

CERTIFICATE OF ANALYSIS

Product name: **Vitamin B₁ Food Grade**

Batch No.: **TN19032021**

Manufacturing date: Mar 5, 2019

Reporting date: Mar 7, 2019

Retest date: Mar 4, 2023

Quantity: 1,000 kg

Package: 25 kg per carton

Package size: 390 × 290 × 450 (mm)

Article No.: 06102

Irradiation / ETO treatment: No

Test Item	Specification	Method	Result
Description	White crystals or crystalline powder	Visual	White crystalline powder
Identification			
Color reaction	A brown ring forms at the junction of the two liquids	USP	A brown ring forms at the junction of the two liquids
Precipitate reaction	The color of the solution changes to brown and on standing a precipitate of lead sulfide forms	USP	The color of the solution changes to brown and on standing a precipitate of lead sulfide forms
Precipitate reaction	A white precipitate results from treatment with mercuric chloride and a red-brown precipitate results from treatment with iodine, treatment with mercuric-potassium iodide and trinitrophenol also causes precipitates to form	USP	A white precipitate results from treatment with mercuric chloride and a red-brown precipitate results from treatment with iodine, treatment with mercuric-potassium iodide and trinitrophenol also causes precipitates to form
Reaction of fluorescence	The air-liquid meniscus shows a vivid blue fluorescence which disappears when the mixture is slightly acidified and reappears when it is again made alkaline	USP	The air-liquid meniscus shows a vivid blue fluorescence which disappears when the mixture is slightly acidified and reappears when it is again made alkaline
Appearance of solution	Clear, not more intense than Y.	EP	Clear, not more intense than Y.
pH	6.8 ~ 7.5	EP	7.2
Loss on drying	NMT 1.0%	USP	0.14%
Residue on ignition	NMT 0.1%	USP	0.04%
Chloride	NMT 0.06%	USP	<0.06%
Related substances (Disregard limit 0.05%)			
- Impurity A	NMT 0.15%	EP	Comply
- Impurity B	NMT 0.6%	EP	Comply
- Impurity C	NMT 0.4%	EP	Comply
- Unspecified impurity	NMT 0.10%	EP	Comply
- Total impurities	NMT 1.0%	EP	Comply
Related compounds	NMT 1.0%	USP	0.27%
Residual solvent - Methanol	NMT 0.3%	GC, in-house	0.0049%
Assay (on dry basis)	98.0% ~ 102.0%	USP	99.1%

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Test Item	Specification	Method	Result
Heavy metals			
Lead	≤0.5 mg/kg	AAS, in-house	<0.5 mg/kg
Cadmium	≤0.5 mg/kg	AAS, in-house	<0.5 mg/kg
Arsenic	≤0.5 mg/kg	AAS, in-house	<0.5mg/kg
Mercury	≤0.1 mg/kg	AAS, in-house	<0.1 mg/kg
Microbials			
Total Aerobic Microbial Count	NMT 100 cfu/g	ChP	<100 cfu/g
Total Yeasts and Moulds Count	NMT 10 cfu/g	ChP	<10 cfu/g
E. Coli	Negative	ChP	Negative
Salmonella	Negative	ChP	Negative
S. Aureus	Negative	ChP	Negative
Conclusion: This batch was analyzed and found to meet the specifications as given above.			
Compendial compliance guarantee This material meets all requirements of the following valid compendia when tested accordingly: BP, EP, USP, FCC			
Remark: Preserve in a tight non-metallic container, protected from light.			

Reported by:

Approved by: