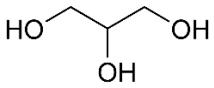
SECTION 1: IDENTIFICATION

Product Identifier:

Substance Name: Glycerin
Trade Name: Refined Glycerin
Synonyms: 1,2,3-Propanetriol, Glycerol, Glycerine
Chemical Formula: $C_3H_8O_3$
Product Type: Substance
CAS Number: 56-81-5
EC Number: 200-289-5
Molecular Mass: 92.09 g/mol
Molecular Structure:



Other Means of Identification: n/a

Recommended uses & restrictions on use:

Intended Use: Industrial use, professional use

Supplier name:
Petronad Asia Petrochemical Co.
Site 2 special economic zone, Mahshahr, Iran
Phone: +98 21 91305838
http://www.petronad.com
E-mail address of person responsible for this SDS: info@petronad.com

SECTION 2: HAZARDS IDENTIFICATION

GHS Classification of Substance in accordance to Regulation (EC) No. 1272/2008 (CLP/GHS):
Not a hazardous substance or mixture.
OSHA Hazard Communication Standard
This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

1-1-0

Other Hazards
Potential Health Effects:
Can be irritating to the eyes.
Can be harmful if ingested.
Can be harmful if inhaled. Avoid breathing mist.Can be irritating to the skin.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance: Glycerin
Chemical identity: C3H8O3
Common name/Synonyms: 1,2,3-Propanetriol, Glycerol, Glycerine

Ingredient name	CAS number	EC number
Glycerin	56-81-5	200-289-5

Impurities and Stabilizing Additives
There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and require reporting in this section.

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures
General Advice: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Take care to self-protect by avoiding becoming contaminated.

Most Important Symptoms and Effects, Both Acute and Delayed
Symptoms/Injuries after inhalation: ON HEATING: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/Injuries after skin contact: n/a
Symptoms/Injuries after eye contact: Redness of the eye tissue. Lacrimation.
Symptoms/Injuries after ingestion: Nausea. Vomiting. Diarrhea.
AFTER ABSORPTION OF HIGH QUANTITIES: Headache. Dehydration. Disturbances of heart rate. Change in the aerogramme/blood composition. Decreased renal function.

Description of First Aid Measures

First-aid measures after skin contact: Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Remove
clothing before washing.
First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion: DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual. Ingestion of large quantities: immediately to hospital.

Indication of Any Immediate Medical Attention and Special Treatment Needed
If medical advice is needed, have product container or label at hand. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable extinguishing media: Use dry powder, foam, carbon dioxide or water for extinguishing. For larger firesuse water spray or alcohol resistant foam.

Unsuitable extinguishing media: No data available

Special Hazards Arising from the Substance or Mixture

Fire hazard: DIRECT FIRE HAZARD. Combustible, keep away from open flame, no smoking. INDIRECT FIRE HAZARD. Temperature above flashpoint: higher fire/explosion hazard.

Explosion hazard: No direct explosion hazard.

Reactivity: Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapors (acrolein). Upon combustion CO and CO2 are formed. May polymerize on exposure to temperature rise. Reacts

SECTION 6: ACCIDENTAL RELEASE MEASURES

violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: (increased) risk of fire/explosion.

Advice for Firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire.

Protection during firefighting: Firefighters should wear full protective gear. Use self-contained breathing equipment if in confined place. Do not enter fire area without proper protective equipment, including respiratory protection.

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Mark the danger area. Exposure to heat: have neighborhood close doors and windows. Exposure to fire/heat: consider evacuation. Wash contaminated clothes. Use gloves, face shield

For Non-emergency Personnel

Protective equipment: Use appropriate personal protection equipment (PPE).

Emergency procedures: Evacuate unnecessary personnel.

For Emergency Responders

Protective equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency procedures: Ventilate area.

Environmental Precautions

Do not allow to flow into drainage system.

Methods and Material for Containment and Cleanup

For containment: Collect leakage in sealable containers, soak up with sand or other inert absorbent and removeto safe place. Flush away remainder with water.

Methods for cleaning up: Clear up spills immediately and dispose of waste safely.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Prevention of user exposure: Put on appropriate personal protective equipment. Use gloves and wear goggles when handling. Avoid breathing mist.

Prevention of fire and explosion: Handling temperature ≥ 10 °C above melting point

Precautions while moving the product: Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

Hygiene Measures: Workers should wash hands and face before eating, drinking and smoking.

Conditions for Safe Storage, Including any Incompatibilities

Storage precautions: Keep in a cool and dry place. Keep separate from oxidants. Avoid extreme heat and cold.
Avoid direct fire. Store in clean, dry, and preferably stainless steel or HDPE vessels.
In bulk, store at ambient temperature.
Temperature higher than necessary degrades quality at rate dependent on time and temperature of exposure.Exposure to ultraviolet light, especially sunlight, must be minimized to prevent quality loss.

Incompatible products: KEEP SUBSTANCE AWAY FROM: heat sources, oxidizing agents, (strong) acids, (strong) bases.

