at 100-105 °C for 1 h and ignite in a muffle furnace at 600 °C ± 25 °C, until the substance is thoroughly charred. Carry out the test for sulphated ash (*2.4.14*) on the residue obtained, starting with "Moisten the substance to be examined...".

Microbial contamination. Total viable aerobic count (*2.6.12*) not more than 10^3 micro-organisms per gram, determined by plate count.

ASSAY

Determine the saponification value (*2.5.6*) on 1.5 g and calculate the percentage content of poly(vinyl acetate) using the following expression:

$$I_s \times 0.1534$$

I_s = saponification value.

STORAGE

At a temperature of 5 °C to 30 °C. Handle the substance so as to minimise microbial contamination.

FUNCTIONALITY-RELATED CHARACTERISTICS

This section provides information on characteristics that are recognised as being relevant control parameters for one or more functions of the substance when used as an excipient. This section is a non-mandatory part of the monograph and it is not necessary to verify the characteristics to demonstrate compliance. Control of these characteristics can however contribute to the quality of a medicinal product by improving the consistency of the manufacturing process and the performance of the medicinal product during use. Where control methods are cited, they are recognised as being suitable for the purpose, but other methods can also be used. Wherever results for a particular characteristic are reported, the control method must be indicated.

The following characteristics may be relevant for poly(vinyl acetate) dispersion 30 per cent used in the manufacture of modified-release dosage forms and to mask taste.

Solubility of a film. Place the film obtained in identification test B in 50 ml of *phosphate buffer solution pH 6.8 R* whilst stirring continuously. The film does not dissolve within 30 min.

Apparent viscosity (*2.2.10*): maximum 100 mPa·s, determined using a rotating viscometer at 20 °C and a shear rate of 100 s^{-1}.

01/2008:0185
corrected 6.2

POTASSIUM CHLORIDE

Kalii chloridum

KCl M_r 74.6
[7447-40-7]

DEFINITION

Content: 99.0 per cent to 100.5 per cent of KCl (dried substance).

CHARACTERS

Appearance: white or almost white, crystalline powder or colourless crystals.

Solubility: freely soluble in water, practically insoluble in anhydrous ethanol.

IDENTIFICATION

A. It gives the reactions of chlorides (*2.3.1*).

B. Solution S (see Tests) gives the reactions of potassium (*2.3.1*).

TESTS

Solution S. Dissolve 10.0 g in *carbon dioxide-free water R* prepared from *distilled water R* and dilute to 100 ml with the same solvent.

Appearance of solution. Solution S is clear (*2.2.1*) and colourless (*2.2.2, Method II*).

Acidity or alkalinity. To 50 ml of solution S add 0.1 ml of *bromothymol blue solution R1*. Not more than 0.5 ml of *0.01 M hydrochloric acid* or *0.01 M sodium hydroxide* is required to change the colour of the indicator.

Bromides: maximum 0.1 per cent.

Dilute 1.0 ml of solution S to 50 ml with *water R*. To 5.0 ml of the solution add 2.0 ml of *phenol red solution R2* and 1.0 ml of *chloramine solution R1* and mix immediately. After exactly 2 min add 0.15 ml of *0.1 M sodium thiosulphate*, mix and dilute to 10.0 ml with *water R*. The absorbance (*2.2.25*) of the solution measured at 590 nm, using *water R* as the compensation liquid, is not greater than that of a standard prepared at the same time and in the same manner using 5 ml of a 3.0 mg/l solution of *potassium bromide R*.

Iodides. Moisten 5 g by the dropwise addition of a freshly prepared mixture of 0.15 ml of *sodium nitrite solution R*, 2 ml of *0.5 M sulphuric acid*, 25 ml of *iodide-free starch solution R* and 25 ml of *water R*. After 5 min, examine in daylight. The substance shows no blue colour.

Sulphates (*2.4.13*): maximum 300 ppm.

Dilute 5 ml of solution S to 15 ml with *distilled water R*.

Aluminium (*2.4.17*): maximum 1.0 ppm, if intended for use in the manufacture of haemodialysis solutions.

Prescribed solution. Dissolve 4 g in 100 ml of *water R* and add 10 ml of *acetate buffer solution pH 6.0 R*.

Reference solution. Mix 2 ml of *aluminium standard solution (2 ppm Al) R*, 10 ml of *acetate buffer solution pH 6.0 R* and 98 ml of *water R*.

Blank solution. Mix 10 ml of *acetate buffer solution pH 6.0 R* and 100 ml of *water R*.

