

1 Identification

- **Product identifier**
- **Trade name:** Glycerol
- **Article number:** A3092
- **CAS Number:**
56-81-5
- **EC number:**
200-289-5
- **Application of the substance / the mixture**
 Molecular biology
 Biochemistry
 Chemical for synthesis
 Cell culture
 Chemical analytics
 Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 AppliChem GmbH
 Ottoweg 4
 D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570
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 msds@applichem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
 The substance is not classified, according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 0
 Fire = 1
 Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 0
 Fire = 1
 Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

Trade name: Glycerol

(Contd. of page 1)

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
56-81-5 Glycerol
- **Identification number(s)**
- **EC number:** 200-289-5

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Wash off with plenty of water.
Generally the product does not irritate the skin.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Rinse opened eye for several minutes under running water.
Seek medical treatment.
- **After swallowing:**
Rinse out mouth.
make victim drink water (maximum of 2 drinking glasses)
If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Water, CO₂, foam, powder.
- **For safety reasons unsuitable extinguishing agents:** None
- **Special hazards arising from the substance or mixture**
Vapours are heavier than air and may spread along floors.
CO, CO₂
acrolein
Ambient fire may liberate hazardous vapours.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**
Cool endangered receptacles with water spray.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Contain escaping vapours with water.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Particular danger of slipping on leaked/spilled product.
Do not inhale steams/aerosols.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Contd. on page 3)

Trade name: Glycerol

(Contd. of page 2)

- Clean up affected area.
- Dispose of the collected material according to regulations.
- **Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**
 - **PAC-1:** 45 mg/m³
 - **PAC-2:** 180 mg/m³
 - **PAC-3:** 1,100 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**
 - Fumes can combine with air to form an explosive mixture.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Provide acid-resistant floor.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
 - Keep container sealed.
 - Protect from humidity and water.
 - This product is hygroscopic.
 - Protect from frost.
- **Recommended storage temperature:** +15 - +25°C
- **Storage class:** 10
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

56-81-5 Glycerol

PEL	Long-term value: 15* 5** mg/m ³ mist; *total dust **respirable fraction
TLV	TLV withdrawn-insufficient data human occup. exp.

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Change contaminated clothing.
 - Avoid close or long term contact with the skin.
 - Avoid contact with the eyes.
 - Do not inhale gases / fumes / aerosols.
 - Wash hands before breaks and at the end of work.
 - Use skin protection cream for skin protection.
- **Breathing equipment:**
 - Respiratory protection required when vapours/aerosols are generated.
 - Filter A-(P2)

(Contd. on page 4)

Trade name: Glycerol

(Contd. of page 3)

- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
Value for the permeation: Level ≥ 480 min
- **As protection from splashes gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
Value for the permeation: Level ≥ 480 min
- **Eye protection:** Safety glasses
- **Body protection:**
Protective work clothing
Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

9 Physical and chemical properties

• Information on basic physical and chemical properties

• General Information

• Appearance:

Form:	Viscous
Color:	Colorless
Odor:	Odorless
Odor threshold:	Not determined.

• pH-value: 5

• Change in condition

Melting point/Melting range:	18 °C (64.4 °F)
Boiling point/Boiling range:	290 °C (554 °F)

• Flash point: 199 °C (390.2 °F)

• Flammability (solid, gaseous): Not applicable.

• Ignition temperature: 400 °C (752 °F)

• Decomposition temperature: >290 °C (>554 °F)

• Auto igniting: Not determined.

• Danger of explosion: Product does not present an explosion hazard.

• Explosion limits:

Lower:	2.6 Vol %
Upper:	11.3 Vol %

• Vapor pressure at 20 °C (68 °F): <0.001 hPa (>0 mm Hg)

• Density at 20 °C (68 °F): 1.26 g/cm³ (10.515 lbs/gal)

• Relative density: Not determined.

• Vapor density: Not determined.

(Contd. on page 5)

Trade name: Glycerol

(Contd. of page 4)

- | | |
|---|--|
| · Evaporation rate | Not determined. |
| · Solubility in / Miscibility with Water: | Fully miscible. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| Dynamic at 20 °C (68 °F): | 1,412 mPas |
| Kinematic: | Not determined. |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Strong heating
- **Possibility of hazardous reactions** Reacts violently with oxidizing agents.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
 - halogens
 - strong acids
 - Nitric acid
 - sulfuric acid
 - perchlorates
 - nitriles
 - strong oxidants
- **Hazardous decomposition products:** In the event of fire: See chapter 5

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

Components	Type	Value	Species
Oral	LD50	12,600 mg/kg (rat)	
Dermal	LD50	18,700 mg/kg (rabbit)	

- **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The substance is not subject to classification.
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:**

Type of test	Effective concentration	Method	Assessment
EC50	2,900 mg/l (Algae)		
EC50/24 h	>10,000 mg/l (daphnia magna)		
LC50/96 h	>5,000 mg/l (fish)		

(Contd. on page 6)

Trade name: Glycerol

(Contd. of page 5)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Assessment by list): slightly hazardous for water
Do not allow to enter waters, waste water, or soil.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Chemicals must be disposed of in compliance with the respective national regulations.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|--|--|
| · UN-Number | |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · UN proper shipping name | |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · Transport hazard class(es) | |
| · DOT, ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | Void |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | Not dangerous according to the above specifications. |
| · UN "Model Regulation": | Void |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** Substance is listed.

(Contd. on page 7)

Trade name: Glycerol

(Contd. of page 6)

- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogen categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value established by ACGIH)** Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **GHS label elements** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

* 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Dept. Compliance
- **Date of preparation / last revision** 03/16/2018 / 2

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

- *** Data compared to the previous version altered.**

US