1. Chemical Product and Company Identification

Product Name: Phosphorus Oxychloride
Manufacturer: Sandhya Industrial Chemicals
Address: Sandhya Industrial Chemicals
312, Nand Prem, 142, Nehru Road, Vile Parle (E)
Mumbai- 400057
INDIA
Tel no. 91-22-26104202/26151500/26136732
Fax no. 91-22-26104201
Regd. Office
Plot No. 2809/2810, G I D C, Sarigam-396155,
District Valsad, Gujarat
Tel No. 91-260-2781049/2780149/2781013
www.sandhya-group.com
socpl@vsnl.com
Emergency Contact No.: 91-22-26104202/26151500/26136732

2. Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>PEL-OSHA</th>
<th>TLV-ACGIH</th>
<th>LD50 or LC50</th>
<th>Route/Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus Oxychloride</td>
<td>Not Available</td>
<td>0.1 ppm TWA</td>
<td>LC50</td>
<td>48 ppm/4HR - inhalation (rat)</td>
</tr>
<tr>
<td>FORMULA: POCl₃</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS: 10025-87-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTECS #: TH4897000</td>
<td></td>
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</tr>
</tbody>
</table>

3. Hazards Identification

**EMERGENCY OVERVIEW**
Colourless fuming liquid with pungent odor. Corrosive and irritating to the eyes, skin, and mucous membranes. Inhalation may result in chemical pneumonitis and pulmonary edema.

**ROUTE OF ENTRY**

<table>
<thead>
<tr>
<th>Skin Contact</th>
<th>Skin Absorption</th>
<th>Eye Contact</th>
<th>Inhalation</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**HEALTH EFFECTS**

<table>
<thead>
<tr>
<th>Exposure Limits</th>
<th>Irritant</th>
<th>Sensitization</th>
<th>Synergistic Effects</th>
<th>Carcinogenicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>None Reported</td>
<td>No</td>
</tr>
<tr>
<td>Teratogen No</td>
<td>Reproductive Hazard No</td>
<td>Mutagen No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EYE EFFECTS:**
Corrosive and irritating to the eyes. Contact with the liquid or vapor causes painful burns and ulcerations. Burns to the eyes result in lesions and possible loss of vision.

**SKIN EFFECTS:**
Corrosive and irritating to the skin and all living tissue. Toxic level exposure to dermal tissue causes acid-like burns and skin lesions resulting in early necrosis and scarring. It hydrolyzes very rapidly with the liberation of heat yielding hydrochloric and phosphoric acid. Acid burns exhibit severe pain, redness, possible swelling and early necrosis.
MATERIAL SAFETY DATA SHEET
PHOSPHORUS OXYCHLORIDE

INGESTION EFFECTS:
None specified.

INHALATION EFFECTS:
Corrosive and irritating to the upper and lower respiratory tract and all mucosal tissue. Symptoms include lacrimation, cough, labored breathing, and excessive salivary and sputum formation. Excessive irritation causes chemical pneumonitis and pulmonary edema which could be fatal.

NFPA HAZARD CODES  HMIS HAZARD CODES  RATINGS SYSTEM
Health:  4  Health:  4  0  No Hazard
Flammability:  0  Flammability:  0  1  Slight Hazard
Reactivity:  2  Reactivity:  2  2  Moderate Hazard
WATER REACTIVE  3  Serious Hazard
  4  Severe Hazard

4. First Aid Measures

EYES:
PERSONS WITH POTENTIAL EXPOSURE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eyes with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. Seek immediate medical attention.

SKIN:
Remove contaminated clothing as rapidly as possible. Flush affected area with copious quantities of water. Seek immediate medical attention.

INGESTION:
Not specified. Seek immediate medical attention.

INHALATION:
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Keep victim warm and quiet. Assure that mucus or vomited material does not obstruct the airway by use of positional drainage. Delayed pulmonary edema may occur. Keep patient under medical observation for at least 24 hours.

5. Fire Fighting Measures

Conditions of Flammability:  Nonflammable
Flash point:  None
Method:  None
Autoignition Temperature:  None
LEL(%) :  None
UEL(%) :  None
Hazardous combustion products:  Phosphine, HCl & phosphoric acid
Sensitivity to mechanical shock:  None
Sensitivity to static discharge:  None

FIRE AND EXPLOSION HAZARDS: Potentially explosive reaction with water yielding phosphine & HCl.
Sufficient quantities of phosphine may ignite.

EXTINGUISHING MEDIA:  Dry chemical or carbon dioxide. If water is used, the amount should be enough to overcome heat and acid build-up.

FIRE FIGHTING INSTRUCTIONS:  In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving this material. Stay away from sealed
6. **Accidental Release Measures**

Evacuate all personnel from affected area. Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified. Treat spilled material with an excess of soda ash or slaked lime, mix and add water cautiously to yield acid(s) and react with the alkali until fully neutralized. Collect the residual for disposal. Flush spill area with plenty of water.

7. **Handling and Storage**

**Electrical classification**: Non-hazardous.

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Avoid storage on wood floors. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. Keep away from water. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. **Exposure Controls, Personal Protection**

**Airborne Exposure Limits:**
ACGIH Threshold Limit Value (TLV): 0.1 ppm (TWA)

**Ventilation System:**
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation: A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**
If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134).

**Skin Protection:**
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. **Physical and Chemical Properties**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state (gas, liquid, solid)</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure at 68°F</td>
<td>0.54</td>
<td>psia</td>
</tr>
<tr>
<td>Vapor density (Air = 1)</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Evaporation point</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Boiling point</td>
<td>223</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>106</td>
<td>C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>36</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>pH</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Specific gravity (H2O = 1)</td>
<td>1.675 (20/20C)</td>
<td></td>
</tr>
<tr>
<td>Oil/water partition coefficient</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Solubility (H2O)</td>
<td>Reacts violently</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Odor and appearance</td>
<td>Pungent odor; Colorless, fuming liquid.</td>
<td></td>
</tr>
</tbody>
</table>
10. Stability and Reactivity

**STABILITY** : Stable.

**INCOMPATIBLE MATERIALS** : Water and water vapor. In water, reacts violently. Acids, alkali & alcohols

**HAZARDOUS DECOMPOSITION PRODUCTS** : Hydrochloric and phosphoric acid upon hydrolysis.

**HAZARDOUS POLYMERIZATION** : Will not occur.

11. Toxicological Information

Oral rat LD50: 380 mg/kg; Inhalation rat LC50: 48 ppm/4-hr.

12. Ecological Information

No data given.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Whatever cannot be saved for recovery or recycling should be handled as hazardous waste.

14. Transport Information

**PROPER SHIPPING NAME** : Phosphorus Oxychloride

**HAZARD CLASS** : 8

**IDENTIFICATION NUMBER** : UN 1810

**SHIPPING LABEL** : CORROSIVE

**Packing Group** : II

15. Regulatory Information

Symbol

16. Other Information

This information is based on our present state of knowledge. It should not therefore be constructed as guaranteeing specific properties of this product or their suitability for a particular application.