Creative Enzymes®

Native Yeast Alcohol dehydrogenase

Cat. No. NATE-0975

Lot. No. (See product label)

Introduction

Description	Alcohol dehydrogenases (ADH) are a group of dehydrogenase enzymes that occur in many organisms and facilitate the interconversion between alcohols and aldehydes or ketones with the reduction of nicotinamide adenine dinucleotide (NAD+ to NADH). In Humans and many other animals, they serve to break down alcohols that otherwise are toxic, and they also participate in geneRation of useful aldehyde, ketone, or alcohol groups during biosynthesis of various metabolites. In yeast, plants, and many bacteria, some alcohol dehydrogenases catalyze the opposite reaction as part of fermentation to ensure a constant supply of NAD+.
Applications	Use Alcohol Dehydrogenase in diagnostic tests for the determination of alcohol or aldehyde (formate).
Synonyms	aldehyde reductase; ADH; alcohol dehydrogenase (NAD); aliphatic alcohol dehydrogenase; ethanol dehydrogenase; NAD-dependent alcohol dehydrogenase; NAD-specific aromatic alcohol dehydrogenase; NADH-alcohol dehydrogenase; NADH-aldehyde dehydrogenase; primary alcohol dehydrogenase; yeast alcohol dehydrogenase

Product Information

Source	Yeast
Appearance	Freeze-dried powder
CAS No.	9031-72-5
Molecular Weight	141 kD (pH 7.0)
Activity	≥300 U/mg (protein)
Contaminants	Lactate dehydrogenase: <0.01 Malate dehydrogenase <0.01
Isoelectric point	5.4-5.8
pH Stability	6.0-8.0
Optimum pH	9
Thermal stability	Up to +50°C
Michaelis Constant	Ethanol: 1.3 x 10-2 mol/l NAD: 7.4 x 10-5 mol/l Acetaldehyde: 7.8 x 10-4 mol/l NADH: 1.1 x 10-5 mol/l
Specificity	Alcohol dehydrogenase oxidizes primary alcohols. Isopropanol and secondary butanol are slowly oxidized, while higher secondary and tertiary alcohols do not react. Numerous aldehydes are reduced in the reverse reaction. The enzyme does not react with NADP.
Inhibitors	SH-reagents and heavy metals, such as derivatives, 4-chloromercuribenzoate, iodoacetic

Inhibitors	SH reagents and heavy metals, such as derivatives, 4-chloromercuribenzoate, iodoacetic acid, N-substituted maleinimides, Hg2+, Ag+ and Cu2+. Complexing agents, e.g., o-phenanthroline, EDTA, oxalate. NAD analogs and NAD partial structures, e.g., NADP, NADH, ADP, ADP-ribose. Substances, which react with enzyme bound NAD, e.g., sulfite, hydroxylamine, cyanide. Substrate analogs, e.g., fluoroethanol. Oxidizers, e.g., H2O2 and aerial oxygen inactivate by oxidation of essential groups.

Storage and Shipping Information

Stability	At -15 to -25°C within specification range for 12 months. Store dry.