3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Catalase
from bovine liver

Catalog Number **C40**
Storage Temperature –20 °C

CAS RN 9001-05-2
EC Number: 1.11.1.6
Synonym: H_2O_2:H_2O_2 Oxidoreductase

Product Description

Molecular mass:[1] 250 kDa
Isoelectric Point:[2] 5.4
Extinction Coefficient:[3] $E^{1\%}$ = 36.5 (276 nm)
Stoke's radius:[4] 5.12 nm

Catalase from bovine liver is a tetramer consisting of 4 equal subunits with a molecular mass of 60 kDa each.[5] 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. [6]

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.[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 Cu^{2+}. Incubation of catalase with ascorbate or ascorbate/Cu^{2+} 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

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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