D. MONOGRAPHS

Aluminum Potassium Sulfate

Crystal: Potassium Alum or Alum
Dried: Burnt Alum

$AlK(SO_4)_2 \cdot nH_2O$ (n＝12, 10, 6, 3, 2 or 0) Mol. Wt. dodecahydrate 474.39
anhydrous 258.21
aluminium potassium sulfate 〔dodecahydrate 7784-24-9, anhydrous 10043-67-1〕

Definition Aluminum Potassium Sulfate occurs as crystals called Aluminum Potassium Sulfate and a dried substance called Aluminum Potassium Sulfate (dried).

Content Aluminum Potassium Sulfate, when dried at 200℃ for 4 hours, contains not less than 96.5% of aluminum potassium dulfate [$AlK(SO_4)_2$].

Description Aluminum Potassium Sulfate occurs as colorless to white crystals, powder, flakes, granules, or lumps. It is odorless and has an astringent taste.

Identification Aluminum Potassium Sulfate solution (1 → 20) responds to all tests for Aluminum Salt, to test (1) for Potassium Salt, and to tests (1) and (3) for Sulfate as described in the Quatitative Tests.

Purity (1) Clarity and color of solution or water-insoluble substances

Crystal Clarify and color of solution Colorless, almost clear Proceed as directed under Purity (1) for Aluminum Ammonium Sulfate.

Dried Water-insoluble substances Not more than 2.0%.

Proceed as directed under Purity (1) for Aluminum Ammonium Sulfate.

(2) Heavy metals Not more than 40 μg/g as Pb (0.50 g of the powder, previously dried at 200℃ for 4 hours, Method 1, Control solution Lead Standard Solution 2.0 ml).

(3) Iron Not more than 0.019% as Fe (0.054 g of the powder, previously dried at 200℃ for 4 hours, Method 1, Control solution Iron Standard Solution 1.0 ml).

(4) Arsenic Not more than 4.0 μg/g as As_2O_3 (0.50 g of the powder, previously dried at 200℃ for 4 hours, Method 1, Apparatus B).

Assay Weigh accurately about 0.8 g of powdered Aluminum Potassium Sulfate, previously dried at 200℃ for 4 hours, add 100 ml of water, dissolve by heating in a water bath and shaking, filter, and wash the insoluble residue thoroughly with water. Combine the filtrate and the washings, add water to make exactly 200 ml. Measure exactly 25 ml of this solution, add exactly 50 ml of 0.01 mol/l EDTA, and heat to boiling. After cooling, add 7 ml of sodium acetate solution (2 → 15) and 85 ml of absolute ethanol, and titrate the excess EDTA with 0.01 mol/l zinc acetate (indicator: 3 drops of xylenol orange TS) until the yellow color of the solution changes to red.

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1 ml of 0.01 mol/l EDTA = 2.5821 mg of $AlK(SO_4)_2$