

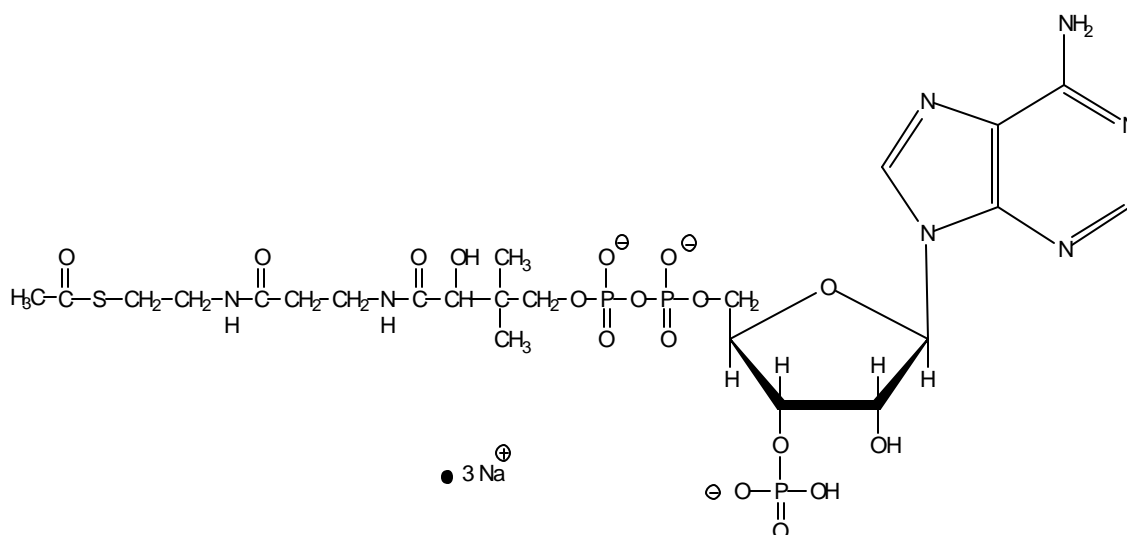
Product Information

ACETYL COENZYME A (C2:0) SODIUM

Product Number **A2056**Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS #: 102029-73-2

Synonyms: Acetyl CoA Sodium; Acetyl-S-CoA Sodium



Product Description

Appearance: White powder

Molecular Formula: $\text{C}_{23}\text{H}_{38}\text{N}_7\text{O}_{17}\text{P}_3\text{S}$ (for free acid)

Molecular Weight: 809.6 (for free acid)

 $E^M(260\text{nm}) = 16,400$ (water)¹ $E^M(259\text{nm}) = 15,400$ (0.1 M PO_4 Buffer, pH 7) $E^M(232\text{nm}) = 8,700$ (water)¹

A2056 is prepared enzymatically by reacting Coenzyme A with Acetyl Phosphate and Phosphotransacetylase.

The product is purified by ion exchange chromatography. Several methods of preparation and methods for the determination of Acetyl CoA and other CoA derivatives have been described in the literature.^{3,4,5}

Coenzymes comprise a class of molecules, generally derived from vitamins, which function catalytically in enzyme systems.⁷ The acetic acid moiety which is

bound by a high-energy bond (free energy 34.3 kJ/mol) to the -SH group of Coenzyme A is a precursor to fatty acids, steroids and other naturally occurring compounds, such as terpenes and acetogenins present in plants.^{8,9} The biosynthetic pathways for Acetyl CoA have been illustrated.⁸

In the transfer reaction by Acetyl CoA of the C_2 acetyl fragment, either the carboxyl group or the methyl group may react (electrophilic vs. nucleophilic reaction, respectively).⁹

Preparation Instructions

Sigma tests the solubility of A2056 in deionized water at 50 mg/mL. Acetyl CoA is generally stable in neutral and moderately acidic solutions, even at elevated temperatures for a short time; aqueous solutions at pH 3.5-5 can be heated to $100\text{ }^{\circ}\text{C}$ without decomposition.¹

Acetyl CoA hydrolyzes in strong acid, and hydrolyzes more rapidly in alkaline solutions. Aqueous solutions stored in aliquots at $-20\text{ }^{\circ}\text{C}$ are stable for no longer than 2 weeks.² Solutions stored at $-80\text{ }^{\circ}\text{C}$ have been reported to be stable for 6 months.⁶

Storage/Stability

This moisture-sensitive powder should be stored desiccated at $-20\text{ }^{\circ}\text{C}$.

References

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5. H.U. Bergmeyer, *Meth. Enzym. Anal.*, 2nd English ed., Vol. 4, pp. 1988-2000, Academic Press, New York (1974).
6. Customer comment to Sigma Research Technical Service (06/22/92); data not verified by Sigma.
7. R.A. Meyers, *Molecular Biology and Biotechnology: A Comprehensive Desk Reference*, p. 960, VCH Publishers, Inc. New York (1995).
8. A.L. Lehninger, *Biochemistry*, p. 534, Worth Publishers, Inc. (1972).
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