Safety Data Sheet

29 CFR 1910.1200 App D

Oxalic acid

Version number: 1.0

SECTION 1: Identification

1.1 Product identifier

Identification of the substance oxalic acid

Trade name **Oxalic acid**

CAS number 144-62-7

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

Relevant identified uses Chemicals for various applications

1.3 Details of the supplier of the safety data sheet

Valudor Products, LLC
179 Calle Magdalena Suite 100
Encinitas, California CA 92024
United States

Telephone: +1 (760) 635 8500
e-mail: info@valudor.com
Website: www.valudor.com

1.4 Emergency telephone number

Emergency information 800-535-5053 (Infotrac)

As above or nearest toxicological information centre.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Classification				
Section	**Hazard class**	**Category**	**Hazard class and category**	**Hazard state-ment**
A.1O	acute toxicity (oral)	4	Acute Tox. 4	H302
A.1D	acute toxicity (dermal)	4	Acute Tox. 4	H312
A.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318

For full text of abbreviations: see SECTION 16

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Signal word danger

Pictograms

GHS05, GHS07

Hazard statements

H302+H312	Harmful if swallowed or in contact with skin.
H318	Causes serious eye damage.

Precautionary statements

P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/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.
P310	Immediately call a poison center/doctor.
P330	Rinse mouth.
P362+P364	Take off contaminated clothing and wash it before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	oxalic acid
Identifiers	
CAS No	144-62-7
Molecular formula	C2H2O4
Molar mass	90.03 $^{g}/_{mol}$

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Take off immediately all contaminated clothing.
In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.
Get medical advice/attention.

Following eye contact

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and easy to do. Continue rinsing.

Following ingestion

Rinse mouth immediately and drink plenty of water.
Do NOT induce vomiting.
Get medical advice/attention.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed or in contact with skin.
Seriously damaging to the eye.

4.3 Indication of any immediate medical attention and special treatment needed

Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

water, foam, alcohol resistant foam, fire extinguishing powder

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.
Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Keep containers cool with water spray.
In case of fire and/or explosion do not breathe fumes.
Coordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Use suitable breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.
Ventilate affected area.
Avoid contact with skin and eyes.
Control of dust.
Do not breathe dust.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Knock down dust with water spray.
Keep away from drains, surface and ground water.
Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal.
Ventilate affected area.
Control of dust.
Avoidance of ignition sources.

6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation.
Avoid contact with skin and eyes.
Avoid breathing dust.
Control of dust.
Keep container tightly closed.

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Keep away from sources of ignition - No smoking.

Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

Handling of incompatible substances or mixtures

Do not mix with alkali.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.
Wash hands after use.
Preventive skin protection (barrier creams/ointments) is recommended.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Explosive atmospheres

Removal of dust deposits.

Flammability hazards

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

humidity

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Ventilation requirements

Provision of sufficient ventilation.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

The following constituents are the only constituents of the product which have a PEL, a TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
US	Particulates not otherwise regulated	-	PEL (CA)	-	10	-	-	dust	Cal/OSHA PEL
US	Particulates not otherwise regulated	-	PEL (CA)	-	5	-	-	r	Cal/OSHA PEL
US	particulates not otherwise classified	-	REL	-	-	-	-	appx-D	NIOSH REL
US	particulates not otherwise classified (PNOC)	-	PEL	1,766	15	-	-	partml, i, dust	29 CFR 1910.1000
US	particulates not otherwise classified (PNOC)	-	PEL	529.5	5	-	-	partml, r, dust	29 CFR 1910.1000
US	oxalic acid	144-62-7	PEL (CA)	-	1	-	2	-	Cal/OSHA PEL
US	oxalic acid	144-62-7	REL	-	1 (10 h)	-	2	-	NIOSH REL
US	oxalic acid	144-62-7	PEL	-	1	-	-	-	29 CFR 1910.1000
US	Oxalic acid, anhydrous	144-62-7	TLV®	-	1	-	2	-	ACGIH® 2023
US	oxalic acid dihydrate	6153-56-6	TLV®	-	1	-	2	-	ACGIH® 2023

Notation

appx-D see Appendix D - Substances with No Established RELs

Notation	
dust	as dust
i	inhalable fraction
partml	particles/ml
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Wear suitable protective clothing.

