxic when ingested. As little as 5 grams (71 mg/kg) may be fatal. Ulcerations of the mouth, vomiting of blood, and rapid appearance of shock, convulsions, twitching, tetany, and cardiovascular collapse may occur following ingestion of oxalic acid or its soluble salts. Oxalic acid can bind calcium to form calcium oxalate which is insoluble at physiological pH. Calcium oxalate thus formed might precipitate in the kidney tubules and the brain. Hypocalcemia secondary to calcium oxalate formation might disturb the function of the heart and nerves.
  - LD<sub>50</sub>: 375mg/kg (Rat, Oral)
  - LC<sub>50</sub>: -- --
  - 500mg/24H (Rabbit, Skin): irritation
  - 250ug/24H (Rabbit, Eye): irritation

Specific effects : Inhalation of oxalic acid dust or mist over a long period of time might result in weight loss and respiratory tract inflammation. Rats administered oxalic acid at 2.5 and 5% in the diet for 70 days developed depressed thyroid function and weight loss. A study of railroad car cleaners in Norway who were heavily exposed to oxalic acid solutions and vapors revealed a 53% prevalence of urolithiasis (the formation of urinary stones), compared to a rate of 12% among unexposed workers from the same company.

## Section 12 - Ecological Information

### Ecotoxicology :

- LC<sub>50</sub>(fish) : 4000mg/L/24Hr (Bluegill/Sunfish)
- EC<sub>50</sub>(Aquatic Invertebrates) : 25mg/L/96Hr (Water flea) 1500mg/L/24Hr(Algae)
- Bioconcentration factor (BCF) : 0.6

### Persistence and degradability :

- Half-Life (Air) : --
- Half-Life (Water surface) : --
- Half-Life (Groundwater) : --
- Half-Life (Soil) : --

### Bioaccumulative potential :

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.

### Mobility in soil : An estimated Koc value of 5 for oxalic acid indicates high mobility in soil.

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.

### Other adverse effects :

If released to water, oxalic acid will not volatilize, adsorb to sediment, bioconcentrate in aquatic



# Material Safety Data Sheet

Rev. 1

Page 6 of 7

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 may occur through inhalation of vapors and through eye and skin contact.

## Section 13 - Disposal Considerations

Methods of disposal : Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. 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.

## Section 14 - MSDS Transport Information

UN classification number : 3261
Proper D.O.T Shipping Name : OXALIC ACID
Hazard Class : 8
Packing Group : II
Marine pollution : n/a
Specific precautionary transport measures and conditions : --

## Section 15 - Regulatory Information

Regulations :
1. Labor Safety and Health Facility Regulations
2. Toxic Chemical Substances Labeling and Safety Data Regulations
3. Road Traffic Safety Regulations
4. Industrial Waste Storage and Disposal Regulations
5. Permissible Exposure Limits of Hazardous Substances in the Work Environment

## Section 16 - Other Information

Literature references	1. CHEMINFO Database, CCINFO Disc, 2005-3 2. RTECS Database, TOMES PLUS Disc, Vol.65, 2005 3. HSDB Database, TOMES PLUS Disc, Vol.65, 2005 4. ChemWatch Database, 2005-1		
Prepared by	Supplier : San Fu Chemical Co., Ltd. Shan Hua Plant		
	Address : 340 Hsiao Hsin Li, Shan Hua, Tainan Hsien, Taiwan, R.O.C.		
	TEL : 06-5837608		FAX : 06-5839498
	Name : Chunfel Chang		
Issue date	2008/8/1	Revision	1



# Material Safety Data Sheet

Rev. 1

Page 7 of 7

Remarks	Symbols Explanations: "--" No information is available at this time. "/" Not applicable to this substance.
<p>■ This information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no event shall San Fu liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if San Fu has been advised of the possibility of such damages.</p>	