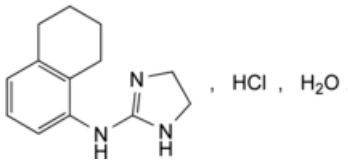
Edition: BP 2025 (Ph. Eur. 11.6 update)

Tramazoline Hydrochloride Monohydrate

General Notices

(Ph. Eur. monograph 1597)



$C_{13}H_{18}ClN_3,H_2O$ 269.8 *74195-73-6*

Action and use

Alpha-adrenoceptor agonist.

Ph Eur

DEFINITION

N-(5,6,7,8-Tetrahydronaphthalen-1-yl)-4,5-dihydro-1*H*-imidazol-2-amine hydrochloride monohydrate.

Content

98.5 per cent to 101.5 per cent (anhydrous substance).

CHARACTERS

Appearance

White or almost white, crystalline powder.

Solubility

Soluble in water and in ethanol (96 per cent).

IDENTIFICATION

A. Infrared absorption spectrophotometry (2.2.24).

Comparison *tramazoline hydrochloride monohydrate CRS*.

B. It gives reaction (a) of chlorides (2.3.1).

TESTS

Solution S

Dissolve 2.5 g in *carbon dioxide-free water R* and dilute to 50 mL with the same solvent.

Appearance of solution

Solution S is clear (*2.2.1*) and not more intensely coloured than reference solution Y_6 (*2.2.2, Method II*).

pH (*2.2.3*)

4.9 to 6.3 for solution S.

Related substances

Liquid chromatography (*2.2.29*).

Solvent mixture *acetonitrile R*, *water R* (50:50 *V/V*).

Test solution Dissolve 50.0 mg of the substance to be examined in the solvent mixture and dilute to 50.0 mL with the solvent mixture.

Reference solution (a) Dissolve 5.0 mg of *tramazoline impurity A CRS* and 5.0 mg of *tramazoline impurity B CRS* in 5 mL of the solvent mixture and add 5 mL of the test solution.

Reference solution (b) Dilute 0.2 mL of reference solution (a) to 100 mL with the solvent mixture.

Column:

— *size*: *l* = 0.125 m, *Ø* = 4 mm;

— *stationary phase*: *base-deactivated end-capped octadecylsilyl silica gel for chromatography R* (5 µm).

Mobile phase 2.0 g/L solution of *sodium dodecyl sulfate R* in a mixture of 6 volumes of *2-propanol R*, 42 volumes of *acetonitrile R1* and 52 volumes of *water for chromatography R*.

Flow rate 1.2 mL/min.

Detection Spectrophotometer at 215 nm.

Injection 5 µL.

Run time 3 times the retention time of tramazoline.

Relative retention With reference to tramazoline (retention time = about 6.5 min): impurity A = about 0.71; impurity B = about 0.86.

System suitability Reference solution (a):

— the chromatogram obtained shows 3 clearly separated peaks;

— *resolution*: minimum 1.5 between the peak due to impurity B and tramazoline.

Limits:

— *impurities A, B*: for each impurity, not more than 3 times the area of the corresponding peak in the chromatogram obtained with reference solution (b) (0.3 per cent);

— *unspecified impurities*: for each impurity, not more than the area of the peak due to impurity B in the chromatogram obtained with reference solution (b) (0.10 per cent);

— *sum of impurities other than A and B*: not more than twice the area of the peak due to impurity B in the chromatogram obtained with reference solution (b) (0.2 per cent);

— *disregard limit*: 0.2 times the area of the peak due to impurity B in the chromatogram obtained with reference solution (b) (0.02 per cent).

Water (*2.5.12*)

6.2 per cent to 7.2 per cent, determined on 0.500 g.

Sulfated ash (*2.4.14*)

Maximum 0.1 per cent, determined on 1.0 g.

ASSAY

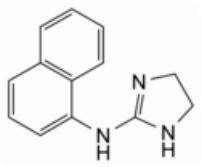
Dissolve 2.000 g in a mixture of 5 mL of *0.1 M hydrochloric acid* and 75 mL of *ethanol (96 per cent) R*. Carry out a potentiometric titration (*2.2.20*) using *1 M sodium hydroxide*. Read the volume added between the 2 points of inflexion.

1 mL of *1 M sodium hydroxide* is equivalent to 251.8 mg of $C_{13}H_{18}ClN_3$.

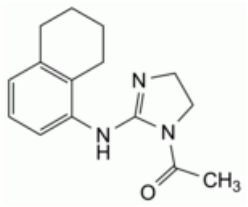
IMPURITIES

Specified impurities *A, B.*

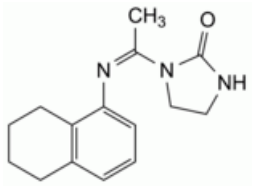
Other detectable impurities (the following substances would, if present at a sufficient level, be detected by one or other of the tests in the monograph. They are limited by the general acceptance criterion for other/unspecified impurities. It is therefore not necessary to identify these impurities for demonstration of compliance. See also 5.10. Control of impurities in substances for pharmaceutical use) *C.*



A. *N*-(naphthalen-1-yl)-4,5-dihydro-1*H*-imidazol-2-amine,



B. 1-[2-[(5,6,7,8-tetrahydronaphthalen-1-yl)amino]-4,5-dihydro-1*H*-imidazol-1-yl]ethan-1-one,



C. 1-[(1*Z*)-*N*-(5,6,7,8-tetrahydronaphthalen-1-yl)ethanimidoyl]imidazolidin-2-one.