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

Baclofen Oral Solution

General Notices

Action and use

Skeletal muscle relaxant.

DEFINITION

Baclofen Oral Solution is a solution of Baclofen in a suitable aqueous vehicle.

The oral solution complies with the requirements stated under Oral Liquids and with the following requirements.

Content of baclofen, $C_{10}H_{12}ClNO_2$

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 35 volumes of *acetonitrile* and 65 volumes of *water*.
(1) Dilute a volume of the oral solution containing 5 mg of Baclofen to 100 mL.
(2) 0.005% w/v of *baclofen BPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use as the coating *silica gel G*.
(b) Use the mobile phase as described below.
(c) Apply 5 µL of each solution.
(d) Develop the plate to 10 cm.
(e) After removal of the plate, dry in air.
(f) Place an evaporating dish containing 4 mL of *water*, 1 mL of 7M *hydrochloric acid* and 0.5 g of *potassium permanganate* in a chromatography tank, close the tank and allow to stand for 2 minutes. Place the plate in the tank, close the tank and leave the plate in contact with the vapour for 1 minute.
(g) After removal of the plate, place it in a current of cold air until an area of coating below the line of application shows only a faint blue colour on the addition of 0.05 mL of *potassium iodide and starch solution*. Spray the plate with *potassium iodide and starch solution* and examine in daylight.

MOBILE PHASE

20 volumes of *glacial acetic acid*, 20 volumes of *water* and 80 volumes of *butan-1-ol*.

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. In the Assay, the chromatogram obtained with solution (1) shows a peak with the same retention time as the principal peak in the chromatogram obtained with solution (2).

TESTS

Impurity A

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

(1) Dilute a weighed quantity of the oral solution containing 5 mg of Baclofen to 50 mL.
(2) 0.0002% w/v of *baclofen impurity A EPCRS*.
(3) 0.01% w/v of *baclofen BPCRS*, 0.0003% w/v of *propyl 4-hydroxybenzoate*, 0.0003% w/v of *methyl 4-hydroxybenzoate* and 0.0002% w/v of *baclofen impurity A EPCRS*.

CHROMATOGRAPHIC CONDITIONS

The chromatographic conditions described under Assay may be used.

MOBILE PHASE

5 g of *sodium dodecyl sulfate* in a mixture of 5 mL of *orthophosphoric acid* and 650 mL of *water* and diluted to 1000 mL with *acetonitrile R1*.

SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (3), the *resolution* between the peaks due to methyl-4-hydroxybenzoate and impurity A (lactam) and between the peaks due to impurity A and propyl-4-hydroxybenzoate is at least 5.0.

LIMITS

In the chromatogram obtained with solution (1):

the area of any peak corresponding to impurity A is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (2%).

ASSAY

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

(1) Dilute a weighed quantity of the oral solution containing 5 mg of Baclofen to 50 mL.
(2) 0.01% w/v of *baclofen BPCRS*.
(3) 0.01% w/v of *baclofen BPCRS*, 0.0003% w/v of *propyl 4-hydroxybenzoate* and 0.0002% w/v of *baclofen impurity A EPCRS*.

CHROMATOGRAPHIC CONDITIONS

(a) Use a stainless steel column (25 cm × 4.6 mm) packed with *end-capped octadecylsilyl silica gel for chromatography* (10 µm) (Nucleosil C18 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 218 nm.
(f) Inject 20 µL of each solution.

MOBILE PHASE

5 g of *sodium dodecyl sulfate* in a mixture of 5 mL of *orthophosphoric acid* and 650 mL of *water* and diluting to 1000 mL with *acetonitrile R1*.

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 propyl-4-hydroxybenzoate is at least 5.0.

DETERMINATION OF CONTENT

Determine the *weight per mL* of the oral solution, Appendix V G, and calculate the content of $C_{10}H_{12}ClNO_2$, weight in volume, using the declared content of $C_{10}H_{12}ClNO_2$ in *baclofen BPCRS*.

STORAGE

Baclofen Oral Solution should be stored below 25° and protected from light. It should not be refrigerated.