SAFETY DATA SHEET: Crude Glycerin

1. CHEMICAL PRODUCT

General Product Name: Crude Glycerol/Glycerin
Chemical Name: Free Fatty Acid; Fatty Acids; FFA
CAS Number: 56-81-5
RTECS #: MA8050000
Emergency Telephone: CHEMTREC: 800-424-9300

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATIONS
Health:
Acute Toxicity – Oral, Category 4
Skin Irritation, Category 2
Specific Target Organ Toxicity (Single Exposure), Category 2

GHS LABEL
Exclamation Mark
Health Hazard

SIGNAL WORD: WARNING

HAZARD STATEMENTS
H315: Causes skin irritation.
H370: May cause damage to organs.
H302: Harmful if swallowed.

PRECAUTIONARY STATEMENT(S)
Prevention:
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P264: Wash thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301+P312: IF SWALLOWED: Call a poison center or doctor/physician if you feel unwell.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P309+P311: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P330: Rinse mouth.
P332+P313: If skin irritation occurs: Get medical advice/attention.
P362: Take off contaminated clothing and wash before reuse.

**Storage:**
P405: Store locked up.

**Disposal:**
P501: Dispose of contents/container in accordance with local/ regional/ national/ international regulations.

**EMERGENCY OVERVIEW**

**PHYSICAL APPEARANCE:** Light to dark yellow clear liquid

**POTENTIAL HEALTH EFFECTS**

**EYES:** Contact may cause mild eye irritation.

**SKIN:** Contact may cause skin irritation.

**INGESTION:** Low toxicity. May be harmful if ingested. May cause nausea, headache, and diarrhea.

**INHALATION:** Due to low vapor pressure, inhalation of vapors at room temperature is unlikely. Inhalation of mist may cause respiratory irritation.

**REPRODUCTIVE TOXICITY**

**REPRODUCTIVE EFFECTS:** Not Established.

**TERATOGENIC EFFECTS:** Not Established.

**CARCINOGENICITY:** This product is not listed as a carcinogen by NTP, OSHA, or IARC.

**MUTAGENICITY:** This product is not anticipated to be a mutagen. However, exposure to high concentrations of methanol may be mutagenic to mammalian somatic cells.

**ROUTES OF ENTRY:** Eye contact, ingestion, inhalation, skin contact.

**SENSITIZATION:** Not Established.

### 3. COMPOSITION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>50 - 85</td>
<td>56-81-5</td>
</tr>
<tr>
<td>Water</td>
<td>10 - 45</td>
<td>7732-18-5</td>
</tr>
<tr>
<td>Potassium Sulfate</td>
<td>3 - 7</td>
<td>7778-80-5</td>
</tr>
<tr>
<td>Methanol</td>
<td>0 – 0.5</td>
<td>67-56-1</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

**EYES:** Immediately flush with large amounts of water, holding eyelids open, for at least 20 minutes. Repeat if necessary. Remove contact lenses, if present and easy to do. Seek medical assistance if irritation persists.

**SKIN:** Immediately remove contaminated clothing or shoes, wipe excess from skin and flush with plenty of water for at least 15 minutes. Do not reuse clothing until thoroughly cleaned. Cover irritated skin with emollient. For serious skin exposure, wash with disinfectant soap and cover contaminated skin with an antibacterial cream. Get medical attention if irritation persists.

**INGESTION:** Do not induce vomiting. Have exposed individual rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Consult a medical professional if symptoms persist.

**INHALATION:** Move victim to fresh air. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get medical attention.

**NOTES TO PHYSICIAN:** Treat symptomatically. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First Aid Responders are advised to wear personal protective equipment as found in Section 8 of this SDS.

5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:**

**SMALL FIRE** - Carbon dioxide, dry chemical, water spray, or regular foam.

**LARGE FIRE** - Regular foam or water spray or fog. Use water spray or fog; do not use straight streams.

**FIRE FIGHTING PROCEDURES: PROTECTIVE ACTIONS TO TAKE DURING FIRE FIGHTING** - Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Do not get water inside containers. Use water spray or fog; do not use straight streams. Note: use of water spray when fighting fire may be inefficient or cause a chemical reaction. Persons involved in firefighting response involving this product and its containers/packaging should refer to Section 8 of this SDS for the proper selection of exposure controls and personal protective equipment.

