Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Glycerol
Cat No.: G30-4; G30-20; G30-200; G31-1; G31-4; G31-20; G31-200; G31-500; G33-1; G33-4; G33-20; G33-200; G33-500; G37-4; G37-20; G153-1; G153-4
Synonyms: Glycerin; 1,2,3-Propanetriol (USP/FCC/EP/BP/JP/Spectranalyzed/Certified ACS)
Recommended Use: Laboratory chemicals

Company: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview
Irritating to eyes and skin. May cause irritation of respiratory tract. May cause central nervous system effects. Hygroscopic.

Appearance: Clear
Physical State: Viscous liquid
odor: Slight

Target Organs: Eyes, Skin, Central nervous system (CNS), Kidney, Blood

Potential Health Effects

Acute Effects
Principle Routes of Exposure

| Eyes | Irritating to eyes. |
| Skin | Irritating to skin. May be harmful in contact with skin. |
| Inhalation | May cause irritation of respiratory tract. May be harmful if inhaled. |
| Ingestion | May be harmful if swallowed. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. |

Chronic Effects: Tumorigenic effects have been reported in experimental animals. Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse kidney effects.
See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>56-81-5</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

**Ingestion**
Do not induce vomiting. Obtain medical attention.

**Notes to Physician**
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point**
160°C / 320°F

**Method**
No information available.

**Autoignition Temperature**
400°C / 752°F

**Explosion Limits**
- **Upper**
  - No data available
- **Lower**
  - 1.1 vol %

**Suitable Extinguishing Media**
CO₂, dry chemical, dry sand, alcohol-resistant foam.

**Unsuitable Extinguishing Media**
No information available.

**Hazardous Combustion Products**
No information available.

**Sensitivity to mechanical impact**
No information available.

**Sensitivity to static discharge**
No information available.

**Specific Hazards Arising from the Chemical**
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>TWA: 10 mg/m³</td>
<td>(Vacated) TWA: 10 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Vacated) TWA: 5 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 15 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 5 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 10 mg/m³</td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State
viscous liquid
Liquid

Appearance
Clear

odor
slight

Odor Threshold
No information available.

pH
5 100 g/L aq.sol.

Vapor Pressure
0.003 mbar @ 50 °C
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Density</td>
<td>3.17 (Water = 1.0)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1069 mPa.s at 20 °C</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>290°C / 554°F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>18°C / 64.4°F</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>&gt; 290°C</td>
</tr>
<tr>
<td>Flash Point</td>
<td>160°C / 320°F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.261</td>
</tr>
<tr>
<td>Solubility</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>92.09</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C3 H8 O3</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

- **Stability**: Hygroscopic.
- **Conditions to Avoid**: Incompatible products. Excess heat. Exposure to moist air or water.
- **Incompatible Materials**: Strong oxidizing agents
- **Hazardous Decomposition Products**: Thermal decomposition can lead to release of irritating gases and vapors
- **Hazardous Polymerization**: Hazardous polymerization may occur.
- **Hazardous Reactions**: None under normal processing.

11. TOXICOLOGICAL INFORMATION

- **Acute Toxicity**

<table>
<thead>
<tr>
<th>Component Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
</tr>
<tr>
<td>Glycerin</td>
</tr>
</tbody>
</table>

- **Irritation**: Irritating to eyes and skin
- **Toxicologically Synergistic Products**: No information available.

- **Chronic Toxicity**

  | Carcinogenicity | There are no known carcinogenic chemicals in this product |

  | Sensitization | No information available. |

  | Mutagenic Effects | Mutagenic effects have occurred in humans. |
Reproductive Effects
Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects
No information available.

Teratogenicity
No information available.

Other Adverse Effects
Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

Endocrine Disruptor Information
No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>Not listed</td>
<td>51-57 mL/L LC50 96 h</td>
<td>Not listed</td>
<td>500 mg/L EC50 &gt; 24 h</td>
</tr>
</tbody>
</table>

Persistence and Degradability
No information available

Bioaccumulation/Accumulation
No information available

Mobility

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>0</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT
Not regulated

TDG
Not regulated

IATA
Not regulated

IMDG/IMO
Not regulated
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>X</td>
<td>X</td>
<td></td>
<td>200-289-5</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-29297 X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313
Not applicable

SARA 311/312 Hazardous Categorization
- Acute Health Hazard No
- Chronic Health Hazard No
- Fire Hazard No
- Sudden Release of Pressure Hazard No
- Reactive Hazard No

Clean Water Act
Not applicable

Clean Air Act
Not applicable

OSHA
Not applicable

CERCLA
Not Applicable

California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know
<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

**U.S. Department of Transportation**
Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

**U.S. Department of Homeland Security**
This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade**
Slight risk, Grade 1

**Canada**
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**
Non-controlled

### 16. OTHER INFORMATION

**Prepared By**
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

**Creation Date**
07-Jan-2010

**Print Date**
25-May-2011

**Revision Summary**
"***", and red text indicates revision

**Disclaimer**
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS