## Technical Product Data Sheet

<table>
<thead>
<tr>
<th>Tech. Sheet #</th>
<th>004</th>
<th>Version</th>
<th>1.0</th>
<th>Created:</th>
<th>June 17th 2016</th>
<th>by</th>
<th>R. Peralta</th>
<th>Last updated</th>
<th>June 17, 2016</th>
<th>by</th>
<th>R. Peralta</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Name</strong></td>
<td>Recombinant catalase</td>
<td><strong>Product Code</strong></td>
<td>enz_cat_004</td>
<td><strong>Current Dev. Phase</strong></td>
<td>Finished</td>
<td><strong>Dev. State</strong></td>
<td>Finished</td>
<td></td>
<td></td>
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</tbody>
</table>

### Core information

<table>
<thead>
<tr>
<th><strong>Product Type</strong></th>
<th>Lyophilized enzyme</th>
<th><strong>Producing microorganism</strong></th>
<th>Escherichia coli (recombinant)</th>
<th><strong>Microorg. code</strong></th>
<th>BL21 (DE3)</th>
<th><strong>Origin</strong></th>
<th>Psychrotolerant Bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EC Number</strong></td>
<td>1.11.1.6</td>
<td><strong>CAS-No.</strong></td>
<td>9001-05-2</td>
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</tbody>
</table>

### Product Description

Catalase (CAT) is an oxidoreductase enzyme that catalyses the decomposition of hydrogen peroxide into molecular oxygen and water.

### Temp Range

<table>
<thead>
<tr>
<th><strong>Temp Range °C</strong></th>
<th><strong>Opt. temp °C</strong></th>
<th><strong>Thermo stability</strong></th>
<th><strong>pH range</strong></th>
<th><strong>Opt. pH</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>20-80</td>
<td>30-40</td>
<td>Keeps 50% of its activity after 7 hours of exposure at 50°C</td>
<td>4.0-9.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

### Substrate

H₂O₂

### Products

H₂O and O₂

### Reaction

\[ 2 \text{H}_2\text{O}_2 \rightarrow 2 \text{H}_2\text{O} + \text{O}_2 \]

### U (Unit definition)

One unit is defined as the decomposition of 1µmol of H₂O₂ in 1 minute at 25°C at pH 7.0. The rate of disappearance of H₂O₂ is observed at 240 nm.

### Specific activity

≥ 8000 U/mg protein

### Protein concentration

≥ 40% (w/w)

### Molecular mass

~ 220 kDa

### Number of subunits

Four. Each subunit has 55 kDa.

### Substrate chirality

No

### Product chirality

No

### Alternative substrates

No data available

### Form

Lyophilized powder

### Other components

0.05 M Tris base and 0.5 M NaCl (before lyophilizing)

### Storage temperature

-20 °C

### Stability

At -20°C, it keeps 100% of its activity for more than two years.

### Shipping conditions

Inside a Styrofoam box with icepacks
**Fig 1.** pH dependence of rec CAT prepared in deionized water. Activity was measured by monitoring pH from 3 to 11 at 25°C.

**Fig 2.** Temperature dependence of rec CAT prepared in deionized water. Activity was measured by monitoring temperature from 20 to 80°C using 50 mM potassium phosphate buffer (pH 7).
Thermo-stability

Fig 3. Thermostability of the rec CAT prepared in deionized water. Activity was monitored at 50º C using 50 mM potassium phosphate buffer (pH 7).

Scientific and Technical References


Use, Security, Handling and Disclaimer

<table>
<thead>
<tr>
<th>Use</th>
<th>The product specified in this document has not been assessed for Human or Animal Consumption and is therefore Not for Human or Animal Consumption.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>The product specified in this document must be manipulated and used in a safe manner, in compliance with all applicable laws and regulations.</td>
</tr>
<tr>
<td>Handling</td>
<td>The product specified in this document must be manipulated by trained personnel, acquainted with laboratory security practices and regulations.</td>
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