**FIRE FIGHTING EQUIPMENT: PRECAUTIONS FOR FIRE INVOLVING TANKS OR CAR/TRAILER LOADS** - Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. Isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. For
massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**FIRE EXPLOSION:** Methanol in mixture is explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. May burn with nearly invisible flame. Slow heat generation may occur with oily rags, filter aids, and spill absorbent material and may cause spontaneous combustion if stored near combustibles and not handled properly. Store soaked rags, filter aids and spill absorbent material in approved safety disposal containers and dispose of properly. Soaked rags may be washed with soap and water and allowed to dry in well-ventilated area. Firefighters should use self-contained breathing apparatus to avoid exposure to smoke and vapor.

6. ACCIDENTAL RELEASE MEASURES

**SMALL SPILL:** For emergency information and procedures to follow in the case of an accidental release, call the Emergency Telephone Number(s) listed in Section 1 of this SDS. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to suitable containers. Use clean non-sparking tools to collect absorbed material. Wash hard surfaces with safety solvent or detergent to remove remaining film.

**LARGE SPILL:** Dike far ahead of liquid spill for later disposal. Consider initial downwind evacuation for at least 800 meters (1/2 mile). Do not release into sewers or waterways.

**GENERAL PROCEDURES: MATERIALS & METHODS (EQUIPMENT & TECHNIQUES) FOR CONTAINMENT & CLEANUP** - Call Emergency Telephone Number(s) provided in Section 1 of this SDS. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. For a large spill, consider initial downwind evacuation for at least 300 meters (1000 feet). Use clean non-sparking tools to collect absorbed material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing indicated in Section 8 of this SDS.

**SPECIAL PROTECTIVE EQUIPMENT: EMERGENCY & NON-EMERGENCY RESPONDERS** - Refer to Section 8 of this SDS for appropriate exposure controls and personal protective equipment (PPE).

7. HANDLING AND STORAGE

**GENERAL PROCEDURES:** Handle in accordance with good industrial hygiene and safety practices. These practices include but are not limited to avoiding unnecessary exposure and prompt removal of material from eyes, skin, and clothing. Wash exposed skin and clothing frequently. If needed, take first aid actions as indicated in Section 4 of this SDS.
HANDLING: Wear appropriate personal protective equipment and use exposure controls as indicated in Section 8 of this SDS. Keep away from heat and sources of ignition. Do not weld, heat or drill container. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or mists. Remove contaminated clothing immediately. Do not wear contaminated clothing or shoes. Wash with soap and water after working with this product.

STORAGE: Keep in airtight container away from all heat sources. Store in a segregated and approved area. Store in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Keep container in a well-ventilated area. Store away from incompatible materials. Store in the original container or an approved alternative made from compatible material. Do not store in unlabeled containers. Treat empty containers in a similar fashion as residual product may exist. Use appropriate containment to avoid environmental contamination.

STORAGE TEMPERATURE: Store containers in a room at ambient temperature.

STORAGE PRESSURE: Containers should be stored in a room at ambient pressure.

8. EXPOSURE CONTROLS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EXPOSURE LIMITS</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
<td>ppm</td>
</tr>
<tr>
<td>Glycerin</td>
<td>TWA N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td></td>
<td>STEL N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Water</td>
<td>TWA N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td></td>
<td>STEL N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Potassium Sulfate</td>
<td>TWA N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td></td>
<td>STEL N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Methanol</td>
<td>TWA 200</td>
<td>260</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>STEL N/E</td>
<td>250</td>
<td>328</td>
</tr>
</tbody>
</table>

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to meet exposure limit requirements. Provide readily accessible eye wash stations and emergency showers. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations.
supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**PERSONAL PROTECTIVE EQUIPMENT**

**EYES AND FACE:** Employees should be provided with and required to use safety goggles, chemical goggles and/or full-face splash shields where there is any possibility of product coming in contact with eyes. Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of contact lenses. Ensure that an eye wash station is operable and nearby.

**SKIN:** Any chemically impervious gloves, rubber boots, and apron should be worn when working with this material.

**RESPIRATORY:** Depending on airborne concentration, a NIOSH approved air-purifying respirator or supplied air respirator operated in a positive pressure mode is recommended when concentrations exceed established exposure limits.

**WORK HYGIENIC PRACTICES:** Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse. Shower after work using plenty of soap and water.

