3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Catalase
From bovine liver

Product Number **C 30**
Storage Temperature 2-8 °C

Product Description

Enzyme Commission (EC) Number: 1.11.1.6
CAS Number: 9001-05-2
Molecular weight: 250 kDa[1]
pI: 5.4[2]
Extinction Coefficient: $E^{1\%}$ = 36.5 (276 nm)[3]
Stoke's radius: 5.12 nm[4]

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:

$2\ H_2O_2 \rightarrow O_2 + 2\ H_2O$

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, dithiothreitol, 2-mercaptoethanol, dianisidine, and nitrate.[8] Catalase is also inhibited by ascorbate and ascorbate complexed 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

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

Preparation Instructions

This product is offered as a suspension of catalase crystals in water containing 0.1% (w/v) thymol. 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 dissolve the catalase crystals.

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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