

## Product Information

### Catalase from bovine liver Cell Culture Tested

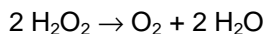
Product Number **C 1345**  
Storage Temperature -0 °C

#### Product Description

EC Number: 1.11.1.6  
CAS Number: 9001-05-2  
Molecular weight: 250 kDa<sup>1</sup>  
Isoelectric Point: 5.4<sup>2</sup>  
Extinction Coefficient: E<sup>1%</sup> = 36.5 (276 nm)<sup>3</sup>  
Stoke's radius: 5.12 nm<sup>4</sup>  
Synonyms: H<sub>2</sub>O<sub>2</sub>:H<sub>2</sub>O<sub>2</sub> Oxidoreductase

Catalase from bovine liver is a tetramer consisting of 4 equal subunits with a molecular weight 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 H<sub>2</sub>O<sub>2</sub>, such as methylperoxide and ethylperoxide. In addition, many compounds can replace the second H<sub>2</sub>O<sub>2</sub> 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 Cu<sup>2+</sup>. Incubation of catalase with ascorbate or ascorbate/Cu<sup>2+</sup> 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.

Catalase is utilized in cell culture applications by functioning as a natural antioxidant, protecting cells against oxidative damage to proteins, lipids, and nucleic acids. Catalase has also been used to study the role reactive oxygen species play in gene expression and apoptosis.

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

This enzyme is soluble in 50 mM potassium phosphate buffer, pH 7.0 (1 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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