

SAFETY DATA SHEET

1. PRODUCT

1.1 Product identifiers

Name: Diethyl oxalate

CAS-No.: 95-92-1

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

Identified uses : Laboratory chemicals, Manufacture of substances

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227

Acute toxicity, Oral (Category 4), H302

Skin corrosion (Category 1A), H314

Serious eye damage (Category 1), H318

Reproductive toxicity (Category 1B), H360


Specific target organ toxicity - single exposure, Dermal (Category 2), Kidney, H371

Specific target organ toxicity - repeated exposure, Oral (Category 1), Kidney, H372

Acute aquatic toxicity (Category 3), H402

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram	
Signal word	Danger
Hazard statement(s)	H227 Combustible liquid. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H360 May damage fertility or the unborn child. H371 May cause damage to organs (Kidney) in contact with skin. H372 Causes damage to organs (Kidney) through prolonged or repeated exposure if swallowed. H402 Harmful to aquatic life.

Precautionary statement(s)	<p>P201 Obtain special instructions before use.</p> <p>P202 Do not handle until all safety precautions have been read and understood.</p> <p>P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.</p> <p>P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.</p> <p>P264 Wash skin thoroughly after handling.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P273 Avoid release to the environment.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P281 Use personal protective equipment as required.</p> <p>P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.</p> <p>P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.</p> <p>P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.</p> <p>P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.</p> <p>P308 + P313 IF exposed or concerned: Get medical advice/ attention.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.</p> <p>P403 + P235 Store in a well-ventilated place. Keep cool.</p> <p>P405 Store locked up.</p> <p>P501 Dispose of contents/ container to an approved waste disposal plant.</p>
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2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula:	C ₆ H ₁₀ O ₄
Molecular weight:	146.14 g/mol
CAS-No.:	95-92-1
EC-No.:	202-464-1

Hazardous components

Component	Classification	Concentration
Diethyl oxalate	Flam. Liq. 4; Acute Tox. 4; Skin Corr. 1A; Eye Dam. 1; Repr. 1B; STOT SE 2; STOT RE 1; Aquatic Acute 3; H227, H302, H314, H318, H360, H371, H372, H402	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.2 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Exposure to moisture

Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection	Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: butyl-rubber Minimum layer thickness: 0.3 mm Break through time: 480 min Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M) Splash contact Material: Nitrile rubber Minimum layer thickness: 0.4 mm Break through time: 30 min Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection	Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid Colour: colourless
Odour	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	Melting point/range: -41 °C (-42 °F)
Initial boiling point and boiling range	185 °C (365 °F)
Flash point	75 °C (167 °F) - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available

Upper/lower flammability or explosive limits	Upper explosion limit: 2.67 %(V) Lower explosion limit: 0.42 %(V)
Vapour pressure	1 hPa (1 mmHg) at 47 °C (117 °F)
Vapour density	5.85
Relative density	1.076 g/mL at 25 °C (77 °F)
Water solubility	slightly soluble
Partition coefficient: n-octanol/water	log Pow: 1.31 at 25 °C (77 °F)
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Surface tension: 32.22

Relative vapour density: 5.85

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 400 mg/kg Inhalation: No data available LD50 Dermal - Rat - > 2,000 mg/kg No data available
Skin corrosion/irritation
Skin - in vitro assay Result: Causes severe burns. (Skin corrosion: Human Skin Model Test)
Serious eye damage/eye irritation
No data available
Respiratory or skin sensitisation
Did not cause sensitisation on laboratory animals.
Germ cell mutagenicity

In vitro tests did not show mutagenic effects Chromosome aberration test in vitro Result: negative
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
Presumed human reproductive toxicant May damage the unborn child. May damage fertility. Presumed human reproductive toxicant
Specific target organ toxicity -single exposure
Skin contact - May cause damage to organs. - Kidney
Specific target organ toxicity -repeated exposure
Oral - Causes damage to organs through prolonged or repeated exposure. - Kidney
Aspiration hazard
No data available
Additional Information
RTECS: RO2800000 Stomach - Irregularities - Based on Human Evidence Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC0 - Leuciscus idus melanotus - 108 mg/l - 48 h LC50 - Poecilia reticulata (guppy) - 97.36 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 100 mg/l - 24 h
Toxicity to algae	ErC50 - Desmodesmus subspicatus (green algae) - 77.1 mg/l - 72 h
Toxicity to bacteria	No data available

12.2 Persistence and degradability

Biodegradability	Result: 67.9 % - Biodegradable (OECD Test Guideline 301D)
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12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2525 Class: 6.1 Packing group: III

Proper shipping name: Ethyl oxalate

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 2525 Class: 6.1 Packing group: III EMS-No: F-A, S-A

Proper shipping name: ETHYL OXALATE

IATA

UN number: 2525 Class: 6.1 Packing group: III

Proper shipping name: Ethyl oxalate

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
Diethyl oxalate	95-92-1	2007-03-01

New Jersey Right To Know Components

Component	CAS-No.	Revision Date
Diethyl oxalate	95-92-1	2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute Acute aquatic toxicity

Eye Dam. Serious eye damage

Flam. Liq. Flammable liquids

H227 Combustible liquid.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H360 May damage fertility or the unborn child.

H371 May cause damage to organs in contact with skin.

H372 Causes damage to organs through prolonged or repeated exposure if swallowed.

H402 Harmful to aquatic life.

Repr. Reproductive toxicity

HMIS Rating

Health hazard: 2

Chronic Health Hazard: *

Flammability: 2

Physical Hazard 1

NFPA Rating

Health hazard: 2

Fire Hazard: 2

Reactivity Hazard: 1

Health hazard: 2

Fire Hazard: 2

Reactivity Hazard: 0
