**SYNONYMS**
Valeryl chloride; Pentanoyl chloride.

**APPEARANCE**
Clear liquid with pungent odor.

**PHYSICAL PROPERTIES**
- **Density (20 °C):** 1.01 g/cm³
- **Melting point:** -110 °C
- **Boiling point:** 126 °C/101 kPa

Solubility:
Soluble in usual organic solvents (acetone, chloroform, toluene, THF).

**CHEMICAL PROPERTIES**
- Reacts by hydrolysis yielding hydrochloric acid and valeric acid.
- Reacts with amines yielding amides.
- Reacts with alcohols yielding esters.
- Reacts with mercaptanes yielding thioesters.

**USES**
- Intermediate for organic synthesis.
VALEROYL CHLORIDE

VACL

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>≤ 50 APHA</td>
<td>Colorimetry</td>
<td>C – 210</td>
</tr>
<tr>
<td>Purity</td>
<td>≥ 99.0 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
<tr>
<td>Phosgene</td>
<td>≤ 0.1 %</td>
<td>Iodometry</td>
<td>I – 230</td>
</tr>
<tr>
<td>Acidity (HCl)</td>
<td>≤ 0.1 %</td>
<td>Acidimetry</td>
<td>A – 220</td>
</tr>
<tr>
<td>2,2-Dimethylpropionyl chloride</td>
<td>≤ 0.1 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
<tr>
<td>Butyryl chloride</td>
<td>≤ 0.1 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
<tr>
<td>2-Methylbutyryl chloride</td>
<td>≤ 0.5 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
<tr>
<td>3-Methylbutyryl chloride</td>
<td>≤ 0.25 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
<tr>
<td>Other impurities (each)</td>
<td>≤ 0.25 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
<tr>
<td>Total impurities</td>
<td>≤ 1.0 %</td>
<td>Gas chromatography</td>
<td>GC – 544</td>
</tr>
</tbody>
</table>

PACKAGING

- Polyethylene drum with fluorinated inner coating containing 190 kg.
- Polyethylene lined metal drum. The storage time is maximum 6 months. During the storage the product migrates through the liner and this will cause serious corrosion and bulging of metal drum.
- In bulk.

HANDLING PRECAUTIONS

- Physicochemical hazard:
  Flash point (closed cup): 23 °C
  Flammable.
- Health hazards:
  LD 50 (oral, rat): 650 mg/kg
  Corrosive: causes burns
  Irritating on skin, mucous membranes and eyes.
- Recommended:
  Wear gloves, glasses, mask and protective clothes.
  If eyes are contaminated wash immediately with clean water for at least 15 minutes.
  If concentrated vapors are inhaled carry the person into fresh air out of the contaminated area.
  In both cases call a physician.
- Neutralization:
  Neutralize with an alkaline solution.

STORAGE

Stored in its closed original drum 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 (color, hydrogen chloride, valeric acid and anhydride levels).

TRANSPORTATION

Refer to MSDS.