Creative Enzymes®

Native Bacillus stearothermophilius NAD Synthetase

Cat. No. NATE-0471

Lot. No. (See product label)

Introduction

Description	In enzymology, a NAD+ synthase (EC 6.3.1.5) is an enzyme that catalyzes the chemical reaction:ATP + deamido-NAD+ + NH3⇔ AMP + diphosphate + NAD+. The 3 substrates of this enzyme are ATP, deamido-NAD+, and NH3, whereas its 3 products are AMP, diphosphate, and NAD+. This enzyme belongs to the family of ligases, specifically those forming carbon-nitrogen bonds as acid-D-ammonia (or amine) ligases (amide synthases). This enzyme participates in nicotinate and nicotinamide metabolism and nitrogen metabolism.
Applications	Useful for enzymatic determination of ATP, ammonia, urea or creatinine. It is also suitable for enzymatic cycling method
Synonyms	EC 6.3.1.5; 9032-69-3; NAD+ synthetase; NAD+ synthase; nicotinamide adenine dinucleotide synthetase; diphosphopyridine nucleotide synthetase

Product Information

Source	Bacillus stearothermophilius
Appearance	White powder
Form	Freeze dried powder
EC Number	EC 6.3.1.5
CAS No.	9032-69-3
Molecular Weight	50 kDa (gel filtration); 25 kDa (SDS–PAGE)
Activity	> 1 U/mg
Isoelectric point	pH 5.2 ± 0.2
pH Stability	6.0-9.0 (37°C, 15 mins)
Optimum pH	9.0-10.5
Thermal stability	Stable at 60°C and below (pH 7.5, 10 mins)
Optimum temperature	70°C (Tris–HCl buffer)
Michaelis Constant	Deamido–NAD 2.4 × 10-5M; ATP 4.3 × 10-5M; NH3 2.16 × 10-3M
Unit Definition	One unit is defined as the amount of enzyme which converts 1 µmole of deamido–NAD to NAD+ per minute at 37°C under the conditions specified in the assay procedure.

Storage and Shipping Information

Storage	Storage at-20°C in the presence of a desiccant is recommended.