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

Fenofibrate Tablets

General Notices

Action and use

Fibrate; lipid-regulating drug.

DEFINITION

Fenofibrate Tablets contain Fenofibrate.

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

Content of fenofibrate, $C_{20}H_{21}ClO_4$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

Disperse a quantity of the powdered tablets containing 0.2 g of Fenofibrate in 20 mL of *acetone*, filter through a 0.45-µm nylon syringe filter and evaporate to dryness under a stream of nitrogen. Add 5 mL of *water* to the residue and mix with the aid of ultrasound. Filter the suspension and dry the resulting powder at 60° at a pressure of 1 kPa for 30 minutes. The *infrared absorption spectrum* of the residue, Appendix II A, is concordant with the reference spectrum of fenofibrate *(RS 511)*.

TESTS

Dissolution

Comply with the *dissolution test for tablets and capsules*, Appendix XII B1.

TEST CONDITIONS

(a) Use Apparatus 2, rotating the paddle at 50 revolutions per minute.
(b) Use 900 mL of 0.05M *sodium lauryl sulfate*, at a temperature of 37°, as the medium.

PROCEDURE

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions.

(1) After 45 minutes withdraw a sample of the medium and filter. Use the filtered medium, diluted with 0.025M *sodium dodecyl sulfate*, if necessary, to produce a solution expected to contain 0.0074% w/v of Fenofibrate.
(2) 0.0074% w/v of *fenofibrate BPCRS* in 0.025M *sodium dodecyl sulfate*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm × 4.0 mm) packed with *end-capped octadecylsilyl silica gel for chromatography* (5 µm) (Hypersil C18 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1.0 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 286 nm.
(f) Inject 5 µL of each solution.

MOBILE PHASE

30 volumes of *water* previously adjusted to pH 2.5 with *orthophosphoric acid* and 70 volumes of *acetonitrile*.

When the chromatograms are recorded under the prescribed conditions, the retention time of fenofibrate is about 10 minutes.

DETERMINATION OF CONTENT

Calculate the total content of fenofibrate, $C_{20}H_{21}ClO_4$, in the medium from the chromatograms obtained and using the declared content of $C_{20}H_{21}ClO_4$ in *fenofibrate BPCRS*.

LIMITS

The amount of fenofibrate released is not less than 75% (Q) of the stated amount.

Related substances

Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions prepared in the mobile phase.

(1) Shake a quantity of the powdered tablets containing 0.1 g of Fenofibrate with 80 mL of the mobile phase, mix with the aid of ultrasound and intermittent shaking. Dilute to 100 mL, mix and filter (a 0.45-µm nylon syringe filter is suitable).
(2) Dilute 1 volume of solution (1) to 100 volumes. Further dilute 1 volume to 5 volumes.
(3) 0.0001% w/v each of *fenofibrate impurity A EPCRS* and *fenofibrate impurity B EPCRS*.

CHROMATOGRAPHIC CONDITIONS

The chromatographic conditions described under Dissolution may be used with an injection volume of 20 µL. Allow the chromatography to proceed for twice the retention time of fenofibrate.

When the chromatograms are recorded under the prescribed conditions, the relative retentions with reference to fenofibrate (retention time about 10 minutes) are: impurity A, about 0.34 and impurity B, about 0.36.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to impurity A and impurity B is at least 1.5.

LIMITS

In the chromatogram obtained with solution (1):

the area of any *secondary peak* is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (0.2%);

the sum of the areas of any *secondary peaks* is not greater than 2.5 times the area of the principal peak in the chromatogram obtained with solution (2) (0.5%).

Disregard any peak with an area less than half the area of the principal peak in the chromatogram obtained with solution (2) (0.1%).

ASSAY

Weigh and powder 20 tablets. Carry out the method for *liquid chromatography*, Appendix III D, using the following solutions prepared in the mobile phase.

(1) Shake a quantity of the powdered tablets containing 0.1 g of Fenofibrate with 80 mL of the mobile phase, mix with the aid of ultrasound and intermittent shaking. Dilute to 100 mL, mix and filter (a 0.45-µm nylon syringe filter is suitable).
(2) 0.1% w/v of *fenofibrate BPCRS*.
(3) 0.0001% w/v each of *fenofibrate impurity A EPCRS* and *fenofibrate impurity B EPCRS*.

CHROMATOGRAPHIC CONDITIONS

The chromatographic conditions described under Dissolution may be used with an injection volume of 10 µL.

SYSTEM SUITABILITY

The Assay is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to impurity A and impurity B is at least 1.5.

DETERMINATION OF CONTENT

Calculate the content of $C_{20}H_{21}ClO_4$ in the tablets from the chromatograms obtained and using the declared content of $C_{20}H_{21}ClO_4$ in *fenofibrate BPCRS*.

IMPURITIES

The impurities limited by the requirements of this monograph include those listed under Fenofibrate.