Eye/face protection

Wear eye/face protection.

Hand protection

Protective gloves		
Material	**Material thickness**	**Breakthrough times of the glove material**
CR: chloroprene (chlorobutadiene) rubber	≥ 0,5 mm	>480 minutes (permeation: level 6)
IIR: isobutene-isoprene (butyl) rubber	≥ 0,5 mm	>480 minutes (permeation: level 6)
NBR: acrylonitrile-butadiene rubber	≥ 0,35 mm	>480 minutes (permeation: level 6)

Wear suitable gloves.
Chemical protection gloves are suitable, which are tested according to EN 374.
Check leak-tightness/impermeability prior to use.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Particle filter device (DIN EN 143).
P2 (filters at least 94 % of airborne particles, color code: White).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid
Color	whitish
Odor	odorless
Odor threshold	not determined

Other safety parameters

pH (value)	not applicable
Melting point/freezing point	189 °C
Boiling point or initial boiling point and boiling range	not determined
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	this material is combustible, but will not ignite readily
Explosive limits	not determined
Explosion limits of dust clouds	not determined
Vapor pressure	<0.001 hPa at 25 °C
Density	1.9 $^{g}/_{cm^3}$ at 17 °C
Bulk density	900 – 1,000 $^{kg}/_{m^3}$
Relative vapour density	not applicable
Solubility(ies)	
Water solubility	>100 $^{g}/_{l}$ at 20 °C (ECHA)
Partition coefficient	
n-octanol/water (log KOW)	-1.7 (23 °C) (OECD Guideline 107)
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
Viscosity	not relevant (solid)

Explosive properties	none
Oxidizing properties	none
Information for relevant hazard classes according to GHS	hazard classes acc. to GHS (physical hazards): not relevant

9.2 Other information

Temperature class (USA, acc. to NEC 500)	T2 (maximum permissible surface temperature on the equipment: 300°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

strong oxidizer, chlorates, hypochlorites, silver(if heated)

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgment (weight of evidence determination).

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity

Harmful if swallowed.
Harmful in contact with skin.

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	475 $^{mg}/_{kg}$	rat, male	-	ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization
Skin sensitization

Shall not be classified as a skin sensitizer.

Respiratory sensitization

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

IARC Monographs

not listed

National Toxicology Program (United States)

not listed

OSHA Carcinogens

Not listed.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Other information

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Endpoint	Exposure time	Value	Species	Method	Source
LC50	48 h	160 $^{mg}/_{l}$	orfe (Leuciscus idus)	-	ECHA
EC50	48 h	162.2 $^{mg}/_{l}$	daphnia magna	OECD Guideline 202	ECHA
EC50	72 h	>18.39 – <19.92 $^{mg}/_{l}$	algae (pseudokirch-neriella subcapitata)	OECD Guideline 201	ECHA
ErC50	72 h	>19.83 – <21.35 $^{mg}/_{l}$	algae (pseudokirch-neriella subcapitata)	OECD Guideline 201	ECHA

Aquatic toxicity (chronic)

Endpoint	Exposure time	Value	Species	Method	Source
growth (EbCx) 10%	72 h	>5.14 – < 6.01 $^{mg}/_{l}$	algae (pseudokirch-neriella subcapitata)	OECD Guideline 201	ECHA
growth rate (ErCx) 10%	72 h	>7.06 – < 8.08 $^{mg}/_{l}$	algae (pseudokirch-neriella subcapitata)	OECD Guideline 201	ECHA

12.2 Persistence and degradability

Biodegradation

The substance is readily biodegradable.

Process of degradability				
Process	**Degradation rate**	**Time**	**Method**	**Source**
oxygen depletion	89 %	20 d	EU method C.5	ECHA

Persistence

No data available.

12.3 Bioaccumulative potential

n-octanol/water (log KOW) -1.7 (23 °C)
(ECHA)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties Other adverse effects

Not listed.

Remarks

None.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packages

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	**UN number**	not assigned
14.2	**UN proper shipping name**	-
14.3	**Transport hazard class(es)**	-
14.4	**Packing group**	-
14.5	**Environmental hazards**	-
14.6	**Special precautions for user**	-
14.7	**Transport in bulk according to IMO instruments**	-

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT) Additional information

Not subject to transport regulations.

