

Vitamin B12 TDS, COA, MSDS Standard Templates from HiSiaddi

Applicable: Food Grade / Feed Grade / Pharmaceutical Grade, universal for exports to EU, the US and Southeast Asia. Contains full Chinese and English core contents of TDS (Technical Data Sheet), SDS (Safety Data Sheet) and COA (Certificate of Analysis), editable for direct use.

General Basic Information

Molecular Formula: | Molecular Weight: 1355.37 | EC Number: 200-680-0 | HS Code: 29362610

Appearance: Dark red crystalline hygroscopic powder, nearly odorless with slight bitter taste; slightly soluble in water and ethanol, insoluble in acetone and ether

I. Technical Data Sheet (TDS) – Full Standard Version

1. Basic Product Information

Item	Content
Common Name	Vitamin B12
Chemical Name	Cyanocobalamin
CAS No.	68-19-9
Applied Standards	USP/EP/BP/FCC/GB 30613
Product Grade	Food Grade / Feed Grade / Pharma Grade
Recommended Applications	Food nutritional fortification, dietary supplements, feed additives, pharmaceutical API
Storage Conditions	Store hermetically sealed away from light and moisture at 2–8°C; keep away from oxidants
Shelf Life	24 months in original packaging

2. Core Physicochemical Specifications (General Pharmacopoeia Specifications)

1. Identification

- UV absorption: Maximum absorption peaks at 278nm, 361nm, 550nm
- Absorbance ratios: $A_{361}/A_{278} = 1.70 \sim 1.90$; $A_{361}/A_{550} = 3.15 \sim 3.40$
- Chromatographic identification: Main peak retention time consistent with reference standard

1. Moisture (Loss on Drying): $\leq 12.0\%$

2. Assay (on dry basis): $98.0\% \sim 102.0\%$

3. Related Substances (Total Impurities): $\leq 3.0\%$

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- Impurity A: $\leq 0.7\%$; Impurity B: $\leq 0.5\%$; Impurity C: $\leq 1.5\%$; Any single unknown impurity $\leq 0.2\%$
 - 1. Heavy Metals
 - Lead (Pb) $\leq 10\text{ppm}$; Arsenic (As) $\leq 3\text{ppm}$; Cadmium (Cd) $\leq 1\text{ppm}$; Mercury (Hg) $\leq 1\text{ppm}$
 - 1. Microbiological Limits (Food Grade)
 - Total aerobic microbial count $\leq 100\text{ CFU/g}$; Molds and yeasts $\leq 100\text{ CFU/g}$
 - Escherichia coli, Salmonella spp., Staphylococcus aureus: Negative
 - 1. Residual Solvents: Acetone $\leq 0.5\%$, no other harmful solvents detected
3. Application Instructions
- 1. Food Fortification: Infant complementary foods, dairy products, functional beverages, grain meal replacements
 - 2. Health Supplements: Multivitamin tablets, oral liquids, gummy candies
 - 3. Livestock & Aquafeed: Premixes for poultry, livestock and aquatic animals to prevent megaloblastic anemia
 - 4. Incompatibility: Long-term co-blending with strong oxidants or high-concentration vitamin C is prohibited, as it causes degradation and loss of efficacy

4. Packaging Specifications

1kg aluminum foil bags, 5kg aluminum tins, 25kg fiber drums lined with double PE bags and nitrogen-filled for moisture resistance

II. Safety Data Sheet (SDS) – Complying with GB/T16483 & EU REACH 16-Section Format

SECTION 1 Identification of the substance/mixture and of the company/undertaking

- Product: Vitamin B12 (Cyanocobalamin)
- CAS No.: 68-19-9
- Manufacturer name, address, 24-hour emergency telephone, trade contact email
- Intended use: Nutritional fortifier for food, feed and pharmaceutical use; illegal industrial synthetic application prohibited

SECTION 2 Hazards identification (Non-hazardous per GHS)

- 1. GHS Classification: Non-hazardous chemical; no hazard pictograms, no signal words
- 2. Potential risks only from physical dust irritation:

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- Inhalation of dust: Mild dry irritation to respiratory tract
- Skin / eye contact: Mechanical friction irritation from dust; no corrosivity or sensitization
- 1. No acute toxicity, carcinogenicity, teratogenicity or environmental toxic risks; dust accumulation carries minor dust explosion hazard

SECTION 3 Composition/information on ingredients

Pure cyanocobalamin $\geq 99\%$; no other hazardous additive components

SECTION 4 First-aid measures

- Inhalation: Remove victim to fresh air, rinse nasal cavity with clean water; seek medical attention if discomfort persists
- Skin contact: Flush affected skin with running clean water for 5 minutes
- Eye contact: Hold eyelids open and irrigate eyes with plenty of clean water for 10 minutes
- Ingestion: Rinse mouth with large amounts of warm water and drink clean water for dilution; do not induce vomiting

SECTION 5 Fire-fighting measures

- Suitable extinguishing media: Water spray, dry powder, carbon dioxide, alcohol-resistant foam
- Combustion products: Cobalt oxides, nitrogen oxides; wear gas mask during fire fighting operations
- Unsuitable extinguishing methods: High-pressure direct water jet, which causes dust dispersion

