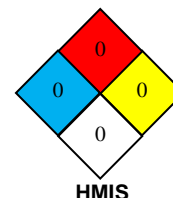


SAFETY DATA SHEET

Global Harmonized System



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier GLYCERIN / GLYCERINE / GLYCEROL TRG100, TRG100V, TRG100K, TRG100C, TRG100KL, TRG99, TRG99V				[HMIS Classification] Health - 0 Flammability - 0 Physical Hazard - 0	
Product Use This product is commonly used in the production of soaps, emulsifiers, lubricants, carriers, and soap surfactants.					
Manufacturer's Name Twin Rivers Technologies			Supplier's Name Twin Rivers Technologies		
Street Address 780 Washington Street			Street Address 780 Washington Street		
City Quincy		Province MA		City Quincy	
Postal Code 02169		Emergency Telephone 617-413-5339		Postal Code 02169	
Emergency Telephone 617-413-5339		Emergency Telephone 617-413-5339		Emergency Telephone 617-413-5339	
Date SDS Prepared Sept 17. 2017		SDS Prepared By Twin Rivers Technologies		Phone Number 617-472-9200	

2. HAZARDS IDENTIFICATION

GHS – not a controlled product under Global Harmonized Systems

- European Hazard Classification: This product is not classified as dangerous according to Directive 67/548/EEC.
- Emergency Overview: North America Non- Hazardous
- Potential Health Effects:

 - Eye: Accidental exposure to the eyes will cause only a mild but transient irritation.
 - Skin: Unlikely to be irritant. Heated product may cause thermal burns if contacted.
 - Inhalation: Not applicable at ambient temperature. Glycerine mist may be irritating to respiratory tract.
 - Ingestion: Unlikely to be harmful unless excessive amount.
- Physical/Chemical Hazards: Contact of glycerine with strong oxidizing agents such as Nitric Acid or other strong acids, Chromium Trioxide, Potassium Chlorate, or Potassium Permanganate may cause an explosion.
- Environmental Hazards: Product is biodegradable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation (mixture): Substance

Name	CAS No.	Wt/Wt %	EC No.	EC Symbols	EC R-phrases
1, 2, 3-Propanetriol	56-81-5	99 - 100	2002895	Not applicable	Not applicable

Occupational exposure limits, if applicable, are listed in Section 8.

LC/LD50 information is listed in Section 11.

4. FIRST AID MEASURES

- Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- Skin: Wash skin with soap and water upon contact.
- Inhalation: Remove to fresh air.
- Ingestion: Remove material from mouth. Drink plenty of water. If large amount swallowed or symptoms develop get medical attention.

5. FIRE FIGHTING MEASURES

- Extinguishing Media: Use water, Alcohol resistant foam, CO2 or dry chemical.
- Unsuitable extinguishing media: Not Applicable
- Flash Point and method: >390° F (198.99° C) PMCC
- Explosive limits in air: Upper: Not available
Lower: Not available
- Auto-ignition temperature: ~752° F (~400° C)
- Sensitivity to mechanical impact/static discharge: Not available.
- Special Protective Equipment: Wear self-contained breathing apparatus and full protective clothing.
- Other Fire Fighting Considerations: Contact of glycerine with strong oxidizing agents such as Nitric Acid or other strong acids, Chromium Trioxide, Potassium Chlorate, or Potassium Permanganate may cause an explosion.
- Exposure hazards: During burning poisonous acrolein may be formed.

6. ACCIDENTAL RELEASE MEASURES

- Personal Precautions: An appropriate NIOSH/MSHA approved respirator should be used if a mist, vapor or dust is generated. Wear suitable gloves and eye/face protection.
- Environmental Precautions: Minimize contamination of drains, surface and ground waters.
- Procedures for Spill/Leak Clean-up: Transfer product to suitably labeled containers for disposal at an approved site. Absorb liquid spillage onto inert material (e.g. sand). Residues and small spillages may be washed away with water and detergent.

Refer to Section 8 for additional personal protection information.

Refer to Section 13 for disposal considerations.

7. HANDLING AND STORAGE

- Handling: No special precautions required, but avoid eye and skin contact as part of normal industrial hygiene. Prevent formation of mist. Eye and skin contact should be avoided if handling at elevated temperatures.
- Storage: Store in clean tight containers to prevent moisture pickup from air. Can be stored in aluminum, stainless steel, fiberglass, polyethylene or resin lined vessels.
- Other Recommendations: Avoid contact with strong oxidizing agents such as Nitric Acid or other strong acids, Chromium Trioxide, Potassium Chlorate, or Potassium Permanganate.
- Specific use(s): Follow bulk handling and storage procedures as noted above.

