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

Niclosamide Chewable Tablets

General Notices

Niclosamide Tablets

Action and use

Antihelminthic.

DEFINITION

Niclosamide Chewable Tablets contain Niclosamide or Niclosamide Monohydrate.

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

Content of anhydrous niclosamide, $C_{13}H_8Cl_2N_2O_4$

95.0 to 105.0% of the stated amount.

IDENTIFICATION

Heat a quantity of the powdered tablets containing 0.5 g of anhydrous niclosamide with 25 mL of hot *ethanol (96%)*, filter while hot and evaporate the filtrate to dryness on a water bath. The *infrared absorption spectrum*, Appendix II A, is concordant with the *reference spectrum* of niclosamide *(RS 245)*. If the spectra are not concordant heat a suitable quantity of the residue at 120° for 1 hour and prepare a new spectrum.

TESTS

2-Chloro-4-nitroaniline

Boil a quantity of the powdered tablets containing 0.10 g of anhydrous niclosamide with 20 mL of *methanol* for 2 minutes, cool, add sufficient 1M *hydrochloric acid* to produce 50 mL and filter. To 10 mL of the filtrate add 0.5 mL of a 0.5% w/v solution of *sodium nitrite* and allow to stand for 10 minutes. Add 1 mL of a 2% w/v solution of *ammonium sulfamate*, shake, allow to stand for 10 minutes and add 1 mL of a 0.5% w/v solution of *N-(1-naphthyl)ethylenediamine dihydrochloride*. Any colour produced is not more intense than that obtained by treating 20 mL of a solution in *methanol* containing 10 µg of *2-chloro-4-nitroaniline* at the same time and in the same manner, beginning at the words 'add sufficient 1M *hydrochloric acid*…' (100 ppm).

5-Chlorosalicylic acid

Boil a quantity of the powdered tablets containing 0.50 g of anhydrous niclosamide with 10 mL of *water* for 2 minutes, cool, filter through a membrane filter (pore size 0.45 µm is suitable) (solution A).

Dissolve 30 mg of *5-chlorosalicylic acid* in 20 mL *methanol* and add sufficient *water* to produce 100 mL. Dilute 1 volume of this solution to 100 volumes with *water* (solution B).

Separately add 0.1 mL of *iron(III) chloride solution R1* to 10 mL of solution A and to 10 mL of solution B. Any red or violet colour produced in solution A is not more intense than that obtained in solution B (60 ppm).

Related substances

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

(1) Shake a quantity of the powdered tablets containing 0.1 g of anhydrous niclosamide with 80 mL of *methanol* for 15 minutes, add sufficient *methanol* to produce 100 mL and filter.
(2) Dilute 1 volume of solution (1) to 200 volumes with *acetonitrile*.
(3) Dilute 1 volume of solution (2) to 10 volumes with *acetonitrile*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (10 cm × 4.6 mm) packed with *end-capped octadecylsilyl silica gel for chromatography* (5 µm) (Nucleosil C18 is suitable).
(b) Use isocratic elution and the mobile phase described below.
(c) Use a flow rate of 1 mL per minute.
(d) Use an ambient column temperature.
(e) Use a detection wavelength of 230 nm.
(f) Inject 20 µL of each solution.
(g) For solution (1), allow the chromatography to proceed for twice the retention time of the principal peak.

MOBILE PHASE

50 volumes of *acetonitrile* and 50 volumes of a solution containing 0.2% w/v of *potassium dihydrogen orthophosphate*, 0.2% w/v of *tetrabutylammonium hydrogen sulfate* and 0.1% w/v of *disodium hydrogen orthophosphate*.

LIMITS

In the chromatogram obtained with solution (1):

the sum of the areas of any *secondary peaks* is not greater than 4 times the area of the principal peak in the chromatogram obtained with solution (2) (0.2%).

Disregard any peak with an area less than the area of the principal peak in the chromatogram obtained with solution (3) (0.05%).

ASSAY

Weigh and powder 20 tablets. Carry out Method II for *non-aqueous titration*, Appendix VIII A, using a quantity of the powdered tablets containing 0.3 g of anhydrous niclosamide dissolved in 60 mL of *dimethylformamide*, 0.1M *tetrabutylammonium hydroxide VS* as titrant and determining the end point potentiometrically. Each mL of 0.1M *tetrabutylammonium hydroxide VS* is equivalent to 32.71 mg of $C_{13}H_8Cl_2N_2O_4$.

STORAGE

Niclosamide Tablets should be protected from light.

LABELLING

The label states that the tablets should be chewed before swallowing.

When the active ingredient is Niclosamide Monohydrate the quantity is stated in terms of the equivalent amount of anhydrous niclosamide.