Catalase from bovine liver

Product Number: C8070
CAS Number :   9001-05-2
EC Number: 1.11.1.6
Synonyms: H_2O_2:H_2O_2 Oxidoreductase
Storage Temperature: -20°C
Molecular Weight: 250 kDa
Isoelectric Point: 5.4
Extinction Coefficient: $E^{1\%}= 36.5$ (276 nm)

Product Description

Catalase from bovine liver is a tetramer consisting of 4 equal subunits with a molecular weight of 60 kDa each. 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.

Catalase catalyzes the following reaction: $2\ H_2O_2 \rightarrow O_2 + 2\ H_2O$

Catalase can also react with alkylhydrogen peroxides instead of H_2O_2, such as methylperoxide and ethylperoxide. In addition, many compounds can replace the second H_2O_2 molecule as the hydrogen donor including: methanol, ethanol, propanol, formate, and nitrate.

Catalase does not require any activators, but is is inhibited by 3-amino-1-H-1,2,4 triazole, cyanide, azide, hydroxylamine, cyanogen bromide, 2-mercaptoethanol, dithiothreitol, dianisidine, and nitrate.

Catalase is also inhibited by ascorbate and ascorbate with Cu^{2+}. Incubation of catalase with ascorbate or ascorbate/Cu^{2+} results in degradation of the catalase molecule. Catalase activity is constant over the pH range of 4.0-8.5.   The activity of this enzyme is determined 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.

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.

Precautions and Disclaimer

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