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

Lacosamide Infusion

General Notices

(Ph. Eur. monograph 2991)

Action and use

Antiepileptic.

Ph Eur

DEFINITION

Sterile solution for infusion of *Lacosamide (2992)*, for human use.

It complies with the monograph Parenteral preparations (0520) and the following additional requirements.

Content

95.0 per cent to 105.0 per cent of the content of lacosamide ($C_{13}H_{18}N_2O_3$) 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 the test solution is similar to the UV spectrum of the principal peak in the chromatogram obtained with reference solution (a).

B. Examine the chromatograms obtained in the assay.

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

TESTS

Related substances

Liquid chromatography (*2.2.29*).

Solvent mixture *acetonitrile R*, *water R* (13:87 *V/V*).

Test solution Mix the contents of 10 vials of the preparation to be examined and dilute a suitable volume of the solution with the solvent mixture to obtain a concentration of lacosamide of 1.0 mg/mL.

Reference solution (a) Dissolve 20.0 mg of *lacosamide CRS* in the solvent mixture and dilute to 20.0 mL with the solvent mixture.

Reference solution (b) Dilute 1.0 mL of the test solution to 100.0 mL with the solvent mixture. Dilute 2.0 mL of this solution to 10.0 mL with the solvent mixture.

Reference solution (c) Dissolve 2 mg of *lacosamide impurity D CRS* and 3 mg of *lacosamide impurity F CRS* in the solvent mixture and dilute to 100 mL with the solvent mixture. Dilute 1 mL of the solution to 10 mL with the solvent mixture.

Column:

— *size*: *l* = 0.15 m, Ø = 4.6 mm;

— *stationary phase*: *end-capped extra-dense bonded octylsilyl silica gel for chromatography R* (5 µm);

— *temperature*: 35 °C.

Mobile phase *methanesulfonic acid R*, *acetonitrile R1*, *water for chromatography R* (0.75:130:870 *V/V/V*).

Flow rate 2.0 mL/min.

Detection Spectrophotometer at 215 nm.

Injection 5 µL of the test solution and reference solutions (b) and (c).

Run time 2.5 times the retention time of lacosamide.

Identification of impurities Use the chromatogram obtained with reference solution (c) to identify the peaks due to impurities D and F.

Relative retention With reference to lacosamide (retention time = about 6 min): impurity D = about 0.4; impurity F = about 0.5.

System suitability Reference solution (c):

— *resolution*: minimum 1.5 between the peaks due to impurities D and F.

Calculation of percentage contents:

— for each impurity, use the concentration of lacosamide in reference solution (b).

Limits:

— *impurity D*: maximum 0.8 per cent;

— *unspecified impurities*: for each impurity, maximum 0.2 per cent;

— *total*: maximum 2.0 per cent;

— *reporting threshold*: 0.1 per cent.

ASSAY

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

Injection Test solution and reference solution (a).

System suitability Reference solution (a):

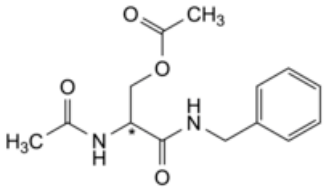
— *repeatability*: maximum relative standard deviation of 1.5 per cent determined on 6 injections.

Calculate the percentage content of lacosamide ($C_{13}H_{18}N_2O_3$) taking into account the assigned content of *lacosamide CRS*.

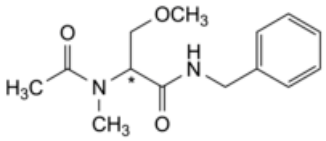
IMPURITIES

Specified impurities *D.*

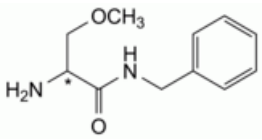
Other detectable impurities (the following substances would, if present at a sufficient level, be detected by one or other of the tests in the monograph)*: B, C, E, F, J, K.*



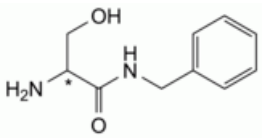
B. (2Ξ)-2-acetamido-3-(benzylamino)-3-oxopropyl acetate,



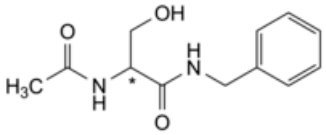
C. (2Ξ)-*N*-benzyl-3-methoxy-2-(*N*-methylacetamido)propanamide,



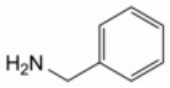
D. (2Ξ)-2-amino-*N*-benzyl-3-methoxypropanamide,



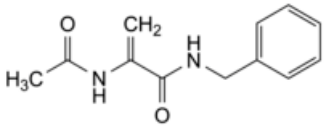
E. (2Ξ)-2-amino-*N*-benzyl-3-hydroxypropanamide,



F. (2Ξ)-2-acetamido-*N*-benzyl-3-hydroxypropanamide,



J. phenylmethanamine,



K. 2-acetamido-*N*-benzylprop-2-enamide.

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