1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Glycidol
Product Number : G5809
Brand : Aldrich
Supplier : Sigma-Aldrich

 Supply Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant, Teratogen, Mutagen

Target Organs
Nerves.

Other hazards which do not result in classification
Rapidly absorbed through skin.

GHS Classification
Flammable liquids (Category 4)
Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 4)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Germ cell mutagenicity (Category 2)
Carcinogenicity (Category 1B)
Reproductive toxicity (Category 1B)
Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Signal word: Danger

Hazard statement(s)
H227 Combustible liquid
H302 + H312 Harmful if swallowed or in contact with skin
H315 Causes skin irritation.
H318 Causes serious eye damage.
H331    Toxic if inhaled.
H335    May cause respiratory irritation.
H341    Suspected of causing genetic defects.
H350    May cause cancer.
H360    May damage fertility or the unborn child.

Precautionary statement(s)
P201    Obtain special instructions before use.
P261    Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280    Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311    Call a POISON CENTER or doctor/ physician.

HMIS Classification
  Health hazard: 4
  Chronic Health Hazard: *
  Flammability: 2
  Physical hazards: 0

NFPA Rating
  Health hazard: 4
  Fire: 2
  Reactivity Hazard: 0

Potential Health Effects
  Inhalation    Toxic if inhaled. Causes respiratory tract irritation.
  Skin    Toxic if absorbed through skin. Causes skin irritation.
  Eyes    Causes eye irritation.
  Ingestion    Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 2,3-Epoxy-1-propanol
(±)-Glycidol
(±)-Oxirane-2-methanol
Glycerolglycide

Formula: C$_3$H$_6$O$_2$

Molecular Weight: 74.08 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glycidol</strong></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>556-52-5</td>
</tr>
<tr>
<td>EC-No.</td>
<td>209-128-3</td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-063-00-8</td>
</tr>
<tr>
<td>2,2'-(Oxybis(methylene))bisoxirane</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>2238-07-5</td>
</tr>
<tr>
<td>EC-No.</td>
<td>218-802-6</td>
</tr>
</tbody>
</table>

4. 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
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.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

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

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, 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.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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.

7. HANDLING AND STORAGE

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.

Conditions for safe storage
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.

Recommended storage temperature: 2 - 8 °C
Moisture sensitive. Handle and store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycidol</td>
<td>556-52-5</td>
<td>TWA</td>
<td>2 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Eye, skin, &amp; Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>25 ppm 75 mg/m3</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>
### Personal protective equipment

**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).

**Hand 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.

**Eye 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 and 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.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Appearance
- Form: liquid
- Colour: no data available

#### Safety data
- pH: no data available
- Melting point/freezing point: no data available
- Boiling point: 61 - 62 °C (142 - 144 °F) at 20 hPa (15 mmHg) - lit.
- Flash point: 81 °C (178 °F) - closed cup
- Ignition temperature: 416 °C (781 °F)
Autoignition temperature: no data available
Lower explosion limit: no data available
Upper explosion limit: no data available
Vapour pressure: no data available
Density: 1.117 g/mL at 25 °C (77 °F)
Water solubility: no data available
Partition coefficient: n-octanol/water: no data available
Relative vapour density: 2.97
Odour: no data available
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
Heat, flames and sparks.

**Materials to avoid**
Strong acids, Strong bases, Heavy metals

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions.
- Carbon oxides
Other decomposition products: no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**
LD50 Oral - rat - 420 mg/kg

**Inhalation LC50**
LC50 Inhalation - rat - 8 h -
Remarks: Lungs, Thorax, or Respiration:Emphysema. Lungs, Thorax, or Respiration:Other changes.

LC50 Inhalation - mouse - 4 h -
Remarks: Lungs, Thorax, or Respiration:Emphysema. Lungs, Thorax, or Respiration:Other changes.

**Dermal LD50**
LD50 Dermal - rabbit - 1,980 mg/kg

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - Skin irritation

**Serious eye damage/eye irritation**
Eyes - rabbit - Severe eye irritation

**Respiratory or skin sensitization**
no data available
Germ cell mutagenicity
In vitro tests showed mutagenic effects

Genotoxicity in vitro - mouse - lymphocyte
Mutation in mammalian somatic cells.

Genotoxicity in vitro - Hamster - ovary
Cytogenetic analysis

Genotoxicity in vitro - Hamster - Lungs
Mutation in mammalian somatic cells.

Genotoxicity in vitro - Hamster - Embryo
Morphological transformation.

Genotoxicity in vitro - Hamster - Lungs
Sister chromatid exchange

Genotoxicity in vitro - Hamster - ovary
Sister chromatid exchange

Genotoxicity in vitro - Human - lymphocyte
Sister chromatid exchange

Genotoxicity in vitro - Human - lymphocyte
Cytogenetic analysis

Genotoxicity in vivo - rat - Intraperitoneal
Cytogenetic analysis

Genotoxicity in vivo - rat - Oral
Cytogenetic analysis

Carcinogenicity
Carcinogenicity - mouse - Oral
Tumorigenic:Carcinogenic by RTECS criteria. Gastrointestinal:Tumors. Skin and Appendages: Other: Tumors.

Carcinogenicity - rat - Oral
Tumorigenic:Carcinogenic by RTECS criteria. Gastrointestinal:Tumors. Skin and Appendages: Other: Tumors.

Possible human carcinogen

IARC: 2A - Group 2A: Probably carcinogenic to humans (Glycidol)
NTP: Reasonably anticipated to be a human carcinogen (Glycidol)
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
Reproductive toxicity - rat - Oral
Reproductive toxicity - rat - Oral
Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).
Reproductive toxicity - mouse - Oral
Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

no data available

Teratogenicity
Developmental Toxicity - mouse - Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Presumed human reproductive toxicant
no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

- **Inhalation**: Toxic if inhaled. Causes respiratory tract irritation.
- **Ingestion**: Toxic if swallowed.
- **Skin**: Toxic if absorbed through skin. Causes skin irritation.
- **Eyes**: Causes eye irritation.

**Signs and Symptoms of Exposure**
Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**
no data available

**Additional Information**
RTECS: Not available

12. ECOLOGICAL INFORMATION

**Toxicity**
no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
no data available

13. DISPOSAL CONSIDERATIONS

**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: 2810  Class: 6.1  Packing group: III
Proper shipping name: Toxic, liquids, organic, n.o.s. (Glycidol)
Reportable Quantity (RQ):
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2810  Class: 6.1  Packing group: III  EMS-No: F-A, S-A  
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (Glycidol)  
Marine pollutant: No  

IATA  
UN number: 2810  Class: 6.1  Packing group: III  
Proper shipping name: Toxic liquid, organic, n.o.s. (Glycidol)  

15. REGULATORY INFORMATION  

OSHA Hazards  
Combustible Liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant, Teratogen, Mutagen  

SARA 302 Components  
The following components are subject to reporting levels established by SARA Title III, Section 302:  

<table>
<thead>
<tr>
<th>CAS-No.</th>
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<td>1993-04-24</td>
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SARA 313 Components  
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 311/312 Hazards  
Fire Hazard, Acute Health Hazard, Chronic Health Hazard  

Massachusetts Right To Know Components  

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Pennsylvania Right To Know Components  

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New Jersey Right To Know Components  

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California Prop. 65 Components  
WARNING! This product contains a chemical known to the State of California to cause cancer.  

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<td>556-52-5</td>
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California Prop. 65 Components  
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.  

<table>
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<tbody>
<tr>
<td>2238-07-5</td>
<td>2009-09-11</td>
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</tbody>
</table>

16. OTHER INFORMATION  

Further information  
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