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Neostigmine Methylsulfate

$C_{13}H_{22}N_2O_6S$ 334.39

Benzenaminium, 3-[[(dimethylamino)carbonyl]oxy]-*N*,*N*,*N*-trimethyl-, methyl sulfate.

(*m*-Hydroxyphenyl)trimethylammonium methyl sulfate dimethylcarbamate CAS RN®: 51-60-5; UNII: 98IMH7M386.

» Neostigmine Methylsulfate contains not less than 98.0 percent and not more than 102.0 percent of $C_{13}H_{22}N_2O_6S$, calculated on the dried basis.

Packaging and storage—Preserve in tight containers.

USP Reference standards ⟨11⟩—

USP Neostigmine Methylsulfate RS

Identification—

Change to read:

A: ▲*Spectroscopic Identification Tests* ⟨197⟩*, Infrared Spectroscopy: 197K*▲ (CN 1-May-2020) ·

B: Place about 1 mg in a small porcelain dish, add 2 mL of water and 0.5 mL of sodium hydroxide solution (2 in 5), and evaporate on a steam bath to dryness. Transfer the residue to a small test tube, and quickly heat in a suitable liquid bath to 250°, continuing at that temperature for about 30 seconds. Cool, dissolve the residue in 0.5 mL of water, cool in ice water, and add 1 mL of diazobenzenesulfonic acid TS: a cherry-red color is produced.

C: Mix about 20 mg with 500 mg of sodium carbonate, and heat the mixture to fusion in a small crucible. Boil the fused mass with 10 mL of water until disintegrated, and filter. Add a few drops of bromine TS to the filtrate, heat to boiling, acidify with hydrochloric acid, and expel the excess bromine by boiling: the resulting solution responds to the tests for *Sulfate* ⟨191⟩.

Melting range ⟨741⟩: between 144° and 149°, determined after drying at 105° for 3 hours.

Loss on drying ⟨731⟩: Dry about 300 mg, accurately weighed, at 105° for 3 hours: it loses not more than 1.0% of its weight.

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

Chloride—To 10 mL of a solution (1 in 50) add 1 mL of 2 N nitric acid and 1 mL of silver nitrate TS: no opalescence is produced immediately.

Sulfate ion—To 10 mL of a solution (1 in 50) add 1 mL of 3 N hydrochloric acid and 1 mL of barium chloride TS: no turbidity is produced immediately.

Assay—Place about 100 mg of Neostigmine Methylsulfate, accurately weighed, in a 500-mL Kjeldahl flask, dissolve in 150 mL of water, and add 40 mL of 2.5 N sodium hydroxide. Connect the flask by means of a distillation trap to a well-cooled condenser that dips into 25 mL of boric acid solution (1 in 25), distill about 150 mL of the contents of the flask, add methyl purple TS to the solution in the receiver, and titrate with 0.02 N sulfuric acid VS. Perform a blank determination, and make any necessary correction. Each mL of 0.02 N sulfuric acid is equivalent to 6.688 mg of $C_{13}H_{22}N_2O_6S$.

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
NEOSTIGMINE METHYLSULFATE	Documentary Standards Support	SM42020 Small Molecules 4

Chromatographic Database Information: Chromatographic Database

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