Creative Enzymes®

Native Zymomonas mobilis Alcohol Dehydrogenase

Cat. No. NATE-1900

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	The enzyme is useful for determination of alcohols or aldehydes.
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; EC 1.1.1.1; 9031-72-5

Product Information

Source	Zymomonas mobilis
Appearance	Lyophilized
EC Number	EC 1.1.1.1
CAS No.	9031-72-5
Molecular Weight	ca. 148,000; Subunit molecular weight : ca. 37,000
Specific Activity	more than 400 U/mg protein
Contaminants	(as ZM-ADH activity = 100 %) Glucose-6-phosphate dehydrogenase: < 0.10 %; Glucokinase: < 0.02 %; Pyruvate kinase: < 0.02 %; NADH oxidase: < 0.01 %; Lactate dehydrogenase: < 0.01 %.
pH Stability	7.0 - 9.0
Optimum pH	9.5 - 10.0
Thermal stability	No detectable decrease in activity up to 40 °C.
Michaelis Constant	(100 mM Glycine-KOH buffer, pH 9.0, at 30 °C) Ethanol: 110 mM; Methanol: 350 mM; NAD+: 0.12 mM; Acetaldehyde: 1.66 mM; NADH: 0.03 mM.
Specificity	Ethanol: 100 %; Methanol: 0.05 %; n - Propanol: 42.3 %; n - Butanol: 0.28 %.
Unit Definition	One unit of activity is defined as the amount of ZM-ADH that forms 1 μmol of NADH per minute at 30 °C.
Reaction	Alcohol + NAD+ ⟷ Aldehyde + NADH + H+

Storage and Shipping Information

Storage	Stable at -20 °C for at least six months.