**OTHER USE PRECAUTIONS: FIREIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS** - A self-contained breathing apparatus (SCBA) with full face piece operated in a pressure-demand or other positive pressure mode is recommended for firefighting or other immediately dangerous to life and health conditions. A supplied-air respirator with full face piece and operated in pressure-demand or other positive pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive pressure mode may also be used.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

- **ODOR:** Light musty odor.
- **APPEARANCE:** Light to dark yellow liquid
- **pH:** Not Established.
- **PERCENT VOLATILE:** Not Established.
- **FLASH POINT:** >193°C (380°F)
- **FLAMMABLE LIMITS:** Not Established.
- **AUTOIGNITION TEMPERATURE:** Not Established.
- **VAPOR PRESSURE:** <1mmHg
- **VAPOR DENSITY:** 3.17 (Air = 1)
- **BOILING POINT:** 108°C (226°F)
- **FREEZING POINT:** 18°C (64°F)
- **SOLUBILITY IN WATER:** Miscible in water.
- **SPECIFIC DENSITY:** 1.25
- **VISCOSITY:** Not Established.
STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
STABILITY: This product is anticipated to be stable under normal ambient storage and handling conditions of temperature and pressure.
POLYMERIZATION: This product is not anticipated to cause hazardous reactions or polymerizations under normal ambient storage and handling conditions of temperature and pressure.
CONDITIONS TO AVOID: Avoid elevated temperatures. Glycerol decomposes upon heating above 290°C (500°F), forming the corrosive gas (acrolein).
HAZARDOUS DECOMPOSITION PRODUCTS: Toxic gases and vapors may be released if involved in a fire.
INCOMPATIBLE MATERIALS: Strong oxidizing agents. Can react violently with acetic anhydride, calcium oxchloride, chromium oxides, and alkali metal hydrides.
The following information is in reference to methanol: Methanol may react violently with alkyl aluminum salts, acetyl bromide, chloroform, sodium methoxide, chromic anhydride, cyanuric chloride, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide and chloroform. Incompatible with beryllium hydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium, magnesium, zinc), and dichloromethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc. May attack some plastics, rubber and coatings.

TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ORAL LD$_{50}$ (rat)</th>
<th>DERMAL LD$_{50}$ (rabbit)</th>
<th>INHALATION LC$_{50}$ (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>74000 mg/kg</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Water</td>
<td>N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Potassium Sulfate</td>
<td>N/E</td>
<td>N/E</td>
<td>N/E</td>
</tr>
<tr>
<td>Methanol</td>
<td>5600 mg/kg</td>
<td>15800 mg/kg</td>
<td>64000 ppm (4 hours)</td>
</tr>
</tbody>
</table>

ORAL LD$_{50}$ (rat) MIXTURE: 12,600 mg/kg
EYE EFFECTS: May cause mild eye irritation.
SKIN EFFECTS: May cause skin irritation.
CHRONIC EFFECTS: May cause kidney damage.

CARCINOGENICITY

IARC: Not Listed.
NTP: Not Listed.
OSHA: Not Listed.

SENSITIZATION: Not Established.

NEUROTOXICITY: Not Established.

GENETIC EFFECTS: Not Established.

REPRODUCTIVE EFFECTS: Not Established.

TERATOGENIC EFFECTS: Not Established.

MUTAGENICITY: This product is not anticipated to be mutagenic.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: MOBILITY IN SOIL POTENTIAL - Not Established.

DISTRIBUTION: Do not discharge into or allow runoff to flow into sewers and natural waterways. Contain spill material and dike for proper disposal.

AQUATIC TOXICITY (ACUTE): Ecological data does not exist for this mixture.

CHEMICAL FATE INFORMATION: PERSISTENCE & DEGRADABILITY - Methanol in water is rapidly biodegraded and volatilized. Fatty acid and biofuel in water are biodegradable.

GENERAL COMMENT: Any other adverse environmental effects, such as environmental fate (exposure), ozone depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and global warming potential are indicated in this section if data exists. Otherwise, this data has not been established.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: It is recommended that this product, in any form, be disposed of in accordance with applicable Federal, state and local regulations. Do not discharge into any sewers, on the ground or into any body of water.

