SAFETY DATA SHEET  
(according to (EC) 1907/2006)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier  Diethyl Oxalate

1.2. Relevant identified uses of the substance or mixture and uses advised against 
Not provided.

1.3. Details of the supplier of the safety data sheet 
Manufacturer Information: Vertellus LLC  
201 North Illinois Street, Suite 1800, Indianapolis, IN 46204 
Non-Emergency Phone Number: 336-292-1781 
Non-Emergency Fax Number: 336-854-4058 
E-Mail Address: msds@vertellus.com

1.4. Emergency telephone number 
Vertellus: 336-292-1781 
CHEMTREC (USA): (800) 424-9300 
(collect calls accepted); (Int’l): (703) 527-3887 
(collect calls accepted; 011 prefix not needed)

SECTION 2: Hazards identification

HMIS Rating

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

2.1. Classification of the substance or mixture  
(According to Regulation (EC) No 1272/2008) 
Serious Eye Damage/Eye Irritation Category 2 
Acute Toxicity Oral Category 4

Signal Word: Warning

Hazard Precautions: 
H319 - Causes serious eye irritation. 
H302 - Harmful if swallowed.

2.2. Label elements
Hazard Symbols (Pictogram):

Prevention Precautions:
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P270 - Do not eat, drink or smoke when using this product.
P264 - Wash hands thoroughly after handling.

First Aid Precautions:
P337+P313 - If eye irritation persists: Get medical advice/attention.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 - Rinse mouth.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Storage Precautions:
Not required.

Disposal Precautions:
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation for hazardous wastes.

Single Exposure Target Organs:
Not applicable

Repeated Exposure Target Organs:
Not applicable

(According to Directive 67/548/EEC)
Symbol: Xi, Xn
Risk Phrases: R36: Irritating to the eyes.
R22: Harmful if swallowed.
Safety Phrases: S2: Keep out of the reach of children.
S23: Do not breathe gas/fumes/vapour/spray.

2.3. Other hazards

Signs and Symptoms of Potential Overexposure: See Section 11 for further toxicological information.
Primary Route(s) of Exposure: Skin contact and absorption, eye contact, ingestion, inhalation.
Medical Conditions Aggravated by Exposure: No data found

SECTION 3: Composition/information on ingredients
SAFETY DATA SHEET

3.1. Substances or 3.2. Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Concentration (%)</th>
<th>EINECS / ELINCS</th>
<th>EU Symbol</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethyl Oxalate</td>
<td>95-92-1</td>
<td>100</td>
<td>202-464-1</td>
<td>Xi, Xn</td>
<td>R36- R22</td>
</tr>
</tbody>
</table>

NOTE: See Section 8 of this MSDS for exposure limit data for these ingredients. See Section 15 of this MSDS for trade secret information (where applicable). See Section 16 of this MSDS for the full text of the R-phrases above.

SECTION 4: First aid measures

4.1. Description of first aid measures

Skin Contact: Wash thoroughly after skin contact. Causes skin irritation.

Eye Contact: Immediately flush the eyes with plenty of water for at least 15 minutes. Call a physician. Wash thoroughly after skin contact.

Inhalation: Remove from exposure. If not breathing, give artificial respiration and call a physician. High gas vapor or mist concentrations may be harmful if inhaled.

Ingestion: If swallowed, do not induce vomiting. Get prompt medical attention. May be harmful if ingested in sufficient quantities.

4.2. Most important symptoms and effects, both acute and delayed

Acute: See Section 11 for further toxicological information.

Delayed Effects: None known.

4.3. Indication of any immediate medical attention and special treatment needed

Thermal Exposure: Not applicable.

Note to Physician: No additional first aid information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Appropriate Extinguishing Media: Foam Dry chemical Water spray

5.2. Special hazards arising from the substance or mixture

Hazardous Products of Combustion: As with other organic materials, combustion will produce carbon monoxide and carbon dioxide.

Potential for Dust Explosion: not available

Special Flammability Hazards: Not applicable.

5.3. Advice for firefighters

Basic Fire Fighting Guidance: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Flammability Classification (OSHA): Not applicable.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuation Procedures: Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
Special Instructions: Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.

6.2. Environmental precautions
Prevent releases to soils, drains, sewers, and waterways.

6.3. Methods and material for containment and cleaning up
Containment Techniques and Clean-up Procedures: Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Remove all ignition sources. Ventilate the area of spill or leak. Wear protective equipment during clean-up. For small spills, use suitable absorbent material and collect for later disposal. For large spills, the area may require diking to contain the spill. Material can then be collected (e.g., suction) for later disposal. After collection of material, flush area with water. Dispose of the material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Contain spilled liquid with sand or vermiculite and place in chemical waste container. Prevent runoff from entering drains, sewers, and streams.

Special Reporting Requirements: Not applicable.

6.4. Reference to other sections
Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for Unique Hazards: Not applicable.
Practices to Minimize Risk: Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material.
Special Handling Equipment: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities
Storage Precautions & This product should be stored at ambient temperature in a dry, well-ventilated location. Keep
SAFETY DATA SHEET

Recommendations: container closed when not in use. Inside storage should be in standard flammable liquids storage room or cabinet.

Dangerous Incompatibility Reactions: Incompatible with oxidizing materials.

Incompatibilities with Materials of Construction: none known

7.3. Specific end use(s)

If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits (United States): OSHA PEL: Hazardous ACGIH TLV: Not established

8.2. Exposure controls

Also see the annex to this SDS (if applicable) for specific exposure scenario controls.

