**Alum** *(Ammonium Alum, Aluminum Ammonium Sulfate),* AlNH4(SO4)2• 12H2O—**453.33** [7784-26-1]—Large, colorless crystals or crystalline fragments or a white powder. Soluble in 7 parts of water and in about 0.5 part of boiling water; insoluble in alcohol. Use ACS reagent grade.

**Ammonium Alum**—See *Alum.*

**Alumina**—See *Aluminum Oxide****,*** *Acid-washed****.***

**Alumina, Activated** *(Aluminum Oxide),* [1344-28-1]—Use a suitable grade.

**Alumina, Anhydrous** *(Aluminum Oxide; Alumina specially prepared for use in chromatographic analysis)* [1344-28-1]—A white or practically white powder, 80- to 200-mesh. It does not soften, swell, or decompose in water. It is not acid- washed. Store it in well-closed containers.

**Aluminon** *(Aurin Tricarboxylic Acid, [tri]Ammonium Salt),* C**22**H**23**N**3**O**9—473.43** [569-58-4]—Yellowish-brown, glassy powder. Freely soluble in water. Use ACS reagent grade.

**Aluminum,** Al—**At. Wt. 26.98154** [7429-90-5]—Use ACS reagent grade, which also meets the requirements of the following test.

**Arsenic:** Place 750 mg in a generator bottle (see *Arsenic in Reagents* under *General Tests for Reagents****),*** omitting the pledget of cotton. Add 10 mL of water and 10 mL of sodium hydroxide solution (3 in 10), and allow the reaction to proceed for 30 minutes: not more than a barely perceptible stain is produced on the mercuric bromide test paper.

**Aluminum Oxide, Acid-Washed** *(Alumina specially prepared for use in chromatographic analysis)* [1344-28-1]—White or practically white powder or fine granules. Very hygroscopic. Store in tight containers.

**pH of Slurry:** The pH of a well-mixed slurry of 5 g in 150 mL of ammonia-free and carbon dioxide-free water, after 10 minutes' standing, is between 3.5 and 4.5.

**Loss on Ignition:** Weigh accurately about 1 g, and ignite, preferably in a muffle furnace at 800° to 825°, to constant weight: it loses not more than 5.0% of its weight.

**Silica:** Fuse 500 mg with 10 g of potassium bisulfate for 1 hour in a platinum crucible, cool, and dissolve in hot water: not more than a small amount of insoluble matter remains.

**Suitability for Chromatographic Adsorption:** Dissolve 50 mg of *o*-nitroaniline in benzene to make 50.0 mL. Dilute 10 mL of the resulting solution with benzene to 100.0 mL, and mix *(Solution* *A*).

Weigh quickly about 2 (±0.005) g of specimen in a glass-stoppered weighing bottle, and rapidly transfer it to a dry, glass-stoppered test tube. Add 20.0 mL of *Solution A*, insert the stopper, shake vigorously for 3 minutes, and allow to settle.

Pipet 10 mL of the clear supernatant into a 100-mL volumetric flask, dilute with benzene to volume, and mix (*Solution B*).

Determine the absorbances of *Solutions A* and *B* at 395 nm, with a suitable spectrophotometer, using benzene as the blank. Calculate the quantity, in mg, adsorbed per g of test specimen by the formula:

[2(1 - Ab/Aa)]/W

in which Aa and A**B** are the absorbances of *Solutions A* and B, respectively; and W is the weight, in g, of the aluminum oxide.

Not less than 0.3 mg of o-nitroaniline is adsorbed for each g of the aluminum oxide.