Refer to Section 6 for clean-up of spillages.
Refer to Section 13 for disposal considerations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- General Precautions: Good industrial hygiene should be followed. Avoid breathing (heated) vapors.
- Exposure Limit Values:

Australia – TWA 10 mg/m³

Belgium - TWA 10 mg/m³

Canada:

Alberta – TWA 10 mg/m³

British Columbia – TWA 10 mg/m³

Ontario – TWA 10 mg/m³

Quebec – TWA 10 mg/m³

France – TWA (VME) 10 mg/m³

Finland – 8 hour limit 20 mg/m³

Ireland – 8 hour OEL (TWA) 10 mg/m³

Italy – 8 hour TWA 10 mg/m³

Korea – TWA 10 mg/m³

Malaysia – TWA 10 mg/m³

Mexico – TWA 10 mg/m³

New Zealand – TWA 10 mg/m³

Singapore – 8-hour PEL (TWA) 10 mg/m³

Spain – 8 hour daily exposure limit (VLA-ED) 10 mg/m³

The Netherlands – MAC TWA (TGG) 10 mg/m³

United Kingdom – TWA 10 mg/m³

United States – ACGIH – Glycerine mist - TLV-TWA 10 mg/m³

OSHA Z-1 PEL Glycerine mist, respirable fraction - 5 mg/m³

OSHA Z-1 PEL Glycerine mist, total dust - 15 mg/m³

- Exposure Controls:

Engineering Controls:

Ventilation:

Local exhaust: preferred

Mechanical: may be necessary if working at elevated temperatures or in enclosed areas.

Personal Protective Equipment:

Eye:

None required, although eye protection is recommended as part of good industrial hygiene.

Skin:

None required with normal use

11. TOXICOLOGICAL INFORMATION

IRRITATION DATA

Skin, rabbit	Not irritating
Eye, rabbit	Not irritating

TOXICITY DATA

LD50 oral, rat	>2 g/kg
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12. ECOLOGICAL INFORMATION

- Ecotoxicity:

Carassius auratus (Goldfish)	24h LC ₅₀ >5,000 mg/L
Leuciscus idus (Golden Orfe)	48h LC ₀ >250 mg/L
Oncorhynchus mykiss (Rainbow trout)	96h LC ₁₀₀ = 51,000 – 57,000 mg/L
Daphnia magna	24h EC ₅₀ >10,000 mg/L
Daphnia magna	24h EC ₀ >500 mg/L

Microorganisms

Chilimonas paramecium	48h NOEC >10,000 mg/L
Entosiphon sulcatum	72h NOEC 3200 mg/L
Pseudomonas putida	16h NOEC >10,000 mg/L
Uronema parduzci	20h NOEC >10,000 mg/L

Algae

Microcystis aeruginosa	8d NOEC 2900 mg/L
Scenedesmus quadricauda	8d EC ₀ >10,000 mg/L

- Mobility:

Low potential for sorption to soil. Glycerol will partition primarily to water.

- Persistence and degradability:

Readily biodegradable (OECD 301)

- Bioaccumulative potential:

BCF: 3.162 (calculated)

13. DISPOSAL CONSIDERATIONS

DISPOSAL IS TO BE PERFORMED IN COMPLIANCE WITH ALL FEDERAL, STATE/PROVINCIAL AND LOCAL REGULATIONS. Do not dispose of via sinks, drains or into the immediate environment.

14. TRANSPORT INFORMATION

U.S. DOT: Not regulated for transport

Not classified in RID/ADR - IMDG - ICAO/IATA

15. ADDITIONAL REGULATORY INFORMATION

INVENTORY STATUS:

TSCA, EINECS, DSL, JAPAN, AUSTR, PHIL, CHINA, KOREA

WGK water endangering class: 1, low hazard to water

Canada

HAZARDOUS INGREDIENTS – WHMIS (Canadian Workplace Hazardous Materials Information System)

This product when tested as a whole is not a controlled substance within the meaning of the Hazardous Products Act.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

EUROPE

This product safety data sheet was prepared in compliance with Directive 2001/58/EC

References: BIBRA toxicity profile (1987). Glycerol.

OECD SIDS Initial Assessment Report for SIAM 14, February 2002

The submission of the SDS may be required by law, but this is not an assertion that the substance is hazardous when used in accordance with proper safety practices and normal handling procedures. Data supplied are for use only in connection with occupational safety and health.

The information contained herein has been compiled from sources considered by Twin Rivers Technologies to be dependable and is accurate to the best of the Company's knowledge. The information relates to the specific product designated herein, and does not relate to use in combination with any other material or any other process. Twin Rivers Technologies assumes no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the controlled product.

This Safety Data Sheet complies with OSHA/EPA/EU Standards and Requirements

- **CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300**
- **International CHEMTREC, call: 1-703-527-3887**