

## Product Information

### Catalase

from bovine liver

Catalog Number **C40**

Storage Temperature  $-20\text{ }^{\circ}\text{C}$

CAS RN 9001-05-2

EC Number: 1.11.1.6

Synonym:  $\text{H}_2\text{O}_2\text{:H}_2\text{O}_2$  Oxidoreductase

### Product Description

Molecular mass:<sup>1</sup> 250 kDa

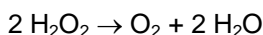
Isoelectric Point:<sup>2</sup> 5.4

Extinction Coefficient:<sup>3</sup>  $E^{1\%} = 36.5$  (276 nm)

Stoke's radius:<sup>4</sup> 5.12 nm

Catalase from bovine liver is a tetramer consisting of 4 equal subunits with a molecular mass of 60 kDa each.<sup>5</sup> Each subunit contains iron bound to a protoheme IX group. The enzyme also strongly binds NADP, of which the NADP and heme group are within 13.7 Å of each other.<sup>6</sup>

Catalase catalyzes the following reaction:



Catalase can also react with alkylhydrogen peroxides instead of  $\text{H}_2\text{O}_2$ , such as methylperoxide and ethylperoxide. In addition, many compounds can replace the second  $\text{H}_2\text{O}_2$  molecule as the hydrogen donor including: methanol, ethanol, propanol, formate, and nitrate.<sup>7</sup>

Catalase does not require any activators, but is inhibited by 3-amino-1-H-1,2,4 triazole, cyanide, azide, hydroxylamine, cyanogen bromide, 2-mercaptoethanol, dithiothreitol, dianisidine, and nitrate.<sup>8</sup> Catalase is also inhibited by ascorbate and ascorbate with  $\text{Cu}^{2+}$ . Incubation of catalase with ascorbate or ascorbate/ $\text{Cu}^{2+}$  results in degradation of the catalase molecule.<sup>9</sup>

Catalase activity is constant over the pH range of 4.0-8.5.<sup>10</sup> Sigma determines the activity of this enzyme at pH 7.0.

### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

### Preparation Instructions

This enzyme is soluble in 50 mM potassium phosphate buffer, pH 7.0 (2 mg/ml).

### Storage/Stability

Solutions of catalase should not be frozen. Freezing stock solutions will cause a 50-70% loss in activity.

### References

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