

Product Information

Catalase from bovine liver

Product Number **C 100**

Product Description

Enzyme Commission (EC) Number: 1.11.1.6

CAS Number: 9001-05-2

Molecular weight: 250 kDa¹

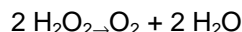
pI: 5.4²

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

Stoke's radius: 5.12 nm⁴

Catalase from bovine liver is a tetramer consisting of 4 equal subunits with a molecular weight of 60 kDa each.⁵ Each subunit contains iron bound to a protoheme IX group. The enzyme also strongly binds NADP, which is in close proximity to the heme group (13.7 Å apart).⁶

Catalase catalyzes the following reaction:



Catalase can also react with alkylhydrogen peroxides instead of H₂O₂, such as methylperoxide and ethylperoxide. In addition, many compounds can replace the second H₂O₂ molecule as the hydrogen donor, including methanol, ethanol, propanol, formate, and nitrate.⁷

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.⁸ Catalase is also inhibited by ascorbate and ascorbate with Cu²⁺. Incubation of catalase with ascorbate or ascorbate/Cu²⁺ results in degradation of the catalase molecule.⁹ Catalase activity is constant over the pH range of 4.0-8.5.¹⁰ Sigma determines the activity of this enzyme at pH 7.0.

Precautions and Disclaimer

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

Preparation Instructions

This product is offered as a catalase suspension in water containing 0.1% (w/v) thymol. In order to remove the thymol preservative, the catalase crystals may be pelleted by centrifugation, the supernatant discarded, the pellet resuspended in water, and then pelleted again. The pellet should then be resuspended in 50 mM phosphate buffer, pH 7.0. Warming (30 °C) and slight agitation are required to reconstitute the catalase.

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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