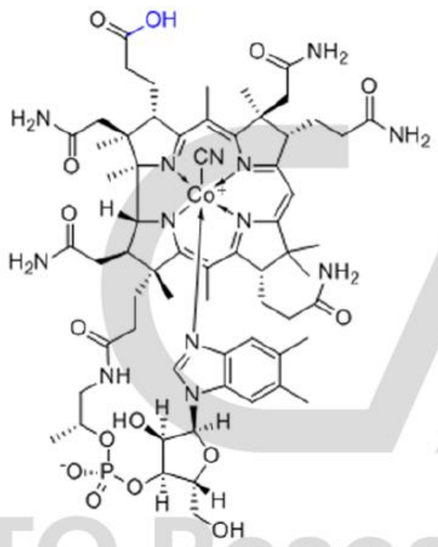
Certificate of Analysis

Reference Material & Standard

Product Name:	Cyanocobalamin EP Impurity D(Cyanocobalamin-b-monocarboxylic acid; 32-Carboxycyanocobalamin)	**Catalogue Number:**	CP135388
Synonyms:	N/A	**Lot Number:**	0630-RG-0070
CAS Number:	38218-77-8	**Expiry Date:**	Nov 15, 2030
Molecular Formula:	$C_{63}H_{87}CoN_{13}O_{15}P$	**Storage:**	-80°C±5°C Protected from light and Sealed
Molecular Weight:	1356.37	**Shipping Condition:**	Shipping with Dry Ice
		Warning:	

Chemical Structure:



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Test Items	Method	Results
Appearance	Visual inspection	Red Solid
Identification	LCMS&UV&HNMR	Confirmed
Purity	HPLC	98.325%
Water Content	Karl Fischer	7.92%
Residual Solvents	NMR	Not detected in NMR
Assay	Mass Balance	90.5%

Comment:

The calculation of the mass balance method follows the formula (calculated on the non-dried basis):
*Assay (%) = (100%-Water Content-Residual Solvents) * Purity HPLC (%) /100%*
Water Content and Residual Solvents are considered as absolute effect, HPLC purity is considered as relative effect.

Signature:

Prepared by: Koji Date: Nov 16, 2026

Reviewed by: Lisa Date: Nov 16, 2026

Approved by General Manager: David Date: Nov 16, 2026

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