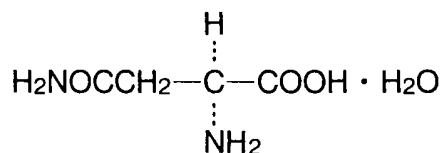


D. MONOGRAPHS

L-Asparagine



$\text{NH}_2\text{C}_4\text{H}_8\text{N}_2\text{O}_3 \cdot \text{H}_2\text{O}$

Mol.Wt.150.13

(S)-2,4-diamino-2-oxobutanoate monohydrate

[anhydrate 70-47-3]

Content L-Asparagine, when calculated on the dried basis, contains 98.0 - 102.0% of L-asparagine ($\text{C}_4\text{H}_8\text{N}_2\text{O}_3$).

Description L-Asparagine occurs as white crystals or crystalline powder. It is odorless, and has a sweetish taste.

Identification (1) To 5 ml of L-Asparagine solution (1 : 1,000), add 1 ml of ninhydrin solution (1 : 50), and heat for 3 minutes in a water bath. A purple color develops.

(2) To 0.1g of L-Asparagine, add 5 ml of sodium hydroxide solution (1 : 10), and heat in a water bath. A evolved gas (NH_3) changes red litmus paper, moistened with water, to blue.

Purity (1) Specific rotation $[\alpha]_D^{20} : +33.0 - +36.5^\circ$

Weigh accurately about 10 g of L-Asparagine, and dissolve in 6 mol/l hydrochloric acid to make exactly 100 ml. Measure the angular rotation of this solution and calculate on the dried basis.

(2) Clarity and color of solution Colorless, clear (1.0 g, water 50 ml).

(3) pH 3.5 - 5.5 (1.0 g, water 100 ml).

(4) Chloride Not more than 0.10% as Cl (0.07 g, Control solution 0.01 mol/l hydrochloric acid 0.20 ml).

(5) Heavy metals Not more than 20 $\mu\text{g/g}$ as Pb (1.0 g, Method 2, Control solution Lead Standard Solution 2.0 ml).

(6) Arsenic Not more than 4.0 $\mu\text{g/g}$ as As_2O_3 (0.5 g, Method 3, Apparatus B).

Loss on Drying 11.5 - 12.5% (130 °C, 3 hours).

Residue on Ignition Not more than 0.10%

Assay Weigh accurately about 0.3 g of L-Asparagine, dissolve in 3 ml of formic acid, add 50 ml of acetic acid, and titrate with 0.1 mol/l perchloric acid. The end point is usually confirmed by a potentiometer. When an indicator (1 ml of Crystal Violet - Acetic Acid TS) is used, titrate until the color of the solution changes from purple through blue to green. Perform a blank test in the same manner, make any necessary correction, and calculate on the dried basis.

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1 ml of 0.1 mol/l perchloric acid = 13.212 mg $C_4H_8N_2O_3$