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Technical Datasheet

L-Threonine (From non-animal source)

Meets USP-NF, EP, BP and JP testing specifications

Product Code: TC120M

Product description :

Molecular weight: 119.12
Molecular formula: $C_4H_9NO_3$
CAS No.: 72-19-5

Quality Control
Appearance (USP)
White crystals
Appearance (JP)
White crystals or a crystalline powder
Appearance (EP, BP)
White or almost white, crystalline powder or colourless crystals
Solubility (USP)
Freely soluble in water; insoluble in absolute alcohol, in ether, and in chloroform
Solubility (EP, BP)
Soluble in water, practically insoluble in ethanol (96%)
Solubility (JP)
Freely soluble in formic acid, soluble in water, and practically insoluble in ethanol (95%)
Identification A : FTIR (USP)
Matches with the standard pattern
Identification A : Specific optical rotation (EP, BP)
-29.00° to -27.60° (c = 6% in water at 20 ± 0.5°C, dried substance)
Identification : FTIR (JP)
Matches with the standard pattern
Identification B : FTIR (EP, BP)
Matches with the standard pattern
Identification C : TLC (EP, BP)
The principal spot in the chromatogram obtained with the test solution is similar in position, colour and size to the principal spot in the chromatogram obtained with the reference solution
Identification D (EP, BP)
A blue colour develops that changes to yellow after a few minutes
Appearance of solution (EP, BP)
2.5% in water is clear and colourless
Clarity and color of solution (JP)
5% solution in water is clear and colourless
pH (5% in water at 25°C) : (USP)
5.00 - 6.50
pH (2.5% in water at 25°C) : (EP, BP)
5.00 - 6.50
pH (1% in water at 25°C) : (JP)
5.20 - 6.20
Specific rotation (USP)
-29.10° to -26.70° (c = 6% in water at 25°C)
Specific rotation (EP, BP)
-29.00° to -27.60° (c = 6% in water at 20 ± 0.5°C, dried substance)
Specific rotation (JP)
-29.00° to -26.00° (c = 6% in water at 20°C, after drying)
Chloride (USP)
<= 0.05%
Chloride (JP)
<= 0.021%
Chloride (EP, BP)
<= 0.02%
Sulfate (USP)
<= 0.03%
Sulfate (EP, BP)
<= 0.03%
Sulfate (JP)
<= 0.028%
Iron (USP)
<= 0.003%
Iron (EP, BP)
<= 0.0010%
Heavy metals (JP)
<= 0.0020%

Ammonium (JP)
<= 0.020%
Arsenic (JP)
<= 0.00020%
Loss on drying (USP, JP)
<= 0.20% (at 105°C, 3 hr)
Loss on drying (EP, BP)
<= 0.50% (at 105°C, 2 hr)
Sulfated ash (EP, BP)
<= 0.10%
Residue on ignition (USP)
<= 0.40%
Residue on ignition (JP)
<= 0.10%
Related compounds, System suitability requirements : TLC (USP)
The chromatogram of the system suitability solution exhibits two clearly separated spots
Related compounds, acceptance criteria: TLC (USP)
Any secondary spot of the sample solution is not larger or more intense than the principal spot of the standard solution
Related compounds, individual impurity : TLC (USP)
<= 0.50%
Related compounds, Total impurities : TLC (USP)
<= 2.00%
Related substances : TLC (JP)
The spot other than the principal spot obtained from the sample solution is not more intense than the spot obtained from the standard solution.
Ninhydrin-positive substances, system suitability : Resolution, Amino acid analysis (EP, BP)
min. 1.5 between the peaks due to impurity D and leucine
Any ninhydrin-positive substances, for each impurity, Amino acid analysis (EP, BP)
<= 0.20%
Any ninhydrin-positive substances, total impurity, Amino acid analysis (EP, BP)
<= 0.50%
Ammonium, Amino acid analysis : (EP, BP)
<= 0.020% (at 570 nm)
Assay (NT, dried basis) : (USP)
98.50 - 101.50%
Assay (NT, dried substance) : (EP, BP)
99.00 - 101.00%
Assay (NT, dried substance) : (JP)
min. 98.50%

Storage and Shelf Life:

Store below 30°C.
Shelf life is 48 months.
Use before expiry date given on the product label.