**OXALIC ACID**

Ethanedioic acid

---

**CAS #: 144-62-7**  **RTECS #:**  
RO2450000  
UN #: 3261  
EC #: 607-006-00-8  
EINECS #: 205-634-3

**Formula:** $C_2H_2O_4$ / (COOH)$_2$

**Molecular mass:** 90.0

---

<table>
<thead>
<tr>
<th>TYPES OF HAZARD / EXPOSURE</th>
<th>ACUTE HAZARDS / SYMPTOMS</th>
<th>PREVENTION</th>
<th>FIRST AID / FIRE-FIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE</td>
<td>Combustible. Gives off irritating or toxic fumes (or gasses) in a fire.</td>
<td>NO open flames.</td>
<td>Use water spray, powder, foam, carbon dioxide.</td>
</tr>
<tr>
<td>EXPLOSION</td>
<td></td>
<td></td>
<td>In case of fire: keep drums, etc., cool by spraying with water.</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>EXPOSURE</th>
<th>PREVENT DISPERSION OF DUST!</th>
</tr>
</thead>
</table>

---

<table>
<thead>
<tr>
<th>SPILLAGE DISPOSAL</th>
<th>PACKAGING &amp; LABELLING</th>
</tr>
</thead>
</table>
| Personal protection: particulate filter respirator adapted to the airborne concentration of the substance, protective gloves and safety goggles. Sweep spilled substance into covered plastic containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water. | Do not transport with food and feedstuffs. **EC Classification** Symbol: Xn; R: 21/22; S: (2)-24/25  
**UN Classification** UN Hazard Class: 8; UN Pack Group: III  
**GHS Classification** Signal: Danger  
Harmful if swallowed  
Causes severe skin burns and eye damage  
May cause respiratory irritation |
## EMERGENCY RESPONSE

| NFPA Code: H3; F1; R0. | Separated from strong oxidants and food and feedstuffs. Dry. Well closed. |

## IMPORTANT DATA

### Physical State; Appearance
HYGROSCOPIC COLOURLESS CRYSTALS OR WHITE POWDER.

### Physical dangers
No data.

### Chemical dangers
Decomposes on contact with hot surfaces or flames. This produces formic acid and carbon monoxide. The solution in water is a medium strong acid. Reacts violently with strong oxidants. This generates fire and explosion hazard. Reacts with some silver compounds. This produces explosive silver oxalate. Attacks some forms of plastic.

### Occupational exposure limits
TLV: 1mg/m³ as TWA; (ACGIH 2009). EU OEL( selected): 1mg/m³ as TWA;.

### Routes of exposure
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion. Serious local effects by all routes of exposure.

### Inhalation risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

### Effects of short-term exposure
The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. The substance may cause effects on the calcium balance after ingestion. Exposure at high levels could cause death.

### Effects of long-term or repeated exposure
Repeated or prolonged contact with skin may cause dermatitis. Exposure may result in kidney stones, slow-healing ulcers and black finger nails.

## PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Decomposes: see Notes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point: 189.5°C</td>
</tr>
<tr>
<td>Density (at °C): 1.9 g/cm³</td>
</tr>
<tr>
<td>Solubility in water, g/100ml at 20°C: 9-10 (moderate)</td>
</tr>
<tr>
<td>Octanol/water partition coefficient as log Pow: -0.81</td>
</tr>
</tbody>
</table>

## ENVIRONMENTAL DATA

Decomposes: see Notes.

## NOTES

Oxalic acid may sublime at temperatures >100 °C at reduced pressure. Optimal sublimation temperature is 157 °C. At higher temperatures it partly decomposes.

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

Some producers do not classify this substance under UN 3261.

## ADDITIONAL INFORMATION

Prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission

© IPCS 2004-2012

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information.