

## 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<sup>+</sup> 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<sup>+</sup>.

**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

<b>Source</b>	Yeast
<b>Appearance</b>	Freeze-dried powder
<b>CAS No.</b>	9031-72-5
<b>Molecular Weight</b>	141 kD (pH 7.0)
<b>Activity</b>	≥300 U/mg (protein)
<b>Contaminants</b>	Lactate dehydrogenase: <0.01 Malate dehydrogenase <0.01
<b>Isoelectric point</b>	5.4-5.8
<b>pH Stability</b>	6.0-8.0
<b>Optimum pH</b>	9
<b>Thermal stability</b>	Up to +50°C
<b>Michaelis Constant</b>	Ethanol: 1.3 x 10 <sup>-2</sup> mol/l NAD: 7.4 x 10 <sup>-5</sup> mol/l Acetaldehyde: 7.8 x 10 <sup>-4</sup> mol/l NADH: 1.1 x 10 <sup>-5</sup> mol/l
<b>Specificity</b>	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 acid, N-

### **Inhibitors**

SN reagents and heavy metals, such as derivatives, 4-chloromercuribenzoate, iodoacetic acid, N-substituted maleinimides, Hg<sup>2+</sup>, Ag<sup>+</sup> and Cu<sup>2+</sup>. 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., H<sub>2</sub>O<sub>2</sub> 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.