SECTION 6 Accidental release measures

1. Small spill: Wear dust mask and gloves, sweep dry material into sealed containers to avoid dust generation
2. Large spill: Isolate the area, apply negative pressure ventilation; prevent discharge into sewers and watercourses
3. Swept waste shall be disposed of as general solid waste

SECTION 7 Handling and storage

- Handling: Closed feeding, dust extraction and ventilation in workshop; avoid extensive bare-hand contact; no eating, drinking or smoking on site
- Storage: Hermetically sealed away from light at $2-8^{\circ}\text{C}$; isolate from moisture, strong light and strong oxidants; separate storage zoning required

SECTION 8 Exposure controls/personal protection

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- Workshop dust limit: No mandatory national standard limit; recommended ventilation control to keep dust below 3mg/m³
- Protective equipment: Dust respirator, nitrile gloves, safety goggles, clean work uniform

SECTION 9 Physical and chemical properties

Appearance, solubility, UV characteristic absorption, loss on drying, decomposition temperature >300°C (decomposes without combustion)

SECTION 10 Stability and reactivity

- Stable conditions: Stable when hermetically sealed, away from light and low temperature
- Incompatible substances: Strong oxidants, high-concentration vitamin C, strong alkalis
- Hazardous reactions: Slow degradation under high temperature and strong light; no severe exothermic or explosive reactions

SECTION 11 Toxicological information

- Oral acute LD50 (rat) >5000mg/kg; practically non-toxic
- Skin / eye irritation: Mild mechanical irritation, no corrosion; negative Ames test with no mutagenicity; no reproductive toxicity

SECTION 12 Ecological information

Low bioaccumulation, no aquatic toxicity; normal discharge poses no environmental hazards

SECTION 13 Disposal considerations

Uncontaminated material may be recycled; contaminated powder shall be sealed and handed over to general industrial solid waste disposal institutions; direct discharge into water bodies is forbidden

SECTION 14 Transport information

UN Number: None; not classified as dangerous goods; general cargo transport by sea, land and air with moisture-proof and light-proof packaging

SECTION 15 Regulatory information

Compliant with China GB 30613, EU REACH registration, US FCC and FDA food additive approval; not a controlled precursor chemical or dual-use item

SECTION 16 Other information

Version number, revision date, reference standards (USP/REACH/GHS)

III. Certificate of Analysis (COA) – Standard Batch Shipment Template

CERTIFICATE OF ANALYSIS

Product Name: Vitamin B12 (Cyanocobalamin)

CAS No.: 68-19-9

Grade: Food Grade

Batch No.: B1226062501

Mfg. Date: 2026-06-25

Expiry Date: 2028-06-24

Test Date: 2026-06-25

Standard Basis: FCC 12 / GB 30613-2014

Batch Net Weight: 25kg

Test Item	Specification	Test Result	Judgment
Appearance	Dark red crystalline hygroscopic powder	Dark red crystalline powder	Pass
Identification A (UV Spectrum)	Meet standard UV absorption ratio	Complies	Pass
A361/A278	1.70 ~ 1.90	1.81	Pass
A361/A550	3.15 ~ 3.40	3.26	Pass
Loss on Drying	≤12.0%	7.62%	Pass
Assay (on dry basis)	98.0% ~ 102.0%	99.58%	Pass
Related Substances			
Total Impurity	≤3.0%	1.12%	Pass
Individual Unknown Impurity	≤0.2%	0.08%	Pass
Lead (Pb)	≤10 ppm	<0.1 ppm	Pass
Arsenic (As)	≤3 ppm	<0.1 ppm	Pass
Cadmium (Cd)	≤1 ppm	<0.05 ppm	Pass
Mercury (Hg)	≤1 ppm	<0.05 ppm	Pass
Total Aerobic Microbial Count	≤100 CFU/g	12 CFU/g	Pass
Molds & Yeasts	≤100 CFU/g	<10 CFU/g	Pass
E. Coli	Negative	Negative	Pass

Test Item	Specification	Test Result	Judgment
Salmonella spp.	Negative	Negative	Pass
Residual Acetone	≤0.5%	Not Detected	Pass

Report Conclusion

This batch of Vitamin B12 complies with FCC & GB 30613 specification, qualified for food additive use.

Analyst: _____

QA Manager: _____

Company Seal:

Issued Date: 2026-06-25

Document Usage Instructions

1. Grade Differentiation: Feed-grade COA may relax strict heavy metal limits; pharmaceutical-grade COA requires detailed chromatographic data for related substances
2. Export Requirements: EU orders must be accompanied by English SDS complying with REACH 1907/2006; US clients require FCC-version TDS + English COA
3. Compliance Reminder: Vitamin B12 is not classified as dangerous goods; no dangerous goods declaration required for air/sea shipment; TDS and COA must be attached for customs clearance
4. Customizable Editing: Replace factory name, batch number, actual test results and applied standards (EP/USP/BP) for direct printing and stamping