Diethyl-\(d_{10}\) Chlorophosphate

Section 1. Chemical product and company identifications

**Product code:** D-8081  
**Chemical formula:** \(C_4D_{10}ClO_3P\)  
**CAS:** 141870-47-5  
**CAS (unlabelled):** 814-49-3  
**Synonyms:** Diethyl Phosphorochloridate, Diethyl Phosphoryl Chloride

**Supplier / Manufacturer:** C/D/N Isotopes Inc.  
88 Leacock Street  
Pointe-Claire (Québec) H9R 1H1  
Phone: 514-697-6254  
Toll-Free (Canada & USA): 1-800-565-4696  
Fax: 514-697-6148  
Website: www.cdnisotopes.com

**In case of emergency:**  
TOXYSCAN HOTLINE: 1-855-780-0599

Section 2. Hazards identifications

**Physical state:** Liquid  
**Warning:** Combustible liquid. Fatal if swallowed or in contact with skin. Causes severe skin burns and eye damage.  
**Routes of entry:** Inhalation, ingestion, skin and eyes

**GHS (Globally Harmonized System of Classification and Labelling of Chemicals):**

**GHS Classification:**  
- Flammable liquids (Category 4)  
- Acute toxicity, Oral (Category 2)  
- Acute toxicity, Dermal (Category 1)  
- Skin corrosion (Category 1B)  
- Serious eye damage (Category 1)

**GHS Label elements:**

- Pictograms:  
  - Signal word: Danger

**Hazard statements:**

- H227 Combustible liquid.  
- H300 + H310 Fatal if swallowed or in contact with skin.  
- H314 Causes severe skin burns and eye damage.

**Precautionary statements:**

- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
- P302 + P350 IF ON SKIN: Wash with plenty of soap and water.  
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
- P310 Immediately call a POISON CENTER or doctor/ physician.

Section 3. Composition and information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethyl-(d_{10}) Chlorophosphate</td>
<td>141870-47-5</td>
<td>&gt; 98</td>
</tr>
</tbody>
</table>
Section 4. First aid measures

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Skin contact: Wash off with soap and plenty of water. Consult a physician.
Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Section 5. Firefighting measures

Flammability of the product: Not flammable or combustible.
Lower explosion limit: No data available
Upper explosion limit: No data available
Auto-ignition temperature: No data available
Flash point: 93 °C (199 °F)
Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides, hydrogen chloride gas, phosphorous oxides.
Firefighting media and instructions: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Section 6. Accidental release measures

Personal precautions: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.
Environmental precautions: Do not let product enter drains.
Methods for cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Section 7. Handling and storage

Handling: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Provide appropriate exhaust ventilation. Keep away from sources of ignition - No smoking.
Storage: STORE REFRIGERATED. Adequate ventilation. Protect from heat and ignition sources. Protect from moisture.

Section 8. Exposure Controls, Personal Protections

Engineering controls: Use mechanical exhaust or laboratory fume hood to avoid exposure.
Eyes: Safety glasses with side-shields conforming to NIOSH (US) or EN 166(EU).
Respiratory: 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).
Hands: Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Skin/body: Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9. Physical and chemical properties (unlabelled)

Molecular weight: 172.55 g/mol
Physical status: Liquid
Color: Colorless
Odor: No data available
Density: 1.194 g/m³
Melting point: -60 °C (-76 °F)
Boiling point: 81 °C (178 °F) at 8 hPa (6 mmHg)
Vapour pressure: 1.3 hPa (1 mmHg) at 25 °C (77 °F)
Vapour density: 5.94 (Air = 1)
Partition coefficient (octanol/water): No data available
Water solubility: Decomposes
Section 10. Stability and reactivity

Stability and reactivity: Stable under recommended storage conditions.
Incompatibility: Strong oxidizing agents, strong bases.
Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides, hydrogen chloride gas, phosphorus oxides.

Section 11. Toxicological information (unlabelled)

Toxicological data: Diethyl Chlorophosphate

Information on ingredients:

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethyl Chlorophosphate</td>
<td>814-49-3</td>
<td>Oral - Rat - 11 mg/kg Dermal - Rabbit - 9.5 mg/kg</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Potential acute effects
- Eyes: Causes serious eye damage.
- Skin: Fatal if absorbed through skin. Causes severe skin burns.
- Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
- Ingestion: Fatal if swallowed.

Potential chronic effects
- Carcinogenic effects: 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. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- Mutagenic effects: No data available
- Teratogenic effects: No data available
- Medical conditions aggravated by overexposure: No data available

Section 12. Ecological information

Ecological data:

<table>
<thead>
<tr>
<th>Name</th>
<th>Results</th>
<th>Species</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethyl Chlorophosphate</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effects on environment: No data available
Mobility: No data available
Environmental precautions: No data available
Persistence and degradability: No data available
Bioaccumulative potential: No data available

Section 13. Disposal considerations

Waste disposal: Contact a licensed professional waste disposal service to dispose of this material.

Section 14. Transportation information

Classification DOT/IMDG/IATA label:
Shipping name: Organophosphorus compound, liquid, toxic, n.o.s. (Diethyl Chlorophosphate)
UN number: UN3278
Class: 6.1
Packaging group: I

Additional information: None
Section 15. Regulatory information

UNITED STATES:
NFPA classification

Health: 4
Flammable: 2
Reactivity: 0
Special conditions: None

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

U.S. Federal regulations:

TSCA 8(b) inventory: Diethyl Chlorophosphate
SARA 302/304/311/312 extremely hazardous substances: Not Listed
SARA 302/304 emergency planning and notification: Not Listed
SARA 302/304/311/312 hazardous chemicals: Not Listed
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Fire hazard, Immediate (acute)
health hazard, Delayed (chronic) health hazard: Not Listed
CWA (Clean Water Act) 307: Not Listed
CWA (Clean Water Act) 311: Not Listed
CAA (Clean Air Act) 112 accidental release prevention: Not Listed
CAA (Clean Air Act) 112 regulated flammable substances: Not Listed
CAA (Clean Air Act) 112 regulated toxic substances: Not Listed

State regulations:

DEA List I Chemicals (Precursor Chemicals): Not Listed
DEA List II Chemicals (Essential Chemicals): Not Listed
Substances in Massachusetts: Not Listed
Dangerous substances in New Jersey: Not Listed
New York – Dangerous substances with acute effects: Not Listed
Dangerous substances in Pennsylvania – right to know: Not Listed

WHMIS (Canada):

- B3 - Combustible liquid
- D1A - Very toxic material causing immediate and serious toxic effects
- E - Corrosive material

Section 16. Additional information

References:
- Manufacturer’s Material Safety Data Sheet.
- 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. -Canada
- Federal act on the controlled products
- Toxicological repertory, HSC.
- Material safety data sheet from the components.

Date of issue: September 15th, 2019
Version: 1
Elaborated by: Toxyscan Inc., 1-866-780-0599
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