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

Diazepam Tablets

General Notices

Action and use

Benzodiazepine.

DEFINITION

Diazepam Tablets contain Diazepam.

The tablets comply with the requirements stated under Tablets and with the following requirements.

Content of diazepam, $C_{16}H_{13}ClN_2O$

92.5 to 107.5% of the stated amount.

IDENTIFICATION

A. The *light absorption*, Appendix II B, in the range 230 to 350 nm of the final solution obtained in the Assay exhibits two maxima, at 242 nm and 284 nm.
B. Carry out the method for *thin-layer chromatography*, Appendix III A, using the following solutions in *methanol*.
(1) Shake a quantity of the powdered tablets with sufficient solvent to produce a solution containing 0.50% w/v of Diazepam, allow to settle and decant the supernatant liquid.
(2) 0.5% w/v of *diazepam BPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel G*.
(b) Use the mobile phase as described below.
(c) Apply 2 µL of each solution.
(d) Develop the plate to 15 cm.
(e) After removal of the plate, spray it with a 10% v/v solution of *sulfuric acid* in *absolute ethanol*, heat at 105° for 10 minutes and examine under *ultraviolet light (365 nm)*.

MOBILE PHASE

10 volumes of *methanol* and 100 volumes of *chloroform*.

CONFIRMATION

The principal spot in the chromatogram obtained with solution (1) corresponds to that in the chromatogram obtained with solution (2).

TESTS

Related substances and decomposition products

Carry out the procedure in subdued light. Carry out the method for *thin-layer chromatography*, Appendix III A, using the following solutions in *ethanol (96%)*.

(1) Shake a quantity of the powdered tablets containing 50 mg of Diazepam with 5 mL of solvent, filter and use immediately.
(2) Dilute 1 volume of solution (1) to 50 volumes and use immediately.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel F_{254}*.
(b) Use the mobile phase as described below.
(c) Apply 20 µL of solution (1) and 5 µL of solution (2).
(d) Develop the plate to 12 cm.
(e) After removal of the plate, allow the solvent to evaporate and examine under *ultraviolet light (254 nm)*.

MOBILE PHASE

Equal volumes of *ethyl acetate* and *hexane*.

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).

Dissolution

Comply with the requirements for Monographs of the British Pharmacopoeia in the *dissolution test for tablets and capsules*, Appendix XII B1.

TEST CONDITIONS

(a) Use Apparatus 1, rotating the basket at 100 revolutions per minute.
(b) Use 900 mL of 0.1M *hydrochloric acid*, at a temperature of 37°, as the medium.

PROCEDURE

(1) After 45 minutes withdraw a sample of the medium and measure the *absorbance* of a layer of suitable thickness of the filtered sample, suitably diluted with *0.1M hydrochloric acid* if necessary, at the maximum at 286 nm, Appendix II B using *0.1M hydrochloric acid* in the reference cell.

DETERMINATION OF CONTENT

Calculate the total content of diazepam, $C_{16}H_{13}ClN_2O$, in the medium taking 488 as the value of A(1%, 1 cm) at the maximum at 286 nm.

Uniformity of content

Tablets containing less than 2 mg and/or less than 2% w/w of Diazepam comply with the requirement stated under Tablets using the following method of analysis. To one tablet add 1 mL of *water*, allow the tablet to disintegrate and stand for 15 minutes. Add 80 mL of a 0.5% w/v solution of *sulfuric acid* in *methanol*, shake for 15 minutes, add sufficient of the methanolic sulfuric acid to produce 100 mL and filter. Measure the *absorbance* of the filtrate at the maximum at 284 nm, Appendix II B. Calculate the content of $C_{16}H_{13}ClN_2O$ taking 450 as the value of A(1%, 1 cm) at the maximum at 284 nm.

ASSAY

Weigh and powder 20 tablets. To a quantity of the powder containing 10 mg of Diazepam add 5 mL of *water*, mix and allow to stand for 15 minutes. Add 70 mL of a 0.5% w/v solution of *sulfuric acid* in *methanol*, shake for 15 minutes, add sufficient of the methanolic sulfuric acid to produce 100 mL and filter. Dilute 10 mL of the filtrate to 50 mL with the same solvent and

measure the *absorbance* of the resulting solution at the maximum at 284 nm, Appendix II B. Calculate the content of $C_{16}H_{13}ClN_2O$ taking 450 as the value of A(1%, 1 cm) at the maximum at 284 nm.

STORAGE

Diazepam Tablets should be protected from light.