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

1.1. Product identifier

Product form: Substance
EC Index-No.: 015-154-00-4
EC-No.: 240-718-3
CAS-No.: 16672-87-0
Product code: 02763
Chemical structure:

\[
\begin{align*}
\text{Cl} & \quad \text{O} \\
\text{P} & \quad \text{OH} \\
\text{OH} & 
\end{align*}
\]

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Industrial/Professional use spec: Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

LOBA CHEMIE PVT.LTD.
107 Wode House Road, Jehangir Villa, Colaba
400005 Mumbai - INDIA
T +91 22 6663 6663 - F +91 22 6663 6699
info@lobachemie.com - www.lobachemie.com

1.4. Emergency telephone number

Emergency number: + 91 22 6663 6663 (9:00am - 6:00 pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

- Skin corrosion/irritation, Category 1B: H314
- Acute toxicity (dermal), Category 4: H312
- Acute toxicity (inhal.), Category 4: H332
- Hazardous to the aquatic environment — Chronic Hazard, Category 3: H412

Full text of H statements: see section 16
2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure
Safety Data Sheet

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
Xn; R20/21
C; R34
R52/53
Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP) : GHS05 GHS07

Signal word (CLP) : Danger
Hazard statements (CLP) : H312+H332 - Harmful in contact with skin or if inhaled
H314 - Causes severe skin burns and eye damage.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (CLP) : P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P310 - Immediately call a doctor.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Name : 2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure
CAS-No. : 16672-87-0
EC-No. : 240-718-3
EC Index-No. : 015-154-00-4

Full text of R- and H-statements: see section 16

3.2. Mixtures
Not applicable
SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
First-aid measures after skin contact: Immediately call a POISON CENTER/doctor. Wash with plenty of water/…. Wash contaminated clothing before reuse.
First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects: Causes severe skin burns and eye damage.
Symptoms/effects after skin contact: Harmful in contact with skin.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture
No additional information available

5.3. Advice for firefighters
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Use personal protective equipment as required.
Emergency procedures: Ventilate area.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Collect spillage. On land, sweep or shovel into suitable containers.

6.4. Reference to other sections
No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe vapours. Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures: Wash contaminated clothing before reuse. 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 well-ventilated place. Keep container tightly closed.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls

**Hand protection**
Protective gloves

**Eye protection**
Chemical goggles or face shield

**Skin and body protection**
Wear suitable protective clothing

**Respiratory protection**
[In case of inadequate ventilation] wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

**Physical state**
Liquid

**Molecular mass**
144.49 g/mol

**Colour**
Red coloured solution.

**Odour**
No data available

**Odour threshold**
No data available

**pH**
No data available

**Relative evaporation rate (butylacetate=1)**
No data available

**Melting point**
No data available

**Freezing point**
No data available

**Boiling point**
No data available

**Flash point**
No data available

**Auto-ignition temperature**
No data available

**Decomposition temperature**
No data available

**Flammability (solid, gas)**
No data available

**Vapour pressure**
No data available

**Relative vapour density at 20 °C**
No data available

**Relative density**
No data available
Solubility : No data available
Log Pow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Dermal: Harmful in contact with skin. Inhalation: Harmful if inhaled.

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Serious eye damage, category 1, implicit
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified
STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified
Potential adverse human health effects and symptoms: Harmful in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - water: Harmful to aquatic life with long lasting effects.

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure (16672-87-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
<tr>
<td>May cause long-term adverse effects in the environment.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Product/Packaging disposal recommendations: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
| UN-No. (ADR)       | 2928 |
| UN-No. (IMDG)      | 2928 |
| UN-No. (IATA)      | 2928 |
| UN-No. (ADN)       | 2928 |
| UN-No. (RID)       | 2928 |

14.2. UN proper shipping name
<p>| Proper Shipping Name (ADR)       | TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. |
| Proper Shipping Name (IMDG)      | TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. |
| Proper Shipping Name (IATA)      | Toxic solid, corrosive, organic, n.o.s. |
| Proper Shipping Name (ADN)       | TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. |
| Proper Shipping Name (RID)       | TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. |
| Transport document description (ADR) | UN 2928 TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S., 6.1 (8), II, (D/E) |</p>
<table>
<thead>
<tr>
<th>14.3. <strong>Transport hazard class(es)</strong></th>
<th></th>
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<tbody>
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<td><strong>ADR</strong></td>
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<td>Transport hazard class(es) (ADR)</td>
<td>6.1 (8)</td>
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<tr>
<td>Danger labels (ADR)</td>
<td>6.1, 8</td>
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<td>Transport hazard class(es) (IATA)</td>
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<tr>
<td><strong>RID</strong></td>
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<tr>
<td>Transport hazard class(es) (RID)</td>
<td>6.1 (8)</td>
</tr>
<tr>
<td>Danger labels (RID)</td>
<td>6.1, 8</td>
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<td></td>
<td></td>
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<tr>
<td>14.4. <strong>Packing group</strong></td>
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<tr>
<td>Packing group (ADR)</td>
<td>II</td>
</tr>
</tbody>
</table>
2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure
Safety Data Sheet

Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user
- Overland transport
  Classification code (ADR) : TC2
  Special provisions (ADR) : 274
  Limited quantities (ADR) : 500g
  Excepted quantities (ADR) : E4
  Packing instructions (ADR) : P002, IBC06
  Portable tank and bulk container instructions (ADR) : T3
  Portable tank and bulk container special provisions (ADR) : TP33
  Tank code (ADR) : SGAH, L4BH
  Tank special provisions (ADR) : TU15, TE19
  Vehicle for tank carriage : AT
  Transport category (ADR) : 2
  Special provisions for carriage - Packages (ADR) : V11
  Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
  Special provisions for carriage - Operation (ADR) : S9, S19
  Hazard identification number (Kemler No.) : 68
  Orange plates : 68
  Tunnel restriction code (ADR) : D/E
  EAC code : 2X

- Transport by sea
  Special provisions (IMDG) : 274
  Limited quantities (IMDG) : 500 g
  Excepted quantities (IMDG) : E4
  Packing instructions (IMDG) : P002
  IBC packing instructions (IMDG) : IBC06
  IBC special provisions (IMDG) : B2
  Tank instructions (IMDG) : T3
  Tank special provisions (IMDG) : TP33
  EmS-No. (Fire) : F-A
  EmS-No. (Spillage) : S-B
  Stowage category (IMDG) : B
  Stowage and handling (IMDG) : SW2
  MFAG-No : 154
2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure
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- Air transport
  PCA Excepted quantities (IATA) : E4
  PCA Limited quantities (IATA) : Y644
  PCA limited quantity max net quantity (IATA) : 1kg
  PCA packing instructions (IATA) : 668
  PCA max net quantity (IATA) : 15kg
  CAO packing instructions (IATA) : 675
  CAO max net quantity (IATA) : 50kg
  Special provisions (IATA) : A5
  ERG code (IATA) : 6C

- Inland waterway transport
  Classification code (ADN) : TC2
  Special provisions (ADN) : 274, 802
  Limited quantities (ADN) : 500 g
  Excepted quantities (ADN) : E4
  Equipment required (ADN) : PP, EP
  Number of blue cones/lights (ADN) : 2

- Rail transport
  Classification code (RID) : TC2
  Special provisions (RID) : 274
  Limited quantities (RID) : 500g
  Excepted quantities (RID) : E4
  Packing instructions (RID) : P002, IBC06
  Mixed packing provisions (RID) : MP10
  Portable tank and bulk container instructions (RID) : T3
  Portable tank and bulk container special provisions (RID) : TP33
  Tank codes for RID tanks (RID) : SGAH, L4BH
  Special provisions for RID tanks (RID) : TU15
  Transport category (RID) : 2
  Special provisions for carriage – Packages (RID) : W11
  Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31
  Colis express (express parcels) (RID) : CE9
  Hazard identification number (RID) : 68

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure is not on the REACH Candidate List
2-CHLOROETHYL PHOSPHORIC ACID (ETHREL) Extra Pure is not on the REACH Annex XIV List
15.1.2. National regulations

Germany
Reference to AwSV : Water hazard class (WGK) 2, significant hazard to water (Classification according to AwSV; ID No. 689)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark
Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-statements:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Dermal)</th>
<th>Acute toxicity (dermal), Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4 (Inhalation)</td>
<td>Acute toxicity (inhal.), Category 4</td>
</tr>
<tr>
<td>Aquatic Chronic 3</td>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 3</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation, Category 1B</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>R20/21</td>
<td>Harmful by inhalation and in contact with skin</td>
</tr>
<tr>
<td>R34</td>
<td>Causes burns</td>
</tr>
<tr>
<td>R52/53</td>
<td>Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment</td>
</tr>
<tr>
<td>C</td>
<td>Corrosive</td>
</tr>
<tr>
<td>Xn</td>
<td>Harmful</td>
</tr>
</tbody>
</table>
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.