Personal Protective Equipment: Goggles or glasses with side shields. Clothing should be sufficient to minimize physical contact. The use of a NIOSH-approved organic vapor respirator is recommended whenever this product is used in a confined space or heated above ambient temperature.


Ventilation: All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided.

Other Engineering Controls: All appropriate engineering controls should be used to minimize exposure potential. Use exhaust ventilation to keep airborne concentrations below exposure limits.

Thermal Hazards: Not applicable.

Additive or Synergistic Effects: None known.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance, State & Odor (ambient temperature): Clear oily liquid

Molecular Formula: C6H10O4

Molecular Weight: Evaporation Rate:

Vapor Pressure: Not available. 1.00 mm Hg

47.00 °C

Evaporation Rate:

Specific Gravity or Density: 1.08

20.000

Vapor Density (air = 1): 5.04

Boiling Point: Not available. 185.4 °C 760 mm Hg

Freezing / Melting Point: Not available. - 40 °C - 40 °F

Solubility in Water: Octanol / Water Coefficient: Not available.

pH: Not applicable

Odor Threshold: Characteristic
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9.2. Other information
Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity
Not classified as dangerously reactive.

10.2. Chemical stability
Stable

10.3. Possibility of hazardous reactions
Will not occur.

10.4. Conditions to avoid
No data.

10.5. Incompatible materials
Incompatible with oxidizing materials.

10.6. Hazardous decomposition products
Carbon dioxide

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute Oral LD₅₀:
Oral LD₅₀ (mouse) 2000 mg/kg
Oral LD₅₀ (rat) 400 mg/kg

Acute Dermal LD₅₀:
Not available.

Acute Inhalation LC₅₀:
Not available.

Skin Irritation:
Non-irritating to both intact and abraded skin.

Skin Sensitization:
No data available.

Eye Irritation:
Slight to moderate erythema observed in eyes in contact with material over 20 minutes to 3 hours.

Target Organs:
No data available.

Carcinogenicity:
No data available.

Teratogenicity:
Not listed

Reproduction:
This chemical is not listed by IARC, NTP or OSHA as a carcinogen.

Neurotoxicity:
No data available.

Mutagenicity:
Not listed

SECTION 12: Ecological information

12.1. Toxicity
Not established

Viscosity: Not available.
Flash Point and Method: 165°F, 165°F (74°C)
Autoignition Temperature: Not available.
Flammable Limits: Not established (LEL) – Not established (UEL)
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12.2. Persistence and degradability
No data Not established

12.3. Bioaccumulative potential
No data

12.4. Mobility in soil
No data

12.5. Results of PBT and vPvB assessment
Not available.

12.6. Other adverse effects
No data available. Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

US EPA Waste Number: Not applicable

Waste Classification: (per US regulations)
Dispose of by incineration following Federal, State, Local, or Provincial regulations.
NOTE: Generator is responsible for proper waste characterization. State (USA) hazardous waste regulations may differ substantially from federal (USA) regulations.

Waste Disposal: Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.

SECTION 14: Transport information

14.1. UN number
UN2525

14.2. UN proper shipping name
Ethyl oxalate (Diethyl Oxalate)

14.3. Transport hazard class(es)
6.1

14.4. Packing group
PG III

14.5. Environmental hazards
Not applicable

14.6. Special precautions for user
Not available.

NA Emergency Guidebook Numbers: 156

IMDG EMS: S-A F-A

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
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WHMIS Classification: Not Controlled

Chemical Inventory Lists: Status
  TSCA: Listed
  EINECS: Listed
  Canada(DSL/NDSL): Listed
  Japan: Listed
  Korea: Unknown
  Australia: Listed
  New Zealand: Present
  China: Unknown
  Philippines: Present
  Switzerland: Not Listed

New Zealand GHS Classification: 6.1D oral, 6.4A, 9.3C (Approval number: HSR005019)

Japan GHS Classification: Flammable liquids - Category 4: H227 Combustible liquid; Acute toxicity - Oral - Category 4: H302 Harmful if swallowed; Skin corrosion/irritation - Category 2: H315 Causes skin irritation

Korea (MOL) GHS Classification: Non classificato da questo paese.

Australia GHS Classification: Non classificato da questo paese.

Taiwan GHS Classification: Flammable liquids - Category 4: H227 Combustible liquid; Acute toxicity - Oral - Category 4: H302 Harmful if swallowed; Serious eye damage/eye irritation - Category 2A: H319 Causes serious eye irritation

Indonesia GHS Classification: Non classificato da questo paese.

SARA 313: Not applicable

15.2. Chemical safety assessment
Not applicable.

SECTION 16: Other information

Full text of R phrases in Section 3: R36: Irritating to the eyes.
R22: Harmful if swallowed.
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Legend of abbreviations:

ACGIH = American Conference on Governmental Industrial Hygienists.
CAS = Chemical Abstracts Service.
DSL/NDSL = Domestic Substances List/Non-Domestic Substances List.
EC = European Community.
EEC = European Economic Community.
EINECS = European Inventory of Existing Commercial chemical Substances.
ELINCS = European List of Notified Chemical Substances.
EU = European Union.
GHS = Globally Harmonized System.
LC = Lethal concentration.
LD = Lethal dose.
MOL = Ministry of Labor.
NEMA = National Emergency Management Agency.
NIOSH = National Institute of Occupational Safety and Health.
NTP = National Toxicological Program.
OSHA = Occupational Safety and Health Administration.
PEL = Permissible exposure limit.
RQ = Reportable quantity.
TLV = Threshold limit value.
WHMIS = Workplace Hazardous Materials Information System.

Precautionary Statement: Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

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Revision Details: Revised in all sections to GHS format.