RCRA/EPA WASTE INFORMATION: Under the U.S. Environmental Protection Agency’s (EPA) Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine at the time of disposal whether the product meets RCRA criteria for a hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous. Empty containers retain residues. All labeled precautions must be observed.

COMMENTS: Dispose of material in accordance with national, state, regional, and local regulations. Never discharge directly into sewers or surface water. Consult with environmental regulatory agencies for guidance on acceptable disposal practices for the product, in any form, and its containers/packaging.

14. TRANSPORT INFORMATION
15. REGULATORY INFORMATION

UNITED STATES
SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
311/312 HAZARD CATEGORIES: Immediate (acute) health hazard,
FIRE: No  PRESSURE GENERATING: No  REACTIVITY: No  ACUTE: Yes  CHRONIC: No

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CERCLA RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>0 – 0.5</td>
<td>5,000 pound(s)</td>
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TSCA (TOXIC SUBSTANCE CONTROL ACT)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>56-81-5</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
</tr>
<tr>
<td>Potassium Sulfate</td>
<td>7732-18-5</td>
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<tr>
<td>Methanol</td>
<td>67-56-1</td>
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STATES WITH SPECIAL REQUIREMENTS
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<thead>
<tr>
<th>Chemical Name</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>Methanol</td>
<td>California Hazardous Substance</td>
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<tr>
<td></td>
<td>Delaware Air Quality Management</td>
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<tr>
<td></td>
<td>Illinois Toxic Air Contaminant</td>
</tr>
<tr>
<td></td>
<td>Maine Hazardous Air Pollutant</td>
</tr>
<tr>
<td></td>
<td>Massachusetts Hazardous Substance</td>
</tr>
<tr>
<td></td>
<td>Minnesota Hazardous Substance</td>
</tr>
<tr>
<td></td>
<td>New Jersey RTK Hazardous Substance</td>
</tr>
<tr>
<td></td>
<td>New York Hazardous Substance</td>
</tr>
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<td></td>
<td>Pennsylvania Hazardous Substance</td>
</tr>
<tr>
<td></td>
<td>Washington PELs for Air Contaminants</td>
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</table>

16. OTHER INFORMATION

Prepared by: Total Safety d/b/a EHS Services

**HMIS RATING**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
<th>PERSONAL PROTECTION</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**NFPA CODES**

- 1
- 1
- 0

**HMIS RATINGS NOTES:** Please refer to Section 8 of this SDS for recommended personal protective equipment.

**DATA SOURCES:**

**REFERENCES**


**ADDITIONAL SDS INFORMATION: KEY / LEGEND**

- ACGIH - American Conference of Governmental Industrial Hygienists
- ADR - Agreement on Dangerous Goods by Road
- CAA - Clean Air Act
- CAS - Chemical Abstracts Service Registry Number
- CDG - Carriage of Dangerous Goods By Road and Rail Manual
- CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
- CFR - Code of Federal Regulations
- EINECS - European Inventory of Existing Chemical Substances Registry Number
- ERG - Emergency Response Guidebook
- EPCRA - Emergency Planning and Community Right-to-Know Act
- GHS - Globally Harmonized System of Classification and Labeling of Chemicals
- IARC - International Agency for Research on Cancer
- IATA - International Air Transport Association
- ICAO - International Civil Aviation Organization
- IMDG - International Maritime Dangerous Goods Code
- IMO - International Maritime Organization
- N/E - Not Established
- NTP - National Toxicology Program
- OSHA - Occupational Safety and Health Administration
- PEL - Permissible Exposure Limit
- PPE - Personal Protective Equipment
- RCRA - Resource Conversation and Recovery Act
- RID - Regulations Concerning the International Transport of Dangerous Goods by Rail
- RQ - Reportable Quantities
- SARA - Superfund Amendments and Reauthorization Act of 1986
- SDS - Safety Data Sheet
- TCC - Tag Closed Cup
- TDG - Transportation of Dangerous Goods
- TLV - Threshold Limit Value
- TSCA - Toxic Substance Control Act
- UN/NA - United Nations / North American Number
- UNECE - United Nations Economic Commission for Europe
- US DOT - United States Department of Transportation
- US EPA - United States Environmental Protection Agency
- Vol. - Volume
- WHMIS - Workplace Hazardous Materials Information System
GENERAL STATEMENTS: Other information not included anywhere else in this SDS is included in this section if, in fact, such data exists.

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