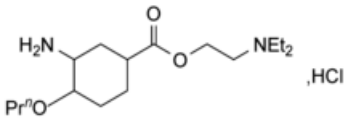
Edition: BP 2025 (Ph. Eur. 11.6 update)

Proxymetacaine Hydrochloride

General Notices



$C_{16}H_{26}N_2O_3HCl$ 330.9 *5875-06-9*

Action and use

Local anaesthetic.

Preparation

Proxymetacaine Eye Drops

DEFINITION

Proxymetacaine Hydrochloride is 2-diethylaminoethyl 3-amino-4-propoxybenzoate hydrochloride. It contains not less than 98.0% and not more than 102.0% of $C_{16}H_{26}N_2O_3$,HCl, calculated with reference to the dried substance.

CHARACTERISTICS

A white or almost white, crystalline powder.

Soluble in *water*; very soluble in *absolute ethanol*; practically insoluble in *ether*.

IDENTIFICATION

A. The *light absorption*, Appendix II B, in the range 220 to 350 nm of a 0.002% w/v solution exhibits three maxima, at 231, 268 and 310 nm. The *absorbances* at the maxima at 268 nm and at 310 nm are about 0.58 and about 0.32, respectively.
B. The *infrared absorption spectrum*, Appendix II A, is concordant with the *reference spectrum* of proxymetacaine hydrochloride *(RS 303)*.
C. A 5% w/v solution yields the reaction characteristic of *primary aromatic amines* and the reactions characteristic of *chlorides*, Appendix VI.

TESTS

Acidity

pH of a 1% w/v solution, 5.7 to 6.4, Appendix V L.

Related substances

A. Carry out the method for *thin-layer chromatography*, Appendix III A, using the following solutions of the substance being examined in *methanol*.
(1) 2.0% w/v of the substance being examined.
(2) 0.020% w/v of the substance being examined.
(3) 0.010% w/v of the substance being examined.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel* GF_{254}.
(b) Use the mobile phase as described below.
(c) Apply 10 µL of each solution.
(d) Develop the plate to 15 cm.
(e) After removal of the plate, dry in air, heat at 105° for 10 minutes, allow to cool and examine under *ultraviolet light (254 nm)*.

MOBILE PHASE

5 volumes of *diethylamine*, 30 volumes of *ethyl acetate* and 75 volumes of *toluene*.

LIMITS

Any *secondary spot* in the chromatogram obtained with solution (1);

is not more intense than the spot in the chromatogram obtained with solution (2) (1%);

not more than one such spot is more intense than the spot in the chromatogram obtained with solution (3) (0.5%). Disregard any spot remaining on the line of application.

B. Carry out the method for *thin-layer chromatography*, Appendix III A, using the following solutions in *methanol*.
(1) 2.0% w/v of the substance being examined.
(2) 0.0050% w/v of *3-amino-4-propoxybenzoic acid BPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel* GF_{254}.
(b) Use the mobile phase as described below.
(c) Apply 10 µL of each solution.
(d) Develop the plate to 15 cm.
(e) After removal of the plate, dry in air, examine under *ultraviolet light (254 nm)*.

MOBILE PHASE

4 volumes of *glacial acetic acid*, 20 volumes of *cyclohexane* and 80 volumes of *1,4-dioxan*.

LIMITS

Any *secondary spot* in the chromatogram obtained with solution (1) is not more intense than the spot in the chromatogram obtained with solution (2) (0.25%). The principal spot remains on or near the line of application.

Loss on drying

When dried at 105° for 3 hours, loses not more than 0.5% of its weight. Use 1 g.

Sulfated ash

Not more than 0.15%, Appendix IX A.

ASSAY

Carry out Method I for *non-aqueous titration*, Appendix VIII A, using 0.25 g, 20 mL of *mercury(II) acetate solution* and *1-naphtholbenzein solution* as indicator. Each mL of *0.1M perchloric acid VS* is equivalent to 16.54 mg of $C_{16}H_{26}N_2O_3$,HCl.

STORAGE

Proxymetacaine Hydrochloride should be protected from light.