### MATERIAL SAFETY DATA SHEET

#### 1,2-DIMETHOXY ETHANE  
CAS NO 110-71-4

<table>
<thead>
<tr>
<th>SECTION 1: Identification of the substance/mixture and of the company/undertaking</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.1 Product identifiers</strong></td>
</tr>
<tr>
<td>Product name: 1,2-Dimethoxy ethane</td>
</tr>
<tr>
<td>CAS-No.: 110-71-4</td>
</tr>
<tr>
<td><strong>1.2 Relevant identified uses of the substance or mixture and uses advised against</strong></td>
</tr>
<tr>
<td>Identified uses: Laboratory chemicals, Industrial &amp; for professional use only.</td>
</tr>
<tr>
<td><strong>1.3 Details of the supplier of the safety data sheet</strong></td>
</tr>
<tr>
<td>Company: Central Drug House (P) Ltd</td>
</tr>
<tr>
<td>7/28 Vardaan House</td>
</tr>
<tr>
<td>New Delhi -110002</td>
</tr>
<tr>
<td>INDIA</td>
</tr>
<tr>
<td>Telephone: +91 11 49404040</td>
</tr>
<tr>
<td>Email: <a href="mailto:care@cdhfinechemical.com">care@cdhfinechemical.com</a></td>
</tr>
<tr>
<td><strong>1.4 Emergency telephone number</strong></td>
</tr>
<tr>
<td>Emergency Phone #: +91 11 49404040 (9:00am - 6:00 pm)</td>
</tr>
<tr>
<td>[Office hours]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION 2: Hazards identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1 Classification of the substance or mixture</strong></td>
</tr>
<tr>
<td>Classification according to Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>Flammable liquids (Category 2), H225</td>
</tr>
<tr>
<td>Skin irritation (Category 2), H315</td>
</tr>
<tr>
<td>Reproductive toxicity (Category 1B), H360FD</td>
</tr>
<tr>
<td>For the full text of the H-Statements mentioned in this Section, see Section 16.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>2.2 Label elements</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Labelling according Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>Pictogram: <img src="image" alt="Pictogram" /></td>
</tr>
<tr>
<td>Signal word: Danger</td>
</tr>
<tr>
<td>Hazard statement(s)</td>
</tr>
<tr>
<td>H225 High flammable liquid and vapour.</td>
</tr>
<tr>
<td>H315 Causes skin irritation.</td>
</tr>
<tr>
<td>H360FD May damage fertility. May damage the unborn child.</td>
</tr>
<tr>
<td>Precautionary statement(s)</td>
</tr>
<tr>
<td>P201 Obtain special instructions before use.</td>
</tr>
<tr>
<td>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</td>
</tr>
</tbody>
</table>
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry powder or dry sand to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.

Supplemental Hazard information (EU)
EUH019 May form explosive peroxides.

Restricted to professional users.

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: Monoglyme
Dimethylglycol
mono-Glyme
Ethylene glycol dimethyl ether

Formula: C₄H₁₀O₂
Molecular weight: 90.12 g/mol
CAS-No.: 110-71-4
EC-No.: 203-794-9
Index-No.: 603-031-00-3

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

Ethylene glycol dimethyl ether Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)
CAS-No. 110-71-4 Flam. Liqu. 2; Skin Irrit. 2; Repr. <= 100 %
EC-No. 203-794-9 1B; H225, H315, H360FD
Index-No. 603-031-00-3

For the full text of the H-Statements 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
Do NOT induce vomiting. 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
   Use water spray to cool unopened containers.

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.
   Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to
   form explosive concentrations. Vapours can accumulate in low 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
   Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and
   place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
   For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
   Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation
   of vapour or mist.
   Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic
   charge.
   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.
   Storage class (TRGS 510): Flammable 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

<table>
<thead>
<tr>
<th>Derived No Effect Level (DNEL)</th>
<th>Application Area</th>
<th>Exposure routes</th>
<th>Health effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.1 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1.1mg/kg BW/d</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>1.5 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>0.23mg/kg BW/d</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.23mg/kg BW/d</td>
</tr>
</tbody>
</table>
Predicted No Effect Concentration (PNEC)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil</td>
<td>1.39 mg/kg</td>
</tr>
<tr>
<td>Marine water</td>
<td>0.64 mg/l</td>
</tr>
<tr>
<td>Fresh water</td>
<td>6.4 mg/l</td>
</tr>
<tr>
<td>Marine sediment</td>
<td>2.57 mg/kg</td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>25.7 mg/kg</td>
</tr>
<tr>
<td>Onsite sewage treatment plant</td>
<td>20 mg/l</td>
</tr>
</tbody>
</table>

