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

Isoniazid Oral Solution

General Notices

NOTE: This monograph has been developed to cover unlicensed formulations.

Action and use

Antituberculosis drug.

DEFINITION

Isoniazid Oral Solution is a solution of Isoniazid in a suitable flavoured vehicle.

The oral solution complies with the requirements stated under Oral Liquids and with the following requirements. Where appropriate, the oral solution also complies with the requirements stated under Unlicensed Medicines.

Content of isoniazid, $C_6H_7N_3O$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

A. Carry out the method for *thin-layer chromatography*, Appendix III A, using the following solutions in a mixture of equal volumes of *acetone* and *water*.
(1) Dilute a volume of the oral solution, if necessary, to contain 0.01% w/v of Isoniazid.
(2) 0.01% w/v of *isoniazid BPCRS*.
(3) 0.01% w/v of each of *isoniazid BPCRS* and *pyrazinamide BPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel F_{254}*.
(b) Use the mobile phase as described below.
(c) Apply 50 µL of each solution.
(d) Develop the plate to 15 cm.
(e) After removal of the plate, dry it in air and examine under *ultraviolet light (254 nm)*.

MOBILE PHASE

10 volumes of *water*, 20 volumes of *acetone*, 20 volumes of *methanol* and 50 volumes of *ethyl acetate*.

SYSTEM SUITABILITY

The test is not valid unless the chromatogram obtained with solution (3) shows two clearly separated spots.

CONFIRMATION

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

B. To a volume of the oral solution containing 25 mg of Isoniazid add 5 mL of *ethanol (96%)*, 0.1 g of *sodium tetraborate* and 5 mL of a 5.0% w/v solution of *1-chloro-2,4-dinitrobenzene* in *ethanol (96%)*. Evaporate to dryness on a water bath, heat for a further 10 minutes and dissolve the residue in 10 mL of *methanol;* a reddish purple colour is produced.

C. In the Assay, the retention time of the principal peak in the chromatogram obtained with solution (1) corresponds to that of the principal peak in the chromatogram obtained with solution (2).

TESTS

Acidity

pH, 5.4 to 5.9, Appendix V L.

ASSAY

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

(1) Dilute a weighed quantity of the oral solution with sufficient of the mobile phase to produce a solution containing 0.032% w/v of Isoniazid and filter through a 0.45-µm nylon filter.
(2) 0.032% w/v of *isoniazid BPCRS* in the mobile phase.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm × 4.6 mm) packed with *octadecylsilyl silica gel for chromatography* (5 µm) (Spherisorb ODS 1 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1.5 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 260 nm.
(f) Inject 10 µL of each solution.

MOBILE PHASE

Dissolve about 8.8 g of *sodium dodecyl sulfate* in a mixture of 840 volumes of *water* and 1160 volumes of *methanol*, mix with the aid of ultrasound and adjust the pH of the resulting solution to 2.5 using 1M *sulfuric acid*.

DETERMINATION OF CONTENT

Determine the *weight per mL* of the oral solution, Appendix V G, and calculate the content of $C_6H_7N_3O$, weight in volume, using the declared content of $C_6H_7N_3O$ in *isoniazid BPCRS*.

STORAGE

Isoniazid Oral Solution should be protected from light.