

Product Information

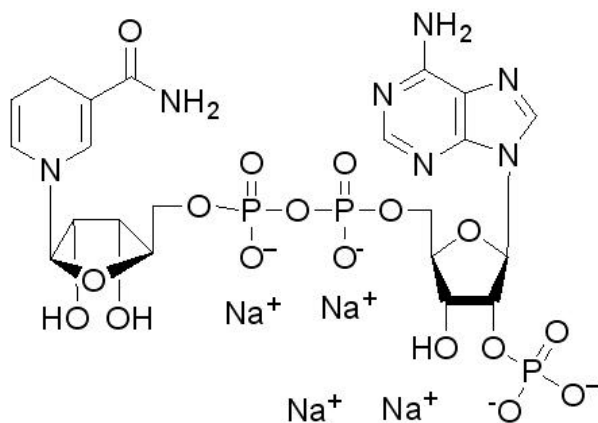
β -Nicotinamide adenine dinucleotide 2'-phosphate reduced, tetrasodium salt

Catalog Numbers **N1630**, **N7505**, **N6505**, and **N9910**

CAS RN 2646-71-1

Synonyms: NADPH; β -NADPH; TPNH (Also available as potassium, tris, and cyclohexylammonium salts)

Analogs: 3'- β -NADPH; α -NADPH; DeaminoNADPH; ThioNADPH



Product Description

Products N1630, N7505, and N9910 are prepared by the chemical reduction of β -Nicotinamide adenine dinucleotide phosphate. Product N6505 is prepared by enzymatic reduction.

Molecular Formula: $C_{21}H_{26}N_7O_{17}P_3Na_4$

Formula Weight: 833.35 (anhydrous basis)

E^{mM} (340 nm) = 6.22 (pH >10)

$(A_{260\text{ nm}}/A_{340\text{ nm}}) = 2.32$

β -NADPH is a product of the pentose phosphate pathway, a multifunctional pathway whose primary purpose is to generate reducing power in the form of β -NADPH. β -NADPH transfers H^+ and $2e^-$ to oxidized precursors in the reduction reactions of biosynthesis. Thus, β -NADPH cycles between catabolic and biosynthetic reactions and serves as the carrier of reducing power in the same way that ATP serves as the carrier of energy.¹

Enzymes employing β -NADPH as a coenzyme include glutathione reductase, diacetyl reductase, dihydrofolate reductase, glutamic dehydrogenase, *p*-hydroxybenzoate hydroxylase, NADPH-FMN oxidoreductase, nitrate reductase, and thioredoxin reductase. β -NADPH is also involved with cytochrome P450 electron transport systems.²

Precautions and Disclaimer

These products are for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

β -NADPH is soluble in 0.01 M sodium hydroxide (50 mg/ml), yielding a clear, light yellow solution.

Storage/Stability

It is recommended to store Products N1630, N7505, and N6505 desiccated at -20°C protected from light. Product N9910 can be stored at room temperature. The normal impurities and/or decomposition products are β -NADP and monophosphoadenosine 5'-diphosphoribose.

It is recommended to prepare solutions fresh and use promptly, unless you are sure this is an unnecessary precaution for your work. However, it has been reported that a 0.5 mM solution in 0.02 M NaOH (pH 12.3) showed no loss of purity in a week at 4°C or -85°C , but a 13% loss at -20°C .³

References

1. *Biochemistry A Problems Approach*, William B. Wood, et.al., Editors, p. 195 (W.A. Benjamin, Inc.).
2. *Biochemistry*, 5th edition, Berg, J.M., et al., (Eds.) (W.H. Freeman and Co., NY, 2002).
3. *Enzymatic Analysis: A Practical Guide*, Passonneau, J.V. and O.H. Lowry (Eds.), p. 15 (Humana Press, 1993).

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