### Sodium Diethyldithiocarbamate 3-hydrate *BioChemica*

<table>
<thead>
<tr>
<th><strong>Synonym</strong></th>
<th>Cupral, DDTC Sodium Salt, Diethyldithiocarbamic Acid Sodium Salt, Dithiocarbamic Acid Diethyl Ester Sodium Salt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>state of matter</strong></td>
<td>Solid</td>
</tr>
<tr>
<td><strong>Formula</strong></td>
<td>( C_5H_{10}NNaS_2 \cdot 3H_2O )</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>2.2531 g/mol</td>
</tr>
<tr>
<td><strong>CAS-No.:</strong></td>
<td>20624-25-3</td>
</tr>
<tr>
<td><strong>HS-No.:</strong></td>
<td>29302000</td>
</tr>
<tr>
<td><strong>EC-No.:</strong></td>
<td>205-710-6</td>
</tr>
<tr>
<td><strong>Storage:</strong></td>
<td>2-8°C</td>
</tr>
<tr>
<td><strong>LGK:</strong></td>
<td>10 - 13</td>
</tr>
<tr>
<td><strong>Disposal:</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

#### Hazard pictogram(s)

- 🚸
- ⚠️

**Hazard statement(s)**

- H302-H400

**Precautionary statement(s)**

- P273

**Signal word**

- Warning

**Class / PG:**

- 9/III

**UN-No.:**

- UN3077

**WGK:**

- 3

#### Specification

**Assay (titr.)**

- min. 99 %

**Heavy metals**

- max. 0.001 %

**Sulfated ash**

- 30 - 33 %
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**Specification**

**Literature**

   Molecular mechanism for prevention of N-Acetyl-p-benzoquinoneimine by the permeable thiol drug Diethyldithiocarbamate and Dithiothreitol.

   Diethyldithiocarbamate effect on arachidonic acid metabolism in human mononuclear cells.

   Characterization of Superoxide Dismutase from south indian scorpion venom.

   Diethyldithiocarbamate inhibits induction of macrophage NO synthetase.

   N,N'-Diethyldithiocarbamate as a stain for Copper-Zinc Superoxide Dismutase in polyacrylamide gels of red cell extracts.

   Two applications using N,N'-Diethyldithiocarbamate as a stain for Copper in native polyacrylamide gels of Superoxide Dismutase.

**Comment**

Diethyldithiocarbamate (DDC) is a thiol compound, which has the property of an anti-oxidizing agent and reacts as a complexing agent for divalent ions. It forms non-toxic, stable compounds with benzoquinoneimines (alkylating agents) and prevents the alkylation of glutathione and probably any thiol group in proteins (1). DDC chelates ions like manganese (3) and copper (5, 6). Due to this enzymes depending on metal ions are inhibited. DDC incubation of superoxide dismutase derived from erythrocytes results in a yellowish brown color and in an inhibition of the enzyme. The addition of copper ions reactivates the enzyme. Staining of this enzyme in the polyacrylamide gel is possible (10 mM DDC in electrophoresis buffer, measured at 448 nm, ref. 5). Due to its anti-oxidizing properties DCC is used during the treatment of HIV infections. DDC also inhibits the induction of NO-Synthetase, propably due to the inhibiton of the transcription factor NFkB (4).