SECTION 1. Identification

Product identifier

Product number 816144
Product name Oxalic acid anhydrous for synthesis
CAS-No. 144-62-7

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

Identified uses Chemical for synthesis

Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 4, Oral, H302
Acute toxicity, Category 4, Dermal, H312
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Warning

Hazard Statements
H302 + H312 Harmful if swallowed or in contact with skin.

Precautionary Statements
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing.  
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.  
P322 Specific measures (see supplemental first aid instructions on this label).  
P330 Rinse mouth.  
P363 Wash contaminated clothing before reuse.  
P501 Dispose of contents/ container to an approved waste disposal plant.  

Other hazards  
None known.  

SECTION 3. Composition/information on ingredients  

<table>
<thead>
<tr>
<th>Formula</th>
<th>HOOC\textsubscript{3}COOH</th>
<th>C\textsubscript{2}H\textsubscript{2}O\textsubscript{4} (Hill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molar mass</td>
<td>90.03 g/mol</td>
<td></td>
</tr>
</tbody>
</table>

Hazardous ingredients  
Chemical Name (Concentration)  
CAS-No.  
Oxalic acid (\( \geq 90 \% \) - \( \leq 100 \% \))  
144-62-7  
Exact percentages are being withheld as a trade secret.  

SECTION 4. First aid measures  

Description of first-aid measures  
Inhalation  
After inhalation: fresh air.  

Skin contact  
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.  

Eye contact  
After eye contact: rinse out with plenty of water.  

Ingestion  
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.  

Never give anything by mouth to an unconscious person.  

Most important symptoms and effects, both acute and delayed  
Irritation and corrosion, agitation, spasms, Nausea, Vomiting, cardiovascular disorders, collapse.  
The following applies to oxalates in general: nausea and vomiting after swallowing. Mucosal irritations, coughing, and dyspnœa after inhalation. Systemic effect: drop in the blood calcium level, toxic effect on kidneys, cardiovascular disorders.  

Indication of any immediate medical attention and special treatment needed  
No information available.
SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Water, Carbon dioxide (CO2), Foam, Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture
Combustible.
Development of hazardous combustion gases or vapors possible in the event of fire.

Advice for firefighters
Special protective equipment for fire-fighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:
Protective equipment see section 8.

Environmental precautions
Do not empty into drains.

Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling
Observe label precautions.

Conditions for safe storage, including any incompatibilities
Tightly closed. Dry.
Store at +15°C to +25°C (+59°F to +77°F).
## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Basis</th>
<th>Value</th>
<th>Threshold limits</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxalic acid 144-62-7</td>
<td>ACGIH</td>
<td>Short Term Exposure Limit (STEL):</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time Weighted Average (TWA):</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIOSH/GUIDE</td>
<td>Recommended exposure limit (REL):</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short Term Exposure Limit (STEL):</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA_TRANS</td>
<td>PEL:</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Z1A</td>
<td>Short Term Exposure Limit (STEL):</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time Weighted Average (TWA):</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.

### Eye/face protection

Safety glasses

### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### Other protective equipment:

protective clothing

### Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

<p>| Physical state | solid |</p>
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>white</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>ca. 1</td>
</tr>
<tr>
<td></td>
<td>at 100 g/l</td>
</tr>
<tr>
<td></td>
<td>68 °F (20 °C)</td>
</tr>
<tr>
<td>Melting point</td>
<td>189 °C</td>
</tr>
<tr>
<td></td>
<td>(decomposition)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable, (decomposition)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No information available.</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>21.5 hPa</td>
</tr>
<tr>
<td></td>
<td>at 122 °F (50 °C)</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Density</td>
<td>1.9 g/cm³</td>
</tr>
<tr>
<td></td>
<td>at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Water solubility</td>
<td>220 g/l</td>
</tr>
<tr>
<td></td>
<td>at 77 °F (25 °C)</td>
</tr>
<tr>
<td></td>
<td>(experimental)</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: -0.81 (30 °C)</td>
</tr>
<tr>
<td></td>
<td>(IUCLID) Bioaccumulation is not expected.</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>&gt; 315 °F (&gt; 157 °C)</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No information available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not classified as explosive.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>none</td>
</tr>
</tbody>
</table>
SECTION 10. Stability and reactivity

Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

Chemical stability
sensitive to moisture

Possibility of hazardous reactions
Risk of explosion with:
chlorates, sodium hypochlorite, Strong oxidizing agents, silver, salts of oxyhalogenic acids
Exothermic reaction with:
bases, Ammonia, Mercury

Conditions to avoid
Strong heating (decomposition).

Incompatible materials
no information available

Hazardous decomposition products
no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Eye contact, Skin contact, Ingestion

Target Organs
Eyes
Skin
Respiratory system
Kidneys

Acute oral toxicity
LD50 Rat: 375 mg/kg (IUCLID)

absorption
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute dermal toxicity
absorption

Acute toxicity estimate: 1,100.1 mg/kg
Expert judgment
Skin irritation
Rabbit
Result: No irritation
OECD Test Guideline 404

Sensitization
Mouse
Result: negative
Method: OECD Test Guideline 429

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information
Systemic effects:
After absorption:
agitation, spasms, Nausea, Vomiting, cardiovascular disorders, collapse, disturbed electrolyte balance.
Secondary products cause:
Damage to:
Kidney
The following applies to oxalates in general: nausea and vomiting after swallowing. Mucosal irritations, coughing, and dyspnoea after inhalation. Systemic effect: drop in the blood calcium level, toxic effect on kidneys, cardiovascular disorders.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Leuciscus idus (Golden orfe): 160 mg/l; 48 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 162.2 mg/l; 48 h
OECD Test Guideline 202

Persistence and degradability

Biodegradability
40 %; 5 d
(IUCLID)

Biochemical Oxygen Demand (BOD)
160 mg/g (5 d)
(IUCLID)

Chemical Oxygen Demand (COD)
180 mg/g
(IUCLID)

Theoretical oxygen demand (ThOD)
180 mg/g

Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: -0.81 (30 °C)
(IUCLID) Bioaccumulation is not expected.

Mobility in soil
No information available.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.
SECTION 14. Transport information

Land transport (DOT)

UN number  UN 3261
Proper shipping name  CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (OXALIC ACID)
Class  8
Packing group  II
Environmentally hazardous  --

Air transport (IATA)

UN number  UN 3261
Proper shipping name  CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (OXALIC ACID)
Class  8
Packing group  II
Environmentally hazardous  --
Special precautions for user  no

Sea transport (IMDG)

UN number  UN 3261
Proper shipping name  CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (OXALIC ACID)
Class  8
Packing group  II
Environmentally hazardous  --
Special precautions for user  yes
EmS  F-A  S-B

SECTION 15. Regulatory information

United States of America

SARA 313
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 302
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
Clean Water Act
This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I
Not listed

DEA List II
Not listed

TSCA 12b
Ingredients
Oxalic acid 144-62-7

US State Regulations
Massachusetts Right To Know
Ingredients
Oxalic acid

Pennsylvania Right To Know
Ingredients
Oxalic acid

New Jersey Right To Know
Ingredients
Oxalic acid

California Prop 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status
TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.
Labeling
Hazard pictograms

Signal Word
Warning

Hazard Statements
H302 + H312 Harmful if swallowed or in contact with skin.

Precautionary Statements
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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

H302 Harmful if swallowed.
H312 Harmful in contact with skin.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 04/13/2015

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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