

**Acacia (Gummi arabicum)**

**Chemical name.** Gum arabic; CAS Reg. No. 9000-01-5.

**Description.** Colourless or light yellowish brown, translucent or somewhat opaque spheroidal tears or angular fragments with numerous fissures on the surface; very brittle; fractured surfaces are glassy and occasionally iridescent; odourless; tasteless and mucilaginous.

**Solubility.** Very slowly soluble in twice its mass of water, leaving only a very small residue of vegetable particles; practically insoluble in ethanol (~750 g/l) TS and ether R.

**Category.** Viscosity-increasing agent; emulsifying agent; suspending agent; micro-encapsulating agent.

**Storage.** Acacia should be kept in a well-closed container.

**Additional information.** Attention should be paid to the microbiological purity of Acacia since it is of natural origin. It should be enzyme-free.

**Requirements**

**Definition.** Acacia is the air-hardened, gummy exudate from the stem and branches of *Acacia Senegal* (L.) Willdenow or other species of *Acacia* of African origin; it contains mainly polymers of salts of arabic acid.

**Macroscopical examination.** Spheroidal, oval or reniform pieces, the diameter varying from 1-3 cm, white, yellowish white, yellow, or pale amber, sometimes with a pinkish tint, translucent or somewhat opaque, friable, frequently with a cracked surface, easily broken into transparent angular fragments with a glassy appearance and occasionally iridescent. Acacia also occurs as white to yellowish white, thin flakes, powder, or fine granules.

**Microscopical examination.** The flakes appear as colourless striated fragments. The powder presents colourless, bright, angular, irregular fragments with only traces of starch or vegetable tissues visible. Stratified membrane is not apparent. The granules appear as colourless, glassy, angular, irregular fragments up to 100 µm in thickness, some of which exhibit parallel linear streaks.

**Identity tests** (*Note:* Powder the material before performing the tests.)

A. Dissolve 1 g in 2 mL of water, add 2 mL of ethanol (~750 g/l) TS, and shake; a white, gelatinous mucilage is formed which becomes fluid on adding 10 mL of water.

B. Dissolve 0.2 g in 10 mL of water and add 4 drops of lead subacetate TS; a white, flocculent or curdy precipitate is instantaneously formed.

**Starch and dextrin.** Dissolve 1 g in 10 mL of water, boil and cool, then add 0.1 mL of iodine (0.05 mol/l) VS; no blue or reddish brown colour develops.

**Sucrose and fructose.** Dissolve 0.3 g in 5 mL of water and add 0.1 g of resorcinol R and 2 mL of hydrochloric acid (~420 g/l) TS. Heat on a water-bath for 1 minute; no yellow or pink colour develops.

**Tannin.** Dissolve 1 g in 10 mL of water and add 0.2 mL of ferric chloride (65 g/l) TS; a gelatinous precipitate is formed, but neither the precipitate nor the liquid shows a dark blue colour.

**Solubility in water and acidity.** Dissolve 1 g in 2 mL of water; the solution flows readily and is acid when tested with pH-indicator paper R.

**Insoluble matter.** To 5 g, add 100 mL of water and 15 mL of hydrochloric acid (~70 g/l) TS, and, while shaking frequently, boil gently for 15 minutes. Filter the hot mixture through a tared sintered-glass crucible, wash the residue with hot water, dry at 105 °C for 1 hour, and weigh; the residue weighs not more than 50 mg (1%).

**Sulfated ash.** Not more than 50 mg/g.

**Loss on drying.** Dry to constant mass at 105 °C; it loses not more than 0.15 g/g.