

## CERTIFICATE OF ANALYSIS

<b>Product Name:</b>	Vitamin B12 (Cyanocobalamin)
<b>CAS No.:</b>	68-19-9
<b>Batch Number:</b>	295-23020203
<b>Manufacture Date:</b>	2023-02-02
<b>Expiry Date:</b>	2027-02-01

### Physical & Chemical Characteristics

Analysis Item	Specification	Result
Appearance	Dark red crystalline powder	Complies
Loss on drying	<10.0%	3.45%
Total impurities (HPLC)	<3.0%	0.9%
Assay (Cyanocobalamin)	97.0%~102.0%	98.70%

### Identification

Analysis Item	Specification	Result
UV Absorption Maxima	278±nm, 361±nm, 550±2nm	Complies
A361nm/A278nm	1.70–1.90	1.86
A361nm/A550nm	3.15–3.40	3.25
Cobalt (Identification B)	Meets USP	Complies
HPLC Retention Time (Identification C)	The retention time of the major peak of the sample solution corresponds to that of the standard solution	Complies

### Impurities

Relative substances	Specification	Result
7B,8B-Lactocyanocobalamin	<1.0%	0.2%
3,4-Methylcyanocobalamin	<2.0%	0.4%
8-Epi-Cyanocobalamin	<1.0%	0.1%
Any other unidentified & 5-O-carboxycyanocobalamin	<0.5%	0.1%

**Chemical Tests**

Analysis Item	Specification	Result
Acetone	<5000 ppm	36 ppm
Arsenic (As)	<1.0 ppm	Complies
Lead (Pb)	<0.5 ppm	Complies
Cadmium (Cd)	<0.2 ppm	Complies
Mercury (Hg)	<0.1 ppm	Complies

**Microbiological Tests**

Analysis Item	Specification	Result
Total microbacterial	<1000 CFU/g	<10 CFU/g
Yeast & Mould	<100 CFU/g	<10 CFU/g
Escherichia coli	Absence (CFU/10g)	Complies