

# PRODUCT INFORMATION



## NADP<sup>+</sup> (hydrate)

Item No. 21045

**Formal Name:** adenosine 5'-(trihydrogen diphosphate), 2'-(dihydrogen phosphate), P'→5'-ester with 3-(aminocarbonyl)-1-β-D-ribofuranosylpyridinium, inner salt, hydrate

**Synonyms:** Coenzyme II, β-NADP, Nicotinamide adenine dinucleotide phosphate, TPN

**MF:** C<sub>21</sub>H<sub>28</sub>N<sub>7</sub>O<sub>17</sub>P<sub>3</sub> • xH<sub>2</sub>O

**FW:** 743.4

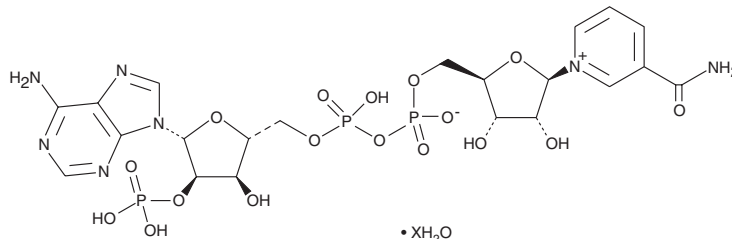
**Purity:** ≥90%

**UV/Vis.:** λ<sub>max</sub>: 258 nm

**Supplied as:** A crystalline solid

**Storage:** -20°C

**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

NADP<sup>+</sup> (hydrate) is supplied as a crystalline solid. Aqueous solutions of NADP<sup>+</sup> (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of NADP<sup>+</sup> (hydrate) in PBS, (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

NADP<sup>+</sup> is the oxidized form of the electron donor nicotinamide adenine dinucleotide phosphate (NADPH, Item No. 9000743). It serves as a cofactor in various biological reactions.<sup>1,2</sup> In addition, the balance between these reduced and oxidized forms plays key roles in diverse cellular functions, including cell survival, the maintenance of redox status, and intracellular signaling.<sup>2,3</sup> For example, binding of NADP<sup>+</sup> to β-subunits of K<sub>v</sub> channels activates ion transport, whereas NADPH stabilizes channel inactivation.<sup>4</sup> NADP<sup>+</sup> is biosynthesized from NAD<sup>+</sup> (Item No. 16077) by NAD kinase, with ATP as the phosphoryl donor.<sup>5</sup>

### References

1. Jackson, J.B. A review of the binding-change mechanism for proton-translocating transhydrogenase. *Biochimica et Biophysica Acta* **1817(10)**, 1839-1846 (2012).
2. Nakamura, M., Bhatnagar, A., and Sadoshima, J. Overview of pyridine nucleotides review series. *Circ. Res.* **111(5)**, 604-610 (2012).
3. Ziegler, M. A vital link between energy and signal transduction: Regulatory functions of NAD(P). *FEBS Journal* **272(18)**, 4561-4564 (2014).
4. Kilfoil, P.J., Tipparaju, S.M., Barski, O.A., et al. Regulation of ion channels by pyridine nucleotides. *Circ. Res.* **112(4)**, 721-741 (2013).
5. Shi, F., Li, Y., Li, Y., et al. Molecular properties, functions, and potential applications of NAD kinases. *Acta Biochim.Biophys.Sin. (Shanghai)* **41(5)**, 352-361 (2009).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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