

Native *Bacillus stearothermophilus* 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 stearothermophilus*

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

