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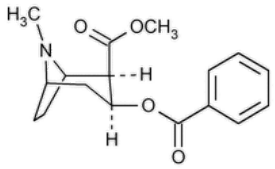
Cocaine



$C_{17}H_{21}NO_4$ 303.35

8-Azabicyclo[3.2.1]octane-2-carboxylic acid, 3-(benzoyloxy)-8-methyl-, methyl ester, [1*R*-(*exo*,*exo*)]-.

Methyl 3β-hydroxy-1αH,5αH-tropane-2β-carboxylate benzoate (ester) CAS RN®: 50-36-2; UNII: I5Y540LHVR.

» Cocaine, dried over phosphorus pentoxide for 3 hours, contains not less than 99.0 percent and not more than 101.0 percent of $C_{17}H_{21}NO_4$.

Packaging and storage—Preserve in well-closed, light-resistant containers.

USP Reference standards ⟨11⟩—

USP Cocaine Hydrochloride RS

Identification—

Change to read:

A: ▲*Spectroscopic Identification Tests* ⟨197⟩*, Ultraviolet-Visible Spectroscopy: 197U*▲ (CN 1-May-2020) —

Solution: 15 µg per mL.

Medium: dilute hydrochloric acid (1 in 120).

Absorptivities at 233 nm, calculated on the dried basis, do not differ by more than 3.0%.

B: It meets the requirements under *Identification—Organic Nitrogenous Bases* ⟨181⟩, USP Cocaine Hydrochloride RS being used, and sodium carbonate TS being used in place of sodium hydroxide TS.

C: Dissolve about 100 mg in a mixture of 0.4 mL of dilute hydrochloric acid (1 in 12) and water to make 5 mL, and add 5 drops of chromium trioxide solution (1 in 20): a yellow precipitate is formed, and it quickly redissolves when the mixture is shaken. Add 1 mL of hydrochloric acid: a permanent, orange-colored, crystalline precipitate is formed.

D: Dissolve about 10 mg in 1 mL of dilute hydrochloric acid (1 in 600), and evaporate on a steam bath just to dryness. Dissolve the residue in 2 drops of water, and add 1 mL of potassium permanganate solution (1 in 300): a violet, crystalline precipitate is formed, and it appears brownish violet when collected on a filter, and shows characteristic violet-red crystalline aggregates under the low power of a microscope, similar to those obtained from USP Cocaine Hydrochloride RS.

Melting range, *Class I* ⟨741⟩: between 96° and 98°.

Loss on drying ⟨731⟩—Dry it over phosphorus pentoxide for 3 hours: it loses not more than 1.0% of its weight.

Residue on ignition ⟨281⟩: not more than 0.1%.

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

Limit of cinnamyl-cocaine and other reducing substances—Dissolve about 300 mg of finely powdered Cocaine in 1 mL of dilute hydrochloric acid (1 in 12) with the aid of heat, if necessary, and dilute with water to 15 mL. Mix 5 mL of this solution with 0.3 mL of dilute sulfuric acid (1 in 35) and 0.1 mL of potassium permanganate solution (1 in 300): the violet color does not disappear entirely within 30 minutes.

Limit of isoatropyl-cocaine—Dilute in a beaker 5 mL of the solution of Cocaine prepared in the test for *Cinnamyl-cocaine and other reducing substances* with 80 mL of water, add 0.2 mL of 6 N ammonium hydroxide, and stir the solution vigorously for 5 minutes, occasionally rubbing the inner wall of the beaker with a stirring rod: a crystalline precipitate of cocaine is formed, and the supernatant is clear.

Assay—Dissolve about 600 mg of Cocaine, previously dried and accurately weighed, in 50 mL of glacial acetic acid, add 1 drop of crystal violet TS, and titrate with 0.1 N perchloric acid VS to a green endpoint. Perform a blank determination, and make any necessary correction. Each mL of 0.1 N perchloric acid is equivalent to 30.34 mg of $C_{17}H_{21}NO_4$.

Topic/Question	Contact	Expert Committee
COCAINE	Nam-Cheol Kim Scientific Liaison	BDSHM2020 Botanical Dietary Supplements and Herbal Medicines
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	BDSHM2020 Botanical Dietary Supplements and Herbal Medicines

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