SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers
   Product name: Ethylene Glycol
   CAS-No.: 107-21-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
   Company: Central Drug House (P) Ltd
   7/28 Vardaan House
   New Delhi-10002
   INDIA
   Telephone: +91 11 49404040
   Email: care@cdhfinechemical.com

1.4 Emergency telephone number
   Emergency Phone #: +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   Acute toxicity, Oral (Category 4), H302
   Specific target organ toxicity - repeated exposure, Oral (Category 2), Kidney, H373
   For the full text of the H-Statements mentioned in this Section, see Section 16.

   Classification according to EU Directives 67/548/EEC or 1999/45/EC
   Xn Harmful R22
   For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements
   Labelling according Regulation (EC) No 1272/2008
   Pictogram

   Signal word: Warning
   Hazard statement(s): Harmful if swallowed.
   H302
   May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.
   H373
   Precautionary statement(s): IF SWALLOWED: Call a POISON CENTER or doctor/physician if you
feel unwell. Rinse mouth.

Supplemental Hazard none

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms: 1,2-Ethanediol
Formula: C₂H₆O₂
Molecular weight: 62.07 g/mol
CAS-No.: 107-21-1
EC-No.: 203-473-3
Index-No.: 603-027-00-1
Registration number: 01-2119456816-28-XXXX

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>Acute Tox. 4; STOT RE 2; &lt;= 100 %</td>
<td>H302, H373</td>
</tr>
</tbody>
</table>

Hazardous ingredients according to Directive 1999/45/EC

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>Xn, R22</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Hygroscopic.
Storage class (TRGS 510): Combustible liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Derived No Effect Level (DNEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Area</td>
</tr>
<tr>
<td>Workers</td>
</tr>
<tr>
<td>Workers</td>
</tr>
<tr>
<td>Consumers</td>
</tr>
<tr>
<td>Consumers</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC)

| Compartment | Value |
|-------------|
| Soil | 1.53 mg/kg |
| Marine water | 1 mg/l |
8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance  Form: liquid
    Colour: colourless
b) Odour  No data available
c) Odour Threshold  No data available
d) pH  No data available
e) Melting point/freezing point  Melting point/range: -13 °C
f) Initial boiling point and boiling range  196 - 198 °C
g) Flash point  111 °C - closed cup
h) Evaporation rate  1
i) Flammability (solid, gas)  No data available
j) Upper/lower flammability or explosive limits  Upper explosion limit: 15,3 % (V)
    Lower explosion limit: 3,2 % (V)
k) Vapour pressure  0,11 hPa at 20 °C
    0,13 hPa at 20 °C
l) Vapour density  2,14 - (Air = 1.0)
m) Relative density  1,113 g/mL at 25 °C
n) Water solubility  completely miscible
Partition coefficient: n-octanol/water  log Pow: -1.36

Auto-ignition temperature  400 °C Auto-flammability

Decomposition temperature  No data available

Viscosity  No data available

Explosive properties  No data available

Oxidizing properties  No data available

9.2 Other safety information
Relative vapour density  2.14 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, Aluminum

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4.700 mg/kg
LD50 Dermal - Rabbit - 10.626 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that is probably not carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
Laboratory experiments have shown teratogenic effects.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.
Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Oral - May cause damage to organs through prolonged or repeated exposure. - Kidney

Aspiration hazard
No data available

Additional Information
RTECS: KW2975000

When ingested early symptoms mimic alcohol inebriation and are followed by nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular collapse, pulmonary edema, hypocalcemic tetany, and severe metabolic acidosis. Without treatment, death may occur in 8 to 24 hours. Victims who survive the initial toxicity period usually develop renal failure along with brain and liver damage. Exposure to and/or consumption of alcohol may increase toxic effects.

Central nervous system - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish

LC50 - Oncorhynchus mykiss (rainbow trout) - 18.500 mg/l - 96 h
LC50 - Leuciscus idus (Golden orfe) - > 10.000 mg/l - 48 h
NOEC - Pimephales promelas (fathead minnow) - 32.000 mg/l - 7 d
NOEC - Pimephales promelas (fathead minnow) - 39.140 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 74.000 mg/l - 24 h

NOEC - Daphnia (water flea) - 24.000 mg/l - 48 h
LC50 - Daphnia magna (Water flea) - 41.000 mg/l - 48 h

12.2 Persistence and degradability
No data available

Ratio BOD/ThBOD 0,78 %

12.3 Bioaccumulative potential
Does not bioaccumulate.

Bioaccumulation other fish - 61 d
- 50 mg/l

Bioconcentration factor (BCF): 0,60

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.
SECTION 14: Transport information

14.1 UN number
ADR/RID: -  
IMDG: -  
IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods  
IMDG: Not dangerous goods  
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: -  
IMDG: -  
IATA: -

14.4 Packaging group
ADR/RID: -  
IMDG: -  
IATA: -

14.5 Environmental hazards
ADR/RID: no  
IMDG Marine pollutant: no  
IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available

15.2 Chemical Safety Assessment
A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.
Acute Tox.  Acute toxicity  
H302  Harmful if swallowed.  
H373  May cause damage to organs through prolonged or repeated exposure if swallowed.  
STOT RE Specific target organ toxicity - repeated exposure

Full text of R-phrases referred to under sections 2 and 3
Xn  Harmful  
R22  Harmful if swallowed.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.