Opium

» Opium is the air-dried milky exudate obtained by incising the unripe capsules of *Papaver somniferum* Linné or its variety *album* De Candolle (Fam. Papaveraceae). It yields not less than 9.5 percent of anhydrous morphine.

Botanic characteristics— More or less rounded, oval, brick-shaped or elongated, somewhat flattened masses usually about 8 cm to 15 cm in diameter and weighing about 300 g to 2 kg each. Externally, it is pale olive-brown or olive-gray, having a coarse surface and being covered with a thin coating consisting of fragments of poppy leaves and, at times, with fruits of a species of *Rumex* adhering from the packing; it is more or less plastic when fresh, becoming hard or tough on storage. Internally, it is reddish brown and coarsely granular.

Residual solvents ⟨ 467 ⟩ **:** meets the requirements.
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Assay—

Chromatographic tubes, Citrate buffer, and *Standard preparation*— Prepare as directed in the *Assay* under *Paregoric*.

Assay preparation— Transfer about 2 g of Opium, accurately weighed, to a 250-mL beaker, add 20 mL of dimethyl sulfoxide, and heat for 20 minutes on a steam bath, intermittently dispersing the substance with a flat-end stirring rod. Allow to stand for 15 minutes to permit undissolved material to settle, and carefully decant the supernatant into a 100-mL volumetric flask. Add another 20 mL of dimethyl sulfoxide to the residue, rinsing the sides of the beaker with dimethyl sulfoxide. Disperse and heat the substance as before, allow to settle, and decant into the volumetric flask. Repeat the dissolution one or two times, until the opium is dissolved (other than for small leaf fragments, sand-like particles, gelatinous materials, etc.). Rinse the beaker, and transfer the residue to the flask with the aid of water. Dilute with water to about 90 mL, and mix. If necessary, add 1 drop of alcohol to dispel any foam. Cool to room temperature, adjust with water to volume, and mix. Pass the resulting solution through a medium-porosity filter paper, discarding the first 20 mL of the filtrate.

Chromatographic columns— Pack a pledget of glass wool at the base of each of the three tubes, and fill with adsorbent using chromatographic siliceous earth as the base of the adsorbent, and tamping it firmly in place. Prepare the tubes as follows. Pack *Column I* in two layers, the lower layer consisting of 3 g of chromatographic siliceous earth mixed with 2 mL of *Citrate buffer* and the upper layer consisting of 3 g of chromatographic siliceous earth mixed with 2.0 mL of the *Assay preparation* and 0.5 mL of *Citrate buffer.* Dry-rinse the beaker in which the components of the two layers have been mixed with 1 g of chromatographic siliceous earth, and add it also to the top of *Column I.* Pack *Column II* with 3 g of chromatographic siliceous earth mixed with 2 mL of dibasic potassium phosphate solution (1 in 5.75). Pack *Column III* with 3 g of chromatographic siliceous earth mixed with 2 mL of sodium hydroxide solution (1 in 50). Place a small pad of glass wool above each column packing.

Procedure— Proceed as directed in the *Assay* under *Paregoric*. Calculate the percentage of anhydrous morphine in the Opium taken by the formula:

$$0.25(C/W)(A_U / A_S),$$

in which *C* is the concentration, in µg per mL, of anhydrous morphine in the *Standard preparation; W* is the weight, in g, of Opium taken; and A_U and A_S are the corrected absorbances of the solutions from the *Assay preparation* and the *Standard preparation,* respectively.

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