Polyvinylpolypyrrolidone

Crospovidone; PVPP; 1-Vinyl-2-pyrrolidone Crosslinked Insoluble Polymer

INS: 1202

CAS: 9003-39-8

DESCRIPTION

A crosslinked homopolymer of purified vinylpyrrolidone, produced catalytically. It is insoluble in water and in other common solvents. It occurs as a white to off-white, hygroscopic, free-flowing powder having a faint, bland odor.

Functional Use in Foods Clarifying agent; stabilizer.

REQUIREMENTS

Identification Add 0.1 mL of iodine TS to a suspension of 1 g of the sample in 10 mL of water. The reagent is discolored after the mixture is shaken for 30 s (distinction from polyvinylpyrrolidone, which produces a red color). When 1 mL of starch TS is added and the mixture is shaken, no blue color is formed.
Heavy Metals (as Pb) Not more than 10 mg/kg.
Nitrogen Not less than 11.0% and not more than 12.8%.
pH of a 1 in 100 Suspension Between 5.0 and 11.0.
Residue on Ignition Not more than 0.4%.
Soluble Substances Not more than 0.5% in water; not more than 1.0% in an acid–alcohol medium.
Unsaturation (as vinylpyrrolidinone) Not more than 0.1%.
Water Not more than 6.0%.

TESTS

Heavy Metals Prepare and test a 2-g sample as directed in *Method II* under the *Heavy Metals Test*, Appendix IIIB, using 20 µg of lead ion (Pb) in the control (*Solution A*).
Nitrogen Determine as directed in *Method II* under *Nitrogen Determination*, Appendix IIIC, using a 100-mg sample. In the wet-digestion step, repeat the addition of hydrogen peroxide (usually three to six times) until a clear, light green solution is

obtained, then heat for an additional 4 h, and continue as directed, beginning with "Cautiously add 2 mL of water. . . ."

pH of a 1 in 100 Suspension Determine as directed in the general method, Appendix IIB, using a 1-g sample suspended in 100 mL of water.

Residue on Ignition Ignite a 2-g sample as directed in the general method, Appendix IIC.

Soluble Substances

Solubility in Water Place 10 g of Polyvinylpolypyrrolidone in a 200-mL flask containing 100 mL of water. Shake the flask, and allow the contents to rest for 24 h. Filter on filter screen with a porosity of 2.5 μm, then on a filter screen with a porosity of 0.8 μm. The residue left by evaporating the filtrate over a water bath until dry must be less than 50 mg.

Solubility in an Acid–Alcohol Medium Place 1 g of Polyvinylpolypyrrolidone in a flask containing 500 mL of the following mixture: 3 g of acetic acid, 10 mL of ethanol, and sufficient water to make up the volume to 100 mL. Allow the contents of the flask to rest for 24 h. Filter on a filter screen with a porosity of 2.5 μm, then on a filter screen with a porosity of 0.8 μm. Concentrate the filtrate over a water bath. Finish evaporation over the water bath in a 70-mm diameter tared silica capsule. The dry residue remaining after evaporation must be less than 10 mg, taking account of any residue left by the evaporation of 500 mL of the acetic acid–ethanol mixture.

Unsaturation (as vinylpyrrolidinone) Suspend a 4-g sample in 30 mL of water, stir for 15 min, and filter through a sintered-glass filter having a porosity between 9 and 15 μm, collecting the filtrate in a 250-mL flask. Wash the residue with 100 mL of water, add 500 mg of sodium acetate to the combined filtrates, and titrate with 0.1 *N* iodine until the color of iodine no longer fades. Add an additional 3.0 mL of 0.1 *N* iodine, allow to stand for 10 min, and titrate the excess iodine with 0.1 *N* sodium thiosulfate, adding 3 mL of starch TS as the endpoint is approached. Perform a blank determination (see *General Provisions*), and make any necessary correction. Not more than 0.72 mL is consumed.

Water Determine by the *Karl Fischer Titrimetric Method*, Appendix IIB.

Packaging and Storage Store in tight containers.