SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS product identifier

Product Name Diethylene Glycol

Other means of identification

Synonyms DEG

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier’s details

Supplier Address
Complex Chemical Co.
177 Complex Chemical
Tallulah, La. 71282
TEL: 318-574-0382

Emergency telephone number

Emergency Telephone Number 800-825-9720

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200)

Acute Oral Toxicity Category 4

GHS Label elements, including precautionary statements

Emergency Overview

Signal Word Warning

Hazard Statements

• Harmful if swallowed
Appearance  Colorless  Physical State  Liquid.  Odor  Practically odorless

Precautionary Statements

Prevention
• Wash face, hands and any exposed skin thoroughly after handling
• Do not eat, drink or smoke when using this product

General Advice
• None

Ingestion
• IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
• Rinse mouth

Storage
• None

Disposal
• Dispose of contents/container to an approved waste disposal plant

Hazard Not Otherwise Classified (HNOC)
Not applicable

Other information
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms  DEG

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene glycol</td>
<td>111-46-6</td>
<td>98-100</td>
<td>*</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>107-21-1</td>
<td>0-2</td>
<td>*</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact  Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. Get medical attention immediately if irritation persists.

Skin Contact  Get medical attention if irritation develops and persists.

Inhalation  Get medical attention immediately if symptoms occur.

Ingestion  Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. Call a POISON CENTER or doctor/physician if exposed or you feel unwell.
Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects  Nausea.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician  Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media  None

Specific Hazards Arising from the Chemical
No information available

Explosion Data

<table>
<thead>
<tr>
<th>Sensitivity to Mechanical Impact</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity to Static Discharge</td>
<td>None</td>
</tr>
</tbody>
</table>

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, protective equipment and emergency procedures

Personal Precautions  None required for material as supplied.

Environmental Precautions

Environmental Precautions  See Section 12 for additional Ecological Information

Methods and materials for containment and cleaning up

Methods for Containment  Dike far ahead of liquid spill for later disposal.

Methods for Cleaning Up  Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling  Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage  Keep container tightly closed in a dry and well-ventilated place.

Incompatible Products  Perchloric acid

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol 107-21-1</td>
<td>Ceiling: 100 mg/m³ aerosol only</td>
<td>(vacated) Ceiling: 50 ppm</td>
<td>(vacated) Ceiling: 125 mg/m³</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Measures
- Showers
- Eyewash stations
- Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection
- No special protective equipment required.

Skin and Body Protection
- No special protective equipment required.

Respiratory Protection
- If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures
- Provide regular cleaning of equipment, work area and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks/ - Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td>Appearance</td>
</tr>
<tr>
<td>Odor</td>
<td>Practically odorless</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>7.0 - 9.0</td>
<td>None known</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>246 °C</td>
<td>None known</td>
</tr>
<tr>
<td>Flash Point</td>
<td>125 °C</td>
<td>None known</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability Limits in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>upper flammability limit</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>lower flammability limit</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.1184</td>
<td>None known</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Completely soluble</td>
<td>None known</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammable Properties</td>
<td>Not flammable</td>
<td></td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>

Other information

VOC Content (%) | None
10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to avoid

High temperatures.

Incompatible materials

Perchloric acid

Hazardous decomposition products

Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation  None under normal use conditions
Eye Contact None known.
Skin Contact None known.
Ingestion  Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene glycol</td>
<td>= 12565 mg/kg (Rat)</td>
<td>= 11890 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>= 4000 mg/kg (Rat)</td>
<td>9530 µL/kg (Rabbit)</td>
<td>-</td>
</tr>
</tbody>
</table>

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms  Nausea.

Delayed and immediate effects and also chronic effects from short and long term exposure

Sensitization  No information available.
Mutagenic Effects  No information available.
Carcinogenicity  Contains no ingredient listed as a carcinogen.
Reproductive Toxicity  No information available.
STOT - single exposure  No information available.
STOT - repeated exposure  No information available.
Aspiration Hazard  No information available.

Numerical measures of toxicity  - Product

The following values are calculated based on chapter 3.1 of the GHS document:
LD50 Oral  500 mg/kg; Acute toxicity estimate
LD50 Dermal  12010 mg/kg; Acute toxicity estimate
12. ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Toxicity to Microorganisms</th>
<th>Daphnia Magna (Water Flea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene glycol</td>
<td>LC50 96 h: = 75200 mg/L flow-through (Pimephales promelas)</td>
<td>EC50 = 29228 mg/L 15 min</td>
<td>EC50 48 h: = 84000 mg/L</td>
<td>(Daphnia magna)</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>EC50 96 h: 6500 - 13000 mg/L (Pseudokirchneriella subcapitata)</td>
<td>LC50 96 h: = 40000 - 60000 mg/L static (Pimephales promelas)</td>
<td>EC50 48 h: = 46300 mg/L</td>
<td>(Daphnia magna)</td>
</tr>
<tr>
<td></td>
<td>LC50 96 h: = 16000 mg/L static (Poecilia reticulata)</td>
<td>LC50 96 h: = 27540 mg/L static (Lepomis macrochirus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 96 h: = 40761 mg/L static (Oncorhynchus mykiss)</td>
<td>LC50 96 h: = 41000 mg/L static (Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 96 h: = 6500 - 13000 mg/L (Pseudokirchneriella subcapitata)</td>
<td>LC50 96 h: = 16000 mg/L static (Poecilia reticulata)</td>
<td>EC50 48 h: = 46300 mg/L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 96 h: = 27540 mg/L static (Lepomis macrochirus)</td>
<td>LC50 96 h: = 41000 mg/L static (Oncorhynchus mykiss)</td>
<td>EC50 = 10000 mg/L 16 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 96 h: = 620 mg/L 30 min</td>
<td>EC50 = 620.0 mg/L 30 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 96 h: = 16000 mg/L static (Poecilia reticulata)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 96 h: = 27540 mg/L static (Lepomis macrochirus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 96 h: = 40761 mg/L static (Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 96 h: = 41000 mg/L static (Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability
No information available.

Bioaccumulation
No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene glycol</td>
<td>-1.98</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>-1.93</td>
</tr>
</tbody>
</table>

Other Adverse Effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging
Do not re-use empty containers.

14. TRANSPORT INFORMATION

DOT
Not regulated

TDG
Not regulated

MEX
Not regulated

ICAO
Not regulated

IATA
Not regulated

IMDG/IMO
Not regulated

RID
Not regulated
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>TSCA</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>107-21-1</td>
<td>0-2</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: No
Sudden Release of Pressure Hazard: No
Reactive Hazard: No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>5000 lb</td>
<td></td>
<td>RQ 5000 lb final RQ</td>
</tr>
</tbody>
</table>

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene glycol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethylene glycol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazard</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>
Prepared By
Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date
04-Dec-2012

Revision Date
04-Dec-2012

Revision Note
Initial Release.

General Disclaimer
The information provided on this MSDS 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 Safety Data Sheet