SECTION 15: Regulatory information

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

National regulations (United States)

Toxic Substance Control Act (TSCA) Substance is listed as "ACTIVE"

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

Not listed

Specific Toxic Chemical Listings (EPCRA Section 313)

Not listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Not listed

Clean Air Act

Not listed

Right to Know Hazardous Substance List

Cleaning Product Right to Know Act Substance List (CA-RTK)

Not listed

Toxic or Hazardous Substance List (MA-TURA)

Not listed

Hazardous Substances List (MN-ERTK)

Name of substance	CAS No	References	Remarks
oxalic acid	144-62-7	A, O	-

Legend

A American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1992-93", available from ACGIH

O Occupational Safety and Health Administration (OSHA), Safety and Health Standards, Code of Federal Regulations, title 29, part 1910, subpart Z, "Toxic and Hazardous Substances, 1990." General information: Minnesota Department of Labor and Industry, Occupational Safety and Health Division

Hazardous Substance List (NJ-RTK)

Name of substance	Name acc. to inventory	CAS No	Remarks	Classifications	Listed in	Substance number	DOT number
oxalic acid	oxalic acid (ethanedioic acid)	144-62-7	-	CO.	1 2 3 15 17	1445	1759

Legend

1 Occupational Safety and Health Administration, 29 CFR 1910-Occupational Safety and Health Standards, Subpart Z-Toxicand Hazardous Substances, July 1, 2008.

15 "Fire Protection Guide to Hazardous Materials," N FPA 49 (Hazardous Chemicals Data), NFPA 325 (Guide to Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids), and NFPA 704 (Standard System for the Identification of the Hazards of Materials for Emergency Response), National Fire Protection Association (NFPA), 2001.

17 "2008 Emergency Response Guidebook," Research and Special Programs Administration, U.S. Department of Transportation, 2008.

2 "2009 TLVs® and BEIs®, Threshold Limit Values and Biological Exposure Indices," American Conference of Governmental Industrial Hygienists (ACGIH), 2009.

3 Office of Hazardous Materials Safety, Research and Special Programs Administration, U.S. Department of Transportation, 49 CFR 172.101-Hazardous Materials Table, October 1, 2008.

CO Corrosive

Hazardous Substance List (Chapter 323) (PA-RTK)

Name acc. to inventory	CAS No	Classification
ETHANEDIOIC ACID	144-62-7	-

Hazardous Substance List (RI-RTK)

Name of substance	CAS No	References
oxalic acid	144-62-7	T, F
oxalic acid	144-62-7	F

Legend

F Flammability (NFPA®)

T Toxicity (ACGIH®)

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

Not listed

Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

Not listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

Hazardous Materials Identification System.
American Coatings Association.

Category	Rating	Description
Chronic	/	none
Health	3	major injury likely unless prompt action is taken and medical treatment is given
Flammability	2	material that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	-

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	3	material that can be ignited under almost all ambient temperature conditions
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard	-	-

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

SECTION 16: Other information, including date of preparation or last revision

Date of preparation: 2023-03-10

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
29 CFR 1910.1000	29 CFR 1910.1000, Tables Z-1, Z-2, Z-3 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits)
49 CFR US DOT	49 CFR U.S. Department of Transportation
ACGIH®	American Conference of Governmental Industrial Hygienists

Abbr.	Descriptions of used abbreviations
ACGIH® 2023	From ACGIH®, 2023 TLVs® and BEIs® Book. Copyright 2023. Reprinted with permission. Information on the proper use of the TLVs® and BEIs®: http://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations/tlv-bei-position-statement
Cal/OSHA PEL	California Division of Occupational Safety and Health (Cal/OSHA): Permissible Exposure Limits (PELs)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IARC Monographs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NFPA®	National Fire Protection Association (United States)
NIOSH REL	National Institute for Occupational Safety and Health (NIOSH): Recommended Exposure Limits (RELs)
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible exposure limit
ppm	Parts per million
STEL	Short-term exposure limit
TLV®	Threshold Limit Values
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H318	Causes serious eye damage.

Responsible for the safety data sheet

Chemical Regulatory Compliance Company
Jasper, GA
USA

Telephone: +1 (630) 410-1660
e-Mail: GHS@crc-us.com
Website: www.crc-us.com

Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.