Barium. To 5 ml of solution S add 5 ml of *distilled water R* and 1 ml of *dilute sulphuric acid R*. After 15 min, any opalescence in the solution is not more intense than that in a mixture of 5 ml of solution S and 6 ml of *distilled water R*.

Iron (*2.4.9*): maximum 20 ppm.

Dilute 5 ml of solution S to 10 ml with *water R*.

Magnesium and alkaline-earth metals (*2.4.7*): maximum 200 ppm, calculated as Ca, determined on 10.0 g using 0.15 g of *mordant black 11 triturate R*. The volume of *0.01 M sodium edetate* used does not exceed 5.0 ml.

Sodium: maximum 0.10 per cent, if intended for use in the manufacture of parenteral preparations or haemodialysis solutions.

Atomic emission spectrometry (*2.2.22, Method I*).

Test solution. Dissolve 1.00 g of the substance to be examined in *water R* and dilute to 100.0 ml with the same solvent.

Reference solutions. Prepare the reference solutions by diluting as required a solution containing 200 µg of Na per millilitre, prepared as follows: dissolve in *water R* 0.5084 g of *sodium chloride R*, previously dried at 100-105 °C for 3 h, and dilute to 1000.0 ml with the same solvent.

Wavelength: 589 nm.

Heavy metals (*2.4.8*): maximum 10 ppm.

12 ml of solution S complies with test A. Prepare the reference solution using *lead standard solution (1 ppm Pb) R*.

Loss on drying (*2.2.32*): maximum 1.0 per cent, determined on 1.000 g by drying in an oven at 105 °C for 3 h.

ASSAY

Dissolve 1.300 g in *water R* and dilute to 100.0 ml with the same solvent. To 10.0 ml of the solution add 50 ml of *water R*, 5 ml of *dilute nitric acid R*, 25.0 ml of *0.1 M silver nitrate* and 2 ml of *dibutyl phthalate R*. Shake. Titrate with *0.1 M ammonium thiocyanate*, using 2 ml of *ferric ammonium sulphate solution R2* as indicator and shaking vigorously towards the end-point.

1 ml of *0.1 M silver nitrate* is equivalent to 7.46 mg of KCl.

LABELLING

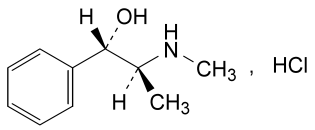
The label states:

- where applicable, that the substance is suitable for use in the manufacture of parenteral preparations;
- where applicable, that the substance is suitable for use in the manufacture of haemodialysis solutions.

07/2008:1367

PSEUDOEPHEDRINE HYDROCHLORIDE

Pseudoephedrini hydrochloridum



$C_{10}H_{16}ClNO$ M_r 201.7
[345-78-8]

DEFINITION

(1*S*,2*S*)-2-(Methylamino)-1-phenylpropan-1-ol hydrochloride.

Content: 99.0 per cent to 101.0 per cent (dried substance).

CHARACTERS

Appearance: white or almost white, crystalline powder or colourless crystals.

Solubility: freely soluble in water and in ethanol (96 per cent), sparingly soluble in methylene chloride.

mp: about 184 °C.

IDENTIFICATION

First identification: A, B, D.

Second identification: A, C, D.

A. Specific optical rotation (see Tests).

B. Infrared absorption spectrophotometry (*2.2.24*).

Comparison: *pseudoephedrine hydrochloride CRS.*

C. Thin-layer chromatography (*2.2.27*).

Test solution. Dissolve 20 mg of the substance to be examined in *methanol R* and dilute to 10 ml with the same solvent.

Reference solution (a). Dissolve 20 mg of *pseudoephedrine hydrochloride CRS* in *methanol R* and dilute to 10 ml with the same solvent.

Reference solution (b). Dissolve 10 mg of *ephedrine hydrochloride CRS* in reference solution (a) and dilute to 5 ml with reference solution (a).

Plate: *TLC silica gel plate R.*

Mobile phase: *methylene chloride R, concentrated ammonia R, 2-propanol R* (5:15:80 *V/V/V*).

Application: 10 µl.

Development: over 2/3 of the plate.

Drying: in air.

Detection: spray with *ninhydrin solution R* and heat at 110 °C for 5 min.

System suitability: reference solution (b):

- the chromatogram shows 2 clearly separated spots.

Results: the principal spot in the chromatogram obtained with the test solution is similar in position, colour and size to the principal spot in the chromatogram obtained with reference solution (a).

D. Solution S (see Tests) gives