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**
Impervious clothing, Flame retardant antistatic protective clothing. 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 (US) or type ABEK (EN 14387) respirator cartridges as a backup to enginee 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, clear
Colour: colourless
b) Odour ether-like
c) Odour Threshold No data available
d) pH ca.7
e) Melting point/freezing point Melting point/range: -58 °C - lit.
f) Initial boiling point and boiling range 85 °C - lit.
g) Flash point -2 °C - closed cup
h) Evaporation rate No data available
i) Flammability (solid, gas) No data available
j) Upper/lower flammability or explosive limits No data available
k) Vapour pressure 67 hPa at 20 °C
l) Vapour density 3.11 - (Air = 1.0)
m) Relative density 0.867 g/cm3 at 25 °C
n) Water solubility soluble
o) Partition coefficient: n-octanol/water log Pow: -0.21 - The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.
p) Auto-ignition temperature No data available
q) Decomposition temperature No data available
r) Viscosity 0.5 mm2/s at 20 °C -
s) Explosive properties No data available
t) Oxidizing properties No data available

9.2 Other safety information
Relative vapour density 3.11 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Strong acids

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,370 mg/kg(Ethylene glycol dimethyl ether)
LC50 Inhalation - Rat - 6 h - > 20 - < 63 mg/l(Ethylene glycol dimethyl ether)
LD50 Dermal - Rat - > 5,000 mg/kg(Ethylene glycol dimethyl ether)

Skin corrosion/irritation
Skin - Rabbit(Ethylene glycol dimethyl ether)
Result: Irritating to skin.

Serious eye damage/eye irritation
Eyes - Rabbit(Ethylene glycol dimethyl ether)
Result: No eye irritation
**Respiratory or skin sensitisation**
in vivo assay - Mouse(Ethylene glycol dimethyl ether)
Does not cause skin sensitisation.
(OECD Test Guideline 429)
Remarks: Information given is based on data obtained from similar substances.

**Germ cell mutagenicity**
Not mutagenic in Ames Test Did not show mutagenic effects in animal experiments.(Ethylene glycol dimethyl ether)

**Carcinogenicity**
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**
Presumed human reproductive toxicant(Ethylene glycol dimethyl ether)
May cause reproductive disorders.(Ethylene glycol dimethyl ether)

**Specific target organ toxicity - single exposure**
No data available(Ethylene glycol dimethyl ether)

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No aspiration toxicity classification(Ethylene glycol dimethyl ether)

**Additional Information**
RTECS: Ki1451000

### SECTION 12: Ecological information

12.1 **Toxicity**

Toxicity to fish
LC50 - Brachydanio rerio (zebrafish) - > 5,000 mg/l - 96 h(Ethylene glycol dimethyl ether)
Remarks: The data is estimated based on the component aquatic toxicity classification.

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 4,000 mg/l - 48 h(Ethylene glycol dimethyl ether)
(OECD Test Guideline 202)

semi-static test NOEC - Daphnia magna (Water flea) - 320 mg/l - 21 d(Ethylene glycol dimethyl ether)
(OECD Test Guideline 202)
Remarks: Information given is based on data on the components and the ecotoxicology of similar products.

12.2 **Persistence and degradability**

Biodegradability
aerobic - Exposure time 48 d(Ethylene glycol dimethyl ether)
Result: 16 % - According to the results of tests of biodegradability this product is not readily biodegradable.
(OECD Test Guideline 302B)

12.3 **Bioaccumulative potential**
Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 **Mobility in soil**
No data available(Ethylene glycol dimethyl ether)

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
Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. 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: 2252  
IMDG: 2252  
IATA: 2252

14.2 UN proper shipping name
ADR/RID:  
IMDG: 1,2-DIMETHYOXYETHANE
IATA: 1,2-Dimethoxyethane

14.3 Transport hazard class(es)
ADR/RID: 3  
IMDG: 3  
IATA: 3

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

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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

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.

EUH019  May form explosive peroxides.
H225  Highly flammable liquid and vapour.
H315  Causes skin irritation.
H360FD  May damage fertility. May damage the unborn child.

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