

MATERIAL SAFETY DATA SHEET

1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier GLYCERIN/ GLYCERINE/ GLYCEROL - TRG100, TRG100V, TRG100K, TRG99, TRG99V		[HMIS Classification] Health - 0 Flammability - 1 Physical Hazard - 0	
Product Use The most common uses for this product include being used for 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	Province MA
Postal Code 02169	Emergency Telephone 617-413-5339	Postal Code 02169	Emergency Telephone 617-413-5339
Date MSDS Prepared March 26, 2001	MSDS Prepared By Twin Rivers Technologies		Phone Number 617-472-9200

2. 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.

Full text of R phrase(s) are listed in Section 16.

3. HAZARDS IDENTIFICATION

- 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 irritative 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

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 or resin lined steel 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

Inhalation:

None required for ambient temperature, although an appropriate NIOSH/MSHA approved air-purifying respirator should be used

IRRITATION DATA

Skin, rabbit Not irritating
Eye, rabbit Not irritating

TOXICITY DATA

LD50 oral, rat >2 g/kg

12. ECOLOGICAL INFORMATION

• Ecotoxicity:

Carassius auratus (Goldfish) 24h LC₅₀ >5,000 mg/L
Leuciscus idus (Golden Orfe) 48h LC₀ >250 mg/L
Oncorhynchus mykiss (Rainbow trout) 96h LC₁₀₀ = 51,000 – 57,000 mg/L
Daphnia magna 24h EC₅₀ >10,000 mg/L
Daphnia magna 24h EC₀ >500 mg/L

Microorganisms

Chlmonas 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 EC₀ >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 MSDS 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 MSDS 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.