

SAFETY DATA SHEET

Preparation Date: 8/15/2017

Revision Date: 8/15/2017

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: O2094
Product Name: OXALACETIC ACID

Other means of identification

Synonyms: Butanedioic acid, oxo-
 2-Ketosuccinic acid
 Ketosuccinic acid
 Oxaloacetic acid
 Oxosuccinic acid
 Butanedioic acid, 2-oxo-
 2-Oxobutanedioic acid
 OAA

CAS #: 328-42-7
RTECS # EK0115450
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Metabolism intermediate. Research and Development.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000.

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300

Contact Person: Martin LaBenz (West Coast)

Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Label elements

Danger

Hazard statements

Causes severe skin burns and eye damage

May cause respiratory irritation. May cause drowsiness or dizziness



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Oxalacetic Acid	328-42-7	100

4. FIRST AID MEASURES

First aid measures

General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact: Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Move to fresh air. If breathing is difficult, give oxygen. Immediate medical attention is required.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms Corrosive. Causes skin and eye burns. Corrosive to the mucous membranes. Corrosive to the eyes and may cause severe damage including blindness. May cause conjunctivitis. May cause corneal injury. Causes chemical burns to the respiratory tract. It may affect the lungs. May cause chemical pneumonitis. Ingestion causes burns of the upper digestive and respiratory tracts. Can burn mouth, throat, and stomach. May cause cold and clammy skin with cyanosis or pale color. Coughing and wheezing. Laryngitis. Dyspnea (Difficulty breathing and shortness of breath). May cause nausea and headache. May cause headache. May cause nausea, headache, vomiting. May cause inflammation and edema of the larynx and bronchi. May cause pulmonary edema.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire. Dry chemical. Carbon dioxide (CO₂). Water spray, mist, or foam.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous Combustion Products: Carbon oxides

Hazardous Combustion Products: No information available.

Specific hazards: Fire may produce irritating, corrosive and/or toxic gases.

Special Protective Actions for Firefighters

Specific Methods: No information available.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid dust formation.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Prevent product from entering drains. Do not let this chemical enter the environment.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Neutralize with Sodium carbonate or Sodium bicarbonate. Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Use only in well-ventilated areas. Avoid dust formation. Do not breathe vapors/dust. Do not ingest. When using do not smoke. Keep away from open flames, hot surfaces and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Freeze. Do not store above -20°C/(-4°F). Keep away from heat. Store in original container. Store away from incompatible materials. Store in a segregated and approved area.

Incompatible Materials:

Oxidizing agents
Bases
Heat

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Oxalacetic Acid	328-42-7	None	None	None	None

Canada

Components	CAS-No.	Canada - Alberta	Canada - British	Canada - Ontario	Canada - Quebec
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			Columbia		
Oxalacetic Acid	328-42-7	None	None	None	None

Australia and Mexico

Components	CAS-No.	Australia	Mexico
Oxalacetic Acid	328-42-7	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Face-shield

Skin and body protection: Boots
Chemical resistant protective suit
Gloves

Respiratory protection: Effective dust mask. Wear respirator with dust filter. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid

Appearance:

Powder.

Color:

White. Light yellow.

Odor:

No information available.

Taste

No information available.

Formula:

C₄H₄O₅

Molecular/Formula weight:

132.07 g/mol

Flammability:

No information available

Flashpoint (°C/°F):

No information available.

Flash Point Tested according to:

Not available

Autoignition Temperature (°C/°F):

No information available

Lower Explosion Limit (%):

No information available

Upper Explosion Limit (%):

No information available

Melting point/range(°C/°F):

161°C/322°F (dec)

Decomposition temperature(°C/°F):

No information available

Boiling point/range(°C/°F):

No information available

Bulk density:

No information available

Density (g/cm³):

0.18

Specific gravity:

No information available

pH:

Acidic

Vapor pressure @ 20°C (kPa):

No information available

Evaporation rate:

No information available

Vapor density:

No information available

VOC content (g/L):

No information available

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Product name: OXALACETIC ACID

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
No information available

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents

Reactive with bases

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Incompatible materials.

Incompatible Materials: Oxidizing agents
Bases
Heat

Hazardous decomposition products: Carbon oxides.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation. Skin. Eyes.

Acute Toxicity

Component Information

Oxalacetic Acid

CAS-No. 328-42-7

LD50/oral/rat = No information available

LD50/oral/mouse = No information available

LD50/dermal/rabbit = No information available

LD50/dermal/rat = No information available

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = No information available

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LD50/oral/rat =
VALUE- Acute Tox Oral = No information available

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin burns. May cause cold and clammy skin with cyanosis or pale color.

Eye Contact: Causes eye burns. Eye contact may cause eye corrosion or ulceration. May cause conjunctivitis. May cause corneal damage.

Inhalation Causes chemical burns to the respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Causes upper respiratory tract and mucous membrane irritation. Symptoms may include cough and hoarseness.

Ingestion Causes digestive or gastrointestinal tract burns. Symptoms may include a burning sensation in the mouth, throat, and stomach. May cause perforation of the digestive tract. May cause severe and permanent damage to the digestive tract.

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Oxalacetic Acid	328-42-7	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure Eyes. Skin. Respiratory system.
STOT - repeated exposure No information available.
Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Extremes of pH is expected to produce significant ecotoxicity upon exposure to aquatic organisms and the environment.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
 Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
 Empty containers should be taken for local recycling, recovery or waste disposal Do not reuse container Dispose of as unused product.

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Oxalacetic Acid	328-42-7	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Subsidiary Class No information available
Packing group: III
Emergency Response Guide Number No information available
Marine Pollutant No data available
DOT RQ (lbs): No information available

Special Provisions No Information available
Symbol(s): [DOT]: (G) - Identifies proper shipping names for which one or more technical names of the hazardous material must be entered in parentheses, in association with the basic description.
Description: UN3261, Corrosive solid, acidic, organic, n.o.s., 8, PG III

TDG (Canada)
UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Marine Pollutant No Information available
Description: UN3261, CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S., 8, PG III

ADR
UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Packing Group: III
Subsidiary Risk: No information available
Description: UN3261 Corrosive solid, acidic, organic, n.o.s., 8, III

IMO / IMDG
UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Marine Pollutant No information available
EMS: F-A

RID
UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Description: UN3261 Corrosive solid, acidic, organic, n.o.s., 8, III

ICAO
UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
Description: UN3261, Corrosive solid, acidic, organic, n.o.s., 8, PG III

IATA
UN-No: UN3261
Proper Shipping Name: Corrosive solid, acidic, organic, n.o.s. (oxalacetic acid)
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 8L
Special Provisions No information available
Description: UN3261, Corrosive solid, acidic, organic, n.o.s., 8, PG III

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Oxalacetic Acid	328-42-7	Present	Present KE-27566	Not present	Not present	Present	Present	Present 206-329-8

U.S. Regulations

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Oxalacetic Acid	328-42-7	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Oxalacetic Acid	328-42-7	None	None	None	None	None

U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Oxalacetic Acid	328-42-7	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

WHMIS 1988 Hazard Class

Non-controlled

Components Oxalacetic Acid

WHMIS 1988

Uncontrolled product according to WHMIS classification criteria

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Product code: O2094

Product name: OXALACETIC ACID

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Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Oxalacetic Acid	328-42-7	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Oxalacetic Acid	328-42-7	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Oxalacetic Acid	328-42-7	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Oxalacetic Acid	328-42-7	

EU - CLP (1272/2008)

R-phrase(s)

R34 - Causes burns.

S -phrase(s)

S 2 - Keep out of the reach of children.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 - After contact with skin, wash immediately with plenty of water

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S63 - In case of accident by inhalation: remove casualty to fresh air and keep at rest.

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Oxalacetic Acid	328-42-7		No information	S2 S26 S28 S45 S63 S36/37/39

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

C - Corrosive.



16. OTHER INFORMATION

Preparation Date: 8/15/2017
Revision Date: 8/15/2017
Prepared by: Roumann Pangilinan

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular

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End of Safety Data Sheet