Product Information

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

≥93% (HPLC)

N1630

Product Description

CAS Registry Number: 2646-71-1

Synonyms: β-NADPH, Coenzyme II reduced tetrasodium salt, 2'-NADPH hydrate, NADPH, TPNH, Triphosphopyridine nucleotide reduced tetrasodium salt, NADPH Na_4, $TPNH_2$ Na_4, Dihydronicotinamide adenine dinucleotide phosphate tetrasodium salt

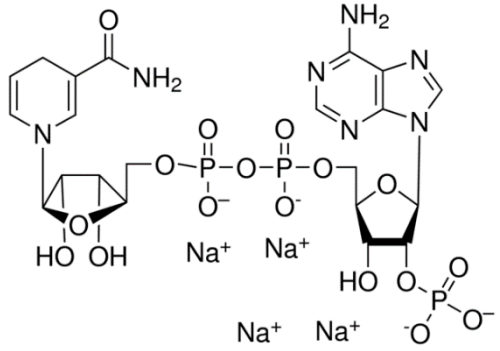
Molecular Formula: $C_{21}H_{26}N_7Na_4O_{17}P_3 \bullet xH_2O$

Formula Weight: 833.35 (anhydrous basis)

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

A_{260nm} / A_{340nm} = 2.32

Structure:



β-Nicotinamide adenine dinucleotide 2'-phosphate (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 that use 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]

This listing of β-Nicotinamide adenine dinucleotide phosphate reduced form, N1630, is prepared by the chemical reduction of β-Nicotinamide adenine dinucleotide phosphate. Several theses[3-7] and dissertations[8-13] have cited use of N1630 in their research protocols.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

It is recommended to store N1630 desiccated at –20 °C, protected from light. The normal impurities and/or decomposition products are β-NADP and Monophosphoadenosine 5'-diphosphoribose.

It is suggested to prepare β-NADPH solutions fresh and use promptly, unless you are sure that 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.[14] One publication has investigated the solution stability of NADPH.[15]

Preparation Instructions

β-NADPH is tested for solubility in 0.01 M NaOH at 50 mg/mL.

References

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