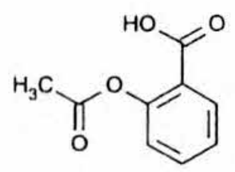
Aspirin



$C_9H_8O_4$ 180.16
Benzoic acid, 2-(acetyloxy)-.
Salicylic acid acetate [*50-78-2*].

» Aspirin contains not less than 99.5 percent and not more than 100.5 percent of $C_9H_8O_4$, calculated on the dried basis.

Packaging and storage—Preserve in tight containers.

USP Reference standards ⟨11⟩—*USP Aspirin RS*.

Identification—

A: Heat it with water for several minutes, cool, and add 1 or 2 drops of ferric chloride TS: a violet-red color is produced.

B: *Infrared Absorption* ⟨197K⟩.

Loss on drying ⟨731⟩—Dry it over silica gel for 5 hours: it loses not more than 0.5% of its weight.

Readily carbonizable substances ⟨271⟩—Dissolve 500 mg in 5 mL of sulfuric acid TS: the solution has no more color than *Matching Fluid Q*.

Residue on ignition ⟨281⟩: not more than 0.05%.

Substances insoluble in sodium carbonate TS—A solution of 500 mg in 10 mL of warm sodium carbonate TS is clear.

Chloride ⟨221⟩—Boil 1.5 g with 75 mL of water for 5 minutes, cool, add sufficient water to restore the original volume, and filter. A 25-mL portion of the filtrate shows no more chloride than corresponds to 0.10 mL of 0.020 *N* hydrochloric acid (0.014%).

Sulfate—Dissolve 6.0 g in 37 mL of acetone, and add 3 mL of water. Titrate potentiometrically with 0.02 *M* lead perchlorate, prepared by dissolving 9.20 g of lead perchlorate in water to make 1000 mL of solution, using a pH meter capable of a minimum reproducibility of ±0.1 mV (see *pH* ⟨791⟩) equipped with an electrode system consisting of a lead-specific electrode and a silver–silver chloride reference glass-sleeved electrode containing a 1 in 44 solution of tetraethylammonium perchlorate in glacial acetic acid (see *Titrimetry* ⟨541⟩): not more than 1.25 mL of 0.02 *M* lead perchlorate is consumed (0.04%). [NOTE—After use, rinse the lead-specific electrode with water, drain the reference electrode, flush with water, rinse with methanol, and allow to dry.]

Heavy metals—Dissolve 2 g in 25 mL of acetone, and add 1 mL of water and 10 mL of hydrogen sulfide TS: any color produced is not darker than that of a control made with 25 mL of acetone, 2 mL of standard lead solution (see *Heavy Metals* ⟨231⟩), and 10 mL of hydrogen sulfide TS (0.001%).

Limit of free salicylic acid—Dissolve 2.5 g in sufficient alcohol to make 25.0 mL. To each of two matched color-comparison tubes add 48 mL of water and 1 mL of a freshly prepared, diluted ferric ammonium sulfate solution (prepared by adding 1 mL of 1 *N* hydrochloric acid to 2 mL of ferric ammonium sulfate TS and diluting with water to 100 mL). Into one tube pipet 1 mL of a standard solution of salicylic acid in water, containing 0.10 mg of salicylic acid per mL. Into the second tube pipet 1 mL of the 1 in 10 solution of Aspirin. Mix the contents of each tube: after 30 seconds, the color in the second tube is not more intense than that in the tube containing the salicylic acid (0.1%).

Organic volatile impurities, *Method IV* ⟨467⟩: meets the requirements.

Assay—Place about 1.5 g of Aspirin, accurately weighed, in a flask, add 50.0 mL of 0.5 *N* sodium hydroxide VS, and boil the mixture gently for 10 minutes. Add phenolphthalein TS, and titrate the excess sodium hydroxide with 0.5 *N* sulfuric acid VS. Perform a blank determination (see *Residual Titrations* under *Titrimetry* ⟨541⟩). Each mL of 0.5 *N* sodium hydroxide is equivalent to 45.04 mg of $C_9H_8O_4$.