

L-Glutamine – Food Grade¹ - GB Compliance

 $C_5H_{10}N_2O_3$: 146.14

L-Glutamine, when dried, contains not less than 99.0 percent and not more than 101.0 percent of L-Glutamine ($C_5H_{10}N_2O_3$).

Description

White crystals or crystalline powder. No odor, slightly characteristic taste.

Identification

Compare the infrared absorption spectrum of the sample with that of the reference standard using FTIR methodologies.

Specifications

Item	Limit	Test
Specific rotation $[\alpha]^{20}_D$	+6.3 to +7.3°	AJI TEST 1 [Dried sample, C = 4, H ₂ O]
	+31.5 to +33.0°	AJI TEST 1 [Dried sample, C = 10, 2 mol/L HCl, analyzed within 30 min]
State of solution (Transmittance)	Clear and colorless Not less than 98.0%	AJI TEST 2 [0.5 g in 20 mL of H ₂ O, spectrophotometer, 430 nm, 10 mm cell thickness]
Chloride (Cl)	Not more than 0.020%	AJI TEST 3 [0.5 g, A-1, ref: 0.28 mL of 0.01 mol/L HCl]
Ammonium (NH ₄)	Not more than 0.10%	AJI TEST 4 [45°C, Method A-Titrimetry]
Sulfate (SO ₄)	Not more than 0.020%	AJI TEST 5 [0.85 g, (1), ref: 0.35 mL of 0.005 mol/L H ₂ SO ₄]
Iron (Fe)	Not more than 10 ppm	AJI TEST 6 [0.75 g, B-1, ref: 0.75 mL of Iron Std. (0.01 mg/mL)]
Heavy metals (Pb)	Not more than 10 ppm	AJI TEST 7 [1.0 g, (1), ref: 1.0 mL of Pb Std. (0.01 mg/mL)]
Arsenic (As ₂ O ₃)	Not more than 1.0 ppm	AJI TEST 8 [2.0 g, (1), ref: 2.0 mL of As ₂ O ₃]
Related Substances (TLC)	Not more than 0.4%	AJI TEST 9 [Test sample: 50 µg, B-1-a, ref 0.2 µg of L-Glu (NH ₂)]
Loss on drying	Not more than 0.20%	AJI TEST 11 [1 g, at 105°C for 3 hours]
Residue on ignition (Sulfated)	Not more than 0.10%	AJI TEST 13 [1 g, at 550°C to 650°C for 3 hours]

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Specifications (cont'd)

Item	Limit	Test
Assay	99.0 to 101.0%	AJI TEST 14 [Dried sample, 150 mg, (1), 3 mL of formic acid, 50 mL of acetic acid (100), 0.1 mol/L HClO ₄ 1 mL = 14.61 mg C ₅ H ₁₀ N ₂ O ₃]
pH	4.5 to 6.0	AJI TEST 33 [1.0 g in 50 mL of H ₂ O]
Total Aerobic Microbial Count (TAMC)	Not more than 500 CFU/g	AJI TEST 28 [MF method, 1 g/100 mL]
Total Combined Yeasts/Molds Count (TYMC)	Not more than 50 CFU/g	AJI TEST 28 [MF method, 1 g/100 mL]
Escherichia coli	Negative	AJI TEST 28 [10 g/100 mL Phosphate buffer solution pH 7.2, 10 mL/100 mL SCD]

1 Limit of GB requirement (except for Lead and Arsenic) *

*Based on periodically test, Arsenic and Lead should be confirmed to meet each limit of GB requirements.

End of document

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