SECTION 1: IDENTIFICATION

1.1. Product Identifier
Product Form: Mixture
Product Name: Glutathione Reductase
Product Code: 7512-100-04

1.2. Intended Use of the Product
No use specified

1.3. Name, Address, and Telephone of the Responsible Party
Company
Trevigen Inc.
8405 Helgerman Court
20877 Gaithersburg, MD 20877
T 1-800-TREVIGEN

1.4. Emergency Telephone Number
Emergency Number: 301-216-2800

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture
Classification (GHS-US)
Not classified

2.2. Label Elements
GHS-US Labeling No labeling applicable

2.3. Other Hazards
No additional information available

2.4. Unknown Acute Toxicity (GHS-US) No data available

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Identifier</th>
<th>% (w/w)</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin</td>
<td>(CAS No) 56-81-5</td>
<td>50</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

More than one of the ranges of concentration prescribed by the Controlled Products Regulations has been used where necessary, due to varying composition.
Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures
General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).
Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.
Skin Contact: Remove contaminated clothing. Rinse affected area with water for at least 5 minutes. Obtain medical attention if irritation develops or persists.
Eye Contact: Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if redness, pain, or irritation occurs.
Ingestion: Do not induce vomiting. Rinse mouth. Get medical advice and attention if you feel unwell.

4.2. Most Important Symptoms and Effects Both Acute and Delayed
General: Not expected to present a significant hazard under anticipated conditions of normal use.
Inhalation: May cause respiratory irritation.
Skin Contact: May cause skin irritation.
Eye Contact: May cause eye irritation.
Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Do not breathe fumes. Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.


Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures Not available

6.1.1. For Non-Emergency Personnel

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


6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Spills should be contained with mechanical barriers. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures, and incompatible materials.


7.3. Specific End Use(s)

No use is specified.
Glutathione Reductase
Safety Data Sheet
According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters
For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

<table>
<thead>
<tr>
<th>Glycerin (56-81-5)</th>
<th>Mexico</th>
<th>OEL TWA (mg/m³)</th>
<th>10 mg/m³ (mist)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>15 mg/m³ (mist, total particulate)</td>
<td>5 mg/m³ (mist, respirable fraction)</td>
</tr>
<tr>
<td>Alberta</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>British Columbia</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
<td>3 mg/m³ (mist-respirable)</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Nunavut</td>
<td>OEL STEL (mg/m³)</td>
<td>20 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Nunavut</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL STEL (mg/m³)</td>
<td>20 mg/m³ (mist)</td>
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</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Ontario</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
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</tr>
<tr>
<td>Québec</td>
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<td>10 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>OEL STEL (mg/m³)</td>
<td>20 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>OEL TWA (mg/m³)</td>
<td>10 mg/m³ (mist)</td>
<td></td>
</tr>
<tr>
<td>Yukon</td>
<td>OEL TWA (mg/m³)</td>
<td>30 mppcf (mist)</td>
<td>10 mg/m³ (mist)</td>
</tr>
</tbody>
</table>

8.2. Exposure Controls
Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.


Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink, or smoke during use

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Glutathione Reductase
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- Flash Point: Not available
- Auto-ignition Temperature: Not available
- Decomposition Temperature: Not available
- Flammability (solid, gas): Not available
- Lower Flammable Limit: Not available
- Upper Flammable Limit: Not available
- Vapor Pressure: Not available
- Relative Vapor Density at 20 °C: Not available
- Relative Density: Not available
- Specific Gravity: Not available
- Solubility: Not available
- Partition Coefficient: N-Octanol/Water: Not available
- Viscosity: Not available
- Explosion Data – Sensitivity to Mechanical Impact: Not expected to present an explosion hazard due to mechanical impact
- Explosion Data – Sensitivity to Static Discharge: Not expected to present an explosion hazard due to static discharge

SECTION 10: STABILITY AND REACTIVITY
10.1. Reactivity: Hazardous reactions will not occur under normal conditions.
10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).
10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
10.4. Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Incompatible materials.
10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers.

SECTION 11: TOXICOLOGICAL INFORMATION
11.1. Information on Toxicological Effects - Product
- Acute Toxicity: Not classified
- LD50 and LC50 Data: Not available
- Skin Corrosion/Irritation: Not classified
- Serious Eye Damage/Irritation: Not classified
- Respiratory or Skin Sensitization: Not classified
- Germ Cell Mutagenicity: Not classified
- Teratogenicity: Not classified
- Carcinogenicity: Not classified
- Specific Target Organ Toxicity (Repeated Exposure): Not classified
- Reproductive Toxicity: Not classified
- Specific Target Organ Toxicity (Single Exposure): Not classified
- Aspiration Hazard: Not classified
- Symptoms/Injuries After Inhalation: May cause respiratory irritation
- Symptoms/Injuries After Skin Contact: May cause skin irritation
- Symptoms/Injuries After Eye Contact: May cause eye irritation
- Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects
- Chronic Symptoms: None expected under normal conditions of use
11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>LD50 Oral Rat</th>
<th>LD50 Dermal Rabbit</th>
<th>LC50 Inhalation Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (56-81-5)</td>
<td>27.2 g/kg</td>
<td>&gt; 10 g/kg</td>
<td>&gt; 570 mg/m³ (Exposure time: 1 h)</td>
</tr>
</tbody>
</table>

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
No additional information available

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>LC50 Fish 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (56-81-5)</td>
<td>54000 (51000 - 57000) mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])</td>
</tr>
</tbody>
</table>

12.2. Persistence and Degradability
Not available

12.3. Bioaccumulative Potential

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>BCF Fish 1</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (56-81-5)</td>
<td>(no bioaccumulation)</td>
<td>-1.76</td>
</tr>
</tbody>
</table>

12.4. Mobility in Soil
Not available

12.5. Other Adverse Effects
Not available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial, and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT
Not regulated for transport

14.2. In Accordance with IMDG
Not regulated for transport

14.3. In Accordance with IATA
Not regulated for transport

14.4. In Accordance with TDG
Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>EPA TSCA Regulatory Flag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (56-81-5)</td>
<td>Y2 - 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.</td>
</tr>
</tbody>
</table>

15.2. US State Regulations

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WHMIS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (56-81-5)</td>
<td>Uncontrolled product according to WHMIS classification criteria</td>
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<td>Uncontrolled product according to WHMIS classification criteria</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WHMIS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts - Right To Know List</td>
<td></td>
</tr>
<tr>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
<td></td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
<td></td>
</tr>
</tbody>
</table>

15.3. Canadian Regulations

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WHMIS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutathione Reductase</td>
<td>Uncontrolled product according to WHMIS classification criteria</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WHMIS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (56-81-5)</td>
<td>Uncontrolled product according to WHMIS classification criteria</td>
</tr>
</tbody>
</table>
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 03/17/2015
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Party Responsible for the Preparation of This Document
Trevigen INC. 8405 Helgerman Court Gaithersburg, MD 20877 T: 301-216-2800

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS 2