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

Deferiprone Tablets

General Notices

(Ph. Eur. monograph 2986)

Action and use

Chelating agent (iron).

Ph Eur

DEFINITION

Tablets containing *Deferiprone (2236)*, for human use.

They comply with the monograph Tablets (0478) and the following additional requirements.

Content

95.0 per cent to 105.0 per cent of the content of deferiprone ($C_7H_9NO_2$) stated on the label.

IDENTIFICATION

A. Record the UV spectrum of the principal peak in the chromatograms obtained with the solutions used in the assay, with a diode array detector in the range of 210-400 nm.

Results The UV spectrum of the principal peak in the chromatogram obtained with test solution (b) is similar to the UV spectrum of the principal peak in the chromatogram obtained with reference solution (c).

B. Examine the chromatograms obtained in the assay.

Results The principal peak in the chromatogram obtained with test solution (b) is similar in retention time and size to the principal peak in the chromatogram obtained with reference solution (c).

TESTS

Related substances

Liquid chromatography (*2.2.29*). *Use only colourless glassware. Protect the solutions from light.*

Buffer solution Dissolve 2.91 g of *sodium edetate R*, 4.01 g of *sodium octanesulfonate monohydrate R* and 6.20 g of *dipotassium hydrogen phosphate R* in *water for chromatography R* and dilute to 2000 mL with the same solvent; adjust to pH 3.0 with *phosphoric acid R*.

Test solution (a) Crush 20 tablets to obtain a homogeneous powder. Dissolve an amount of the powder containing the equivalent of 100 mg of deferiprone in the mobile phase by sonicating for approximately 15 min and dilute to 100.0 mL with the mobile phase.

Test solution (b) Dilute 5.0 mL of test solution (a) to 200.0 mL with the mobile phase.

Reference solution (a) Dilute 2.0 mL of test solution (b) to 50.0 mL with the mobile phase.

Reference solution (b) Dissolve 2 mg of *maltol R* (impurity B) in the mobile phase and dilute to 100 mL with the mobile phase. Mix 5 mL of the solution and 10 mL of test solution (a) and dilute to 100 mL with the mobile phase.

Reference solution (c) Dissolve 50.0 mg of *deferiprone CRS* in the mobile phase and dilute to 50.0 mL with the mobile phase. Dilute 5.0 mL of the solution to 200.0 mL with the mobile phase.

Column:

— *size*: *l* = 0.15 m, Ø = 4.6 mm;

— *stationary phase*: *styrene-divinylbenzene copolymer R* (5 µm);

— *temperature*: 30 °C.

Mobile phase *acetonitrile R*, buffer solution (10:90 *V/V*).

Flow rate 1.0 mL/min.

Detection Spectrophotometer at 280 nm.

Preconditioning of the column Rinse for 20 min with the mobile phase before each series of injections.

Injection 20 µL of test solution (a) and reference solutions (a) and (b).

Run time 3.5 times the retention time of deferiprone.

Identification of impurities Use the chromatogram obtained with reference solution (b) to identify the peak due to impurity B.

Relative retention With reference to deferiprone (retention time = about 12 min): impurity B = about 0.5.

System suitability Reference solution (b):

— *resolution*: minimum 5.0 between the peaks due to impurity B and deferiprone.

Calculation of percentage contents:

— for each impurity, use the concentration of deferiprone in reference solution (a).

Limits:

— *unspecified impurities*: for each impurity, maximum 0.10 per cent;

— *total*: maximum 0.3 per cent;

— *reporting threshold*: 0.05 per cent; disregard the peak due to impurity B.

Dissolution[1] (*2.9.3, Apparatus 2*).

Dissolution medium 10.3 g/L solution of *hydrochloric acid R*. Use 1000 mL of the medium.

Rotation speed 50 r/min.

Time 45 min.

Analysis Ultraviolet and visible absorption spectrophotometry (*2.2.25*), using a path length of 2 mm.

Test solutions Samples withdrawn from the dissolution vessel and filtered.

Reference solution Dissolve a suitable quantity of *deferiprone CRS* in a suitable volume of the dissolution medium to obtain a concentration of deferiprone corresponding to the theoretical concentration of deferiprone in the test solution, based on the labelled content of the tablets.

When a different path length is used, the solutions may be diluted accordingly (e.g. for a path length of 1 cm, 50-fold dilution for 500 mg tablets and 100-fold for 1000 mg tablets).

Measure the absorbance of the solutions at the absorption maximum at 275 nm, with a background correction at 490 nm.

Calculate the amount of dissolved deferiprone ($C_7H_9NO_2$), expressed as a percentage of the content stated on the label, taking into account the assigned content of *deferiprone CRS*.

Acceptance criterion:

— *Q* = 80 per cent after 45 min.

ASSAY

Liquid chromatography (*2.2.29*) as described in the test for related substances with the following modifications.

Injection 10 µL of test solution (b) and reference solution (c).

Run time Twice the retention time of deferiprone.

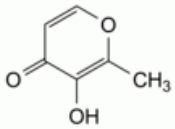
System suitability Reference solution (c):

— *repeatability*: maximum relative standard deviation of 1.5 per cent determined on 6 injections.

Calculate the percentage content of deferiprone ($C_7H_9NO_2$) taking into account the assigned content of *deferiprone CRS*.

IMPURITIES

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)*: B.*



B. 3-hydroxy-2-methyl-4*H*-pyran-4-one (maltol).

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[1] The test approved in the marketing authorisation is to be used for routine quality control to confirm batch-to-batch consistency. For more information please consult Ph. Eur. *1. General Notices*.