n-PROPYL CHLOROFORMATE

Molecular formula: \( \text{C}_4\text{H}_7\text{ClO}_2 \)
Molecular weight: 122.5
CAS number: 109-61-5
EC number: 203-687-7

SYNONYM
Carbonochloridic acid, n-propyl ester.

APPEARANCE
Clear liquid with pungent odour.

PHYSICAL PROPERTIES
Density (20 °C): 1.09 g/cm³
Boiling point: 112 °C/101 kPa
Solubility: Soluble in usual organic solvents (acetone, chloroform, toluene, THF).

CHEMICAL PROPERTIES
- Reacts by hydrolysis yielding hydrochloric acid, carbon dioxide and n-propanol.
- Reacts with alcohols yielding carbonates.
- Reacts with amines yielding carbamates.

USES
- Organic synthesis intermediate.
n-PROPYL CHLOROFORMATE
NPCF

SPECIFICATION

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Guaranteed value</th>
<th>Method</th>
<th>Operating procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
<td>Visual</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>≤ 30 APHA</td>
<td>Colorimetry</td>
<td>C – 210</td>
</tr>
<tr>
<td>Purity</td>
<td>≥ 99.0 %</td>
<td>Gas chromatography</td>
<td>GC – 246</td>
</tr>
<tr>
<td>Phosgene</td>
<td>≤ 0.1 %</td>
<td>Iodometry</td>
<td>I – 230</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>≤ 0.1 %</td>
<td>Acidimetry</td>
<td>A – 220</td>
</tr>
<tr>
<td>n-Propanol</td>
<td>≤ 0.1 %</td>
<td>Gas chromatography</td>
<td>GC – 246</td>
</tr>
<tr>
<td>Dipropyl carbonate</td>
<td>≤ 1.0 %</td>
<td>Gas chromatography</td>
<td>GC – 246</td>
</tr>
</tbody>
</table>

PACKAGING
Polyethylene lined metal drum containing 200 kg. In bulk.

HANDLING PRECAUTIONS

- Physicochemical hazard:
  Flash point (closed cup): 26 °C

- Health hazards:
  LD 50 (oral, rat): 1210 mg/kg
  Irritating to the eyes, skin and mucous membranes.
  Corrosive.

- Recommended:
  Avoid contact with metallic compounds which catalyze its decomposition.
  When handling this product wear gloves, goggles, mask and protective clothes.
  If eyes are contaminated wash immediately with clean water for at least 15 minutes. In case of inhalation of concentrated vapors take person to fresh air. In both cases consult a physician.

- Neutralization:
  Neutralize by reaction with an alkaline solution.

STORAGE
Stored in its closed original drum, protected from direct sunshine, in a covered, dry, cool and well-ventilated warehouse the product is stable. However, in case of prolonged storage it is recommended to check again the product before use by measuring typical parameters of its quality such as color, hydrogen chloride and n-propanol levels.

TRANSPORTATION
Refer to MSDS

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