Benzhexol Hydrochloride

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Manufacturers, regulatory authorities, health authorities, researchers, and other stakeholders are invited to provide their feedback and comments on this draft proposal. Manufacturers are also invited to submit samples of their products to the IPC to ensure that the proposed monograph adequately controls the quality of the product(s) they manufacture. Comments and samples received after the last date will not be considered by the IPC before finalizing the monograph.

Please send any comments you may have on this draft document to lab.ipc@gov.in, with a copy to Dr. Gaurav Pratap Singh (email: gpsingh.ipc@gov.in) before the last date for comments.

Document History and Schedule for the Adoption Process

Description	Details
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Further follow-up action as required.	

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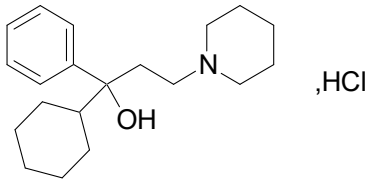
Change **to**: **Benzhexol Hydrochloride**

Trihexyphenidyl Hydrochloride



$C_{20}H_{31}NO,HC1$ Mol. Wt. 337.9

Benzhexol Hydrochloride is 1-Piperidinepropanol, α-cyclohexyl-α-phenyl-, hydrochloride, (±).

Benzhexol Hydrochloride contains not less than 98.0 per cent and not more than 102.0 per cent of $C_{20}H_{31}NO,HCl$, calculated on the dried basis.

Category. Anti-parkinson

Description. A white to off- white, crystalline powder.

Identification

A. Determine by infrared absorption spectrophotometry (2.4.6). Compare the spectrum with that obtained with *benzhexol hydrochloride IPRS* or with the reference spectrum of benzhexol hydrochloride.

B. In the Assay, the principal peak in the chromatogram obtained with the test solution corresponds to the peak in the chromatogram obtained with the reference solution.

C. It gives the reactions of chlorides (2.3.1).

Tests

pH (2.4.24). 5.2 to 6.2, determined in 1.0 per cent w/v solution in *carbon dioxide-free water*.

Related substances. Determine by liquid chromatography (2.4.14).

Solution A. 0.1 per cent v/v solution of *triethylamine* in *water*, adjusted to pH 4.0 with *orthophosphoric acid*.

Test solution. Dissolve 50 mg of the substance under examination in the mobile phase and dilute to 25.0 ml with the mobile phase.

Reference solution (a). A 0.002 per cent w/v solution of *benzhexol hydrochloride IPRS* in the mobile phase.

Reference solution (b). A 0.001 per cent w/v solution of *benzhexol impurity A IPRS* in reference solution (a).

Reference solution (c). Dilute 1.0 ml of reference solution (a) to 10.0 ml with the mobile phase.

Chromatographic system

- a stainless steel column 15 cm x 3.9 mm, packed with octadecylsilane bonded to porous silica (5 µm) (Such as Resolve C18),
- mobile phase: a mixture of 75 volumes of *acetonitrile* and 25 volumes of solution A,
- flow rate: 1 ml per minute,
- spectrophotometer set at 210 nm,
- injection volume: 20 µl.

Name	Relative retention time
Benzhexol impurity A[1]	0.47
Benzhexol	1.0

[1]1-Phenyl-3-(piperidin-1-yl)propan-1-one hydrochloride (trihexyphenidyl impurity A).

Inject reference solution (b) and (c). The test is not valid unless the resolution between the peaks due to benzhexol impurity A and benzhexol is not less than 4.0 in the chromatogram obtained with reference solution (b), the relative standard deviation for replicate injections is not more than 10.0 per cent and the signal-to-noise ratio is not less than 50 in the chromatogram obtained with reference solution (c).

Inject reference solution (c) and the test solution. Run the chromatogram 3 times the retention time of the principal peak. The area of any peak corresponding to benzhexol impurity A is not more than 5 times the area of the principal peak in the chromatogram obtained with reference solution (c) (0.5 per cent), the area of any other secondary peak is not more than the area of the principal peak in the chromatogram obtained with reference solution (c) (0.1 per cent) and the sum of the areas of all secondary peaks is not more than 5 times the area of the principal peak in the chromatogram obtained with reference solution (c) (0.5 per cent). Ignore any peak with an area less than 0.2 times the area of the principal peak in the chromatogram obtained with reference solution (c) (0.02 per cent).

Sulphated ash (2.3.18). Not more than 0.1 per cent.

Loss on drying (2.4.19). Not more than 0.5 per cent, determined on 1.0 g by drying in an oven at 105° for 3 hours.

Assay. Determine by liquid chromatography (2.4.14), as described under Related substances with the following modifications.

Test solution. Dissolve 20 mg of the substance under examination in *acetonitrile* and dilute to 100.0 ml with *acetonitrile*.

Reference solution. A 0.02 per cent w/v solution of *benzhexol hydrochloride IPRS* in *acetonitrile*.

Inject the reference solution. The test is not valid unless the column efficiency is not less than 1300 theoretical plates, the tailing factor is not more than 3.0 and the relative standard deviation for replicate injections is not more than 1.0 per cent.

Inject the reference solution and the test solution.

Calculate the content of $C_{20}H_{31}NO,HCl$

Storage. Store protected from moisture.