Perlite

Expanded Perlite

CAS: 93763-70-3

DESCRIPTION

In its natural state, Perlite occurs as a dense, gray to brown, glassy volcanic rock consisting essentially of fused sodium potassium aluminum silicate plus 3% to 5% water. When fractured and heated at high temperature (900° to 1100°) under proper conditions, it pops like popcorn (due to the presence of the occluded water), expanding to 20 or more times its original volume. The expanded material is crushed to yield a white, nonhygroscopic powder having a bulk density of 32 to 400 kg/m^3 (2 to 25 lb/ft^3) and a particle size ranging from less than one to several hundred μm. It is in this latter expanded and powdered state that Perlite is used as a filter aid in food processing. Acceptable food-grade free-flowing agents such as sodium carbonate and sodium silicate may be added. The powder is slightly soluble in water and sparingly soluble in dilute acids and alkalies.

Functional Use in Foods Filter aid in food processing.

REQUIREMENTS

Identification

A. Mix about 1 g of the sample with 25 mL of 2.7 *N* hydrochloric acid in a beaker, cover with a watch glass, heat on a steam bath for 15 min, and cool. Filter, and neutralize the filtrate to litmus paper with 6 *N* ammonium hydroxide. The neutralized filtrate gives positive tests for *Aluminum*, for *Potassium*, and for *Sodium*, Appendix IIIA.

B. Prepare a bead by fusing a few crystals of sodium ammonium phosphate on a platinum loop in the flame of a burner. Place the hot, transparent bead in contact with a sample, and again fuse. Silica floats about in the bead, producing, upon cooling, an opaque bead with a weblike structure.

Arsenic (as As) Not more than 10 mg/kg.

Lead Not more than 10 mg/kg.

Loss on Drying Not more than 3.0% (powdered form).

Loss on Ignition Not more than 7.0% (glassy form).

pH Between 5 and 11 (filtrate from a 10% suspension).

TESTS

Arsenic Transfer 10.0 g of the sample into a 250-mL beaker, add 50 mL of 0.5 *N* hydrochloric acid, cover with a watch glass, and heat at 70° for 15 min. Cool, and decant through a Whatman No. 3, or equivalent, filter paper into a 100-mL volumetric flask. Wash the slurry with three 10-mL portions of hot water and the filter paper with 15 mL of hot water, dilute the solution to volume with water, and mix. A 3.0-mL portion of this solution meets the requirements of the *Arsenic Test*, Appendix IIIB.

Lead A 10.0-mL portion of the solution prepared in the *Arsenic Test* meets the requirements of the *Lead Limit Test*, Appendix IIIB, using 10 μg of lead ion (Pb) in the control.

Loss on Drying, Appendix IIC Dry the powder at 105° for 2 h.

Loss on Ignition Ignite a 250-mg crushed sample of the glassy form to constant weight at 1000°.

pH, Appendix IIB Boil 10 g with 100 mL of water for 30 min, make up to 100 mL with water, and filter through a fine-pore, sintered-glass funnel. Use the resulting filtrate for the determination of pH.

Packaging and Storage Store in well-closed containers.