Packaging materials: Packaging should be closable, dry, clean, correctly labelled, and meet the legal requirements.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Occupational Exposure Controls: n/a

Technical measures: n/a

Occupational Exposure Limits:

Glycerine Components:

Source	Type	Value	Note
US (OSHA)	TWA	15 mg/m3	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants

Appropriate Engineering Controls

Recommended monitoring procedures:

Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should beavailable in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Individual Protection Measures

Personal Protective Equipment: Gloves. Safety glasses. Protective clothing.
Mist formation: aerosol mask with filter type P1. On heating: gas mask with filter type A.

Materials for Protective Clothing: GIVE GOOD RESISTANCE: natural rubber, neoprene, PVC, Viton.GIVE LESS RESISTANCE: styrene-butadiene rubber. GIVE POOR RESISTANCE: polyurethane.

Eye Protection: Use protective goggles and/or a full-face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU). Maintain eye wash fountain and quick-drench facilities in work area.

Hand Protection: suitable protective 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 inaccordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin and Body Protection: suitable protective clothing.

Respiratory Protection: Mist formation: aerosol mask with filter type P1. On heating: gas mask with filter type A. **Environmental Exposure Controls**: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear, colorless, hygroscopic, viscous liquid.
Color: colorless
Odor: odorless
Molecular Weight: 92.09 g/mol
Density: 1.26 g/ml at 20°C
pH: Neutral
Viscosity: 1400 mPas (20 °C)
Melting point/freezing point: 18 °C
Boiling Point: 290 °C
Auto-ignition temperature: 429 °C
Decomposition temperature: 290 °C
Vapor density (relative): 3.17 (air = 1)
Flash point: 176 °C (open cup)
Surface tension: 63.4 mN/m (63.4 dynes/cm) at 20°C

Solubility:
Miscible with water and with ethanol (96%), slightly soluble in acetone, practically insoluble in fatty oils and in essential oils.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Vapor mixes readily with air. Decomposes on exposure to temperature rise: release of toxic, corrosive, combustible gases/ vapors (acrolein). Upon combustion CO and CO2 are formed. May polymerize on exposure to temperature rise. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids:(increased) risk of fire/explosion.
Chemical stability: Hygroscopic. Able to polymerize above 149 °C. Decomposes when heated above 290 °C.
Possibility of Hazardous Reactions: None known
Conditions to Avoid: None known
Incompatible materials: Reacts violently with strong oxidants
Hazardous Decomposition Products: Low toxicity in original state and not considered hazardous to human beings. On heating/burning: release of toxic/combustible gases/vapors (acrolein).

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity by oral route, inhalation and dermal route: Not Classified

Product	Test	Species	Dose
Glycerin	LD50, Oral	Rat	12,600 mg/kg
	LC50, Inhalation	Rat	>570 mg/m3/1Hr
	LD50, Dermal	Rabbit	> 10,000 mg/kg

Skin irritation/corrosion: Can be irritating to the skin.
Eye irritation: Can be irritating to the eyes.
Skin sensitization: Can be harmful if absorbed through skin.
Respiratory irritation: Can be harmful if inhaled. Can be irritating to the respiratory tract. Avoid exposure to mist.

Carcinogenic, mutagenic and reprotoxic (CMR) Effects
Mutagenicity: Not mutagenic (Ames test)
Carcinogenicity: n/a
Reproductive toxicity: n/a

Developmental toxicity: n/a
Repeated dose toxicity - Oral route: n/a
Toxicokinetic: n/a
Chronic/Other Effects: n/a

SECTION 12: ECOLOGICAL INFORMATION

Ecology - Water:
Mild water pollutant (surface water)
Not harmful to fishes (LC50 (96h) >1,000 mg/l)
Not harmful to aquatic organisms (EC50 >1,000 mg/l)
Not harmful to algae Not harmful to bacteria
Bioaccumulation: not applicable
Sludge digestion is inhibited at >1,000 mg/l 50%
Readily biodegradable in water (OECD 301D: 82%; 20 days)

Persistence and Degradability: Readily biodegradable, OECD 301
Biochemical oxygen demand (BOD): 0.87 g O2/g substance
Chemical oxygen demand (COD): 1.16 g O2/g substance (ISO 15705)
ThOD: 1.217 g O2/g substance
BOD: (% of ThOD) 71 % ThOD
Bioaccumulative Potential: Log P octanol /water = -1.76/2.6
Other Adverse Effects: None available.

SECTION 13: DISPOSAL CONSIDERATIONS

Methods of Disposal of Waste Residue: Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite, or powdered limestone. Scoop absorbed substance into closing containers. Wash down leftovers with plenty of water. Wash clothing and equipment after handling. Do not discharge in surface water.

SECTION 14: TRANSPORT INFORMATION

UN number: not regulated as a hazardous material.
UN proper shipping name: n/a
Packing group: n/a
Environmental hazards (e.g.: Marine pollutant (Yes/No)): No
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): n/a
Special precautions: n/a

SECTION 15: REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulation (HPR) and the SDS contains all of the information required by the HPR.

SECTION 16: OTHER INFORMATION

To the best of our knowledge the information contained herein is accurate. However, ***Petronad Asia Petrochemical Co.*** *assumes any liability whatsoever for the accuracy or completeness of the information contained herein.*
Finaldetermination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution
Although certain hazards are described herein, we cannot guarantee that these are the only hazards that excist.