

Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.
Ingestion	Drink plenty of water. Seek medical advice.
Most important symptoms/ effects, acute and delayed	Irritation of eyes and mucous membranes. Mild skin irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Get medical attention if any discomfort develops.

5. Fire fighting measures

Suitable extinguishing media	Water. Foam. Dry powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Fire or high temperatures create: Carbon oxides.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.
Fire-fighting equipment/instructions	Move containers from fire area if you can do that without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Ensure adequate ventilation. Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.
Methods and materials for containment and cleaning up	Dike far ahead of liquid spill for later disposal. Small Spills: Absorb spillage with suitable absorbent material. Clean contaminated surface thoroughly. After removal, flush contaminated area thoroughly with water. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
Environmental precautions	Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling	Provide adequate ventilation. Use work methods which minimize production of vapors and mists. Avoid inhalation of mist and contact with skin and eyes. Wash hands after handling. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	TWA	10 mg/m3	Mist.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	No exposure standards allocated.
Appropriate engineering controls	Provide adequate ventilation and minimize the risk of inhalation of vapors and mists.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses.
Skin protection	

Hand protection	Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
Other	Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
Respiratory protection	In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with combination filter (gas filter/dust filter). Seek advice from local supervisor.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Viscous liquid.
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
pH	Neutral.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Hazardous reactions do not occur.
Conditions to avoid	Strong heating. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known.

11. Toxicological information

Information on likely routes of exposure	
Ingestion	Ingestion may cause irritation and malaise.
Inhalation	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Skin contact	May cause skin irritation. Causes skin irritation.
Eye contact	May cause eye irritation on direct contact. Causes eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of eyes and mucous membranes. Mild skin irritation.
Information on toxicological effects	
Acute toxicity	Ingestion may cause irritation and malaise.
Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/eye irritation	May cause eye irritation on direct contact.
Respiratory sensitization	Not classified.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	Not classified.
Carcinogenicity	IARC not listed.
Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Knowledge about health hazard is incomplete.
Specific target organ toxicity - repeated exposure	Knowledge about health hazard is incomplete.
Aspiration hazard	Not classified.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills have a harmful or damaging effect on the environment.	
Persistence and degradability	The product is biodegradable.	
Bioaccumulative potential	The product is not bioaccumulating.	
	Partition coefficient <i>n</i>-octanol / water (log <i>Kow</i>)	
	Glycerol (CAS 56-81-5)	-1.76
Mobility in soil	Expected to be highly mobile in soil.	
Mobility in general	The product is water soluble and may spread in water systems.	
Other adverse effects	No data available.	

13. Disposal considerations

Disposal instructions	Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.	
Local disposal regulations	Dispose of in accordance with local regulations.	
Hazardous waste code	Not regulated.	
Waste from residues / unused products	Dispose of in accordance with local regulations.	
Contaminated packaging	Dispose of in same manner as unused product.	

14. Transport information

DOT	Not regulated as a dangerous good.
IATA	Not regulated as a dangerous good.
IMDG	Not regulated as a dangerous good.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. Regulatory information

US federal regulations	This product is hazardous according to OSHA 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.	
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Not regulated.	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	Not regulated.	
CERCLA Hazardous Substance List (40 CFR 302.4)	Not listed.	
Superfund Amendments and Reauthorization Act of 1986 (SARA)		

Hazard categories

Immediate Hazard - Yes
 Delayed Hazard - No
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance
 SARA 311/312 Hazardous chemical

No
 Yes

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
 Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
 Safe Drinking Water Act (SDWA)
 Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
 Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
 DEA Exempt Chemical Mixtures Code Number
 Food and Drug Administration (FDA)

Not regulated.
 Not regulated.
 Not regulated.
 Not listed.
 Not regulated.
 Not regulated.
 Not regulated.

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Massachusetts RTK - Substance List
 New Jersey Worker and Community Right-to-Know Act
 Pennsylvania RTK - Hazardous Substances
 Rhode Island RTK
 California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT)

Glycerol (CAS 56-81-5)
 Not regulated.
 Glycerol (CAS 56-81-5)
 Glycerol (CAS 56-81-5)
 Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	EC Inventory	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date	09/28/2011
Revision date	09/30/2016
Version	10
Further information	Not available.
References	IUCLID
Disclaimer	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.