

PRODUCT INFORMATION



Coenzyme B₁₂ (hydrate)

Item No. 21571

Formal Name: co-(5'-deoxyadenosin-5'-yl)-cobinamide, f-(dihydrogen phosphate), inner salt, 3'-ester with (5,6-dimethyl-1- α -D-ribofuranosyl-1H-benzimidazole- κ N³), hydrate

Synonyms: Adenosylcobalamin, AdoCbl, Cobamamide, LM-176

MF: C₇₂H₁₀₀CoN₁₈O₁₇P • XH₂O

FW: 1,579.6

Purity: \geq 95%

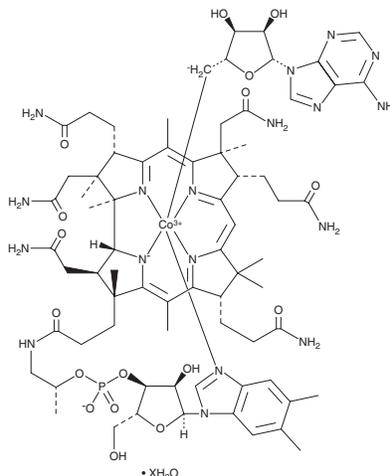
UV/Vis.: λ_{max} : 262, 518 nm

Supplied as: A crystalline solid

Storage: -20°C

Stability: \geq 4 years

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



Laboratory Procedures

Coenzyme B₁₂ (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the coenzyme B₁₂ (hydrate) in the solvent of choice, which should be purged with an inert gas. Coenzyme B₁₂ (hydrate) is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of coenzyme B₁₂ (hydrate) in these solvents is approximately 5 and 0.5 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of coenzyme B₁₂ (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of coenzyme B₁₂ (hydrate) in PBS (pH 7.2) is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Coenzyme B₁₂ (adenosylcobalamin; AdoCbl) is a biologically active form of vitamin B₁₂ (Item No. 18425). It belongs to the corrinoid group of compounds, which contain a corrin macrocycle, and is produced only by certain bacteria and archaea.¹ It is a cofactor for various enzymes including mutases, eliminases, aminomutases, and a reductase.² These enzymes catalyze reactions that generate free radicals through release of the adenosyl group, allowing usually unreactive molecules to become reactive. Genetic mutations in enzymes that synthesize AdoCbl lead to AdoCbl deficiency and methylmalonic aciduria.³ Formulations containing AdoCbl are used to treat patients with this disorder.

References

1. Moore, S.J., Lawrence, A.D., Biedendieck, R., *et al.* Elucidation of the anaerobic pathway for the corrin component of cobalamin (vitamin B₁₂). *Proc. Natl. Acad. Sci. USA* **110**(37), 14906-14911 (2015).
2. Marsh, E.N.G. and Meléndez, G.D.R. Adenosylcobalamin enzymes: Theory and experiment begin to converge. *Biochim. Biophys. Acta.* **1824**(11), 1154-1164 (2012).
3. Watkins, D.N., Rosenblatt, D.S., and Flower, B. Adenosylcobalamin deficiency, Chapter 27, *in* Inborn metabolic diseases: Diagnosis and treatment. Saudubray, J.-M, Baumgartner, M.R., and Walter, J., editors, 6th, Springer (2016).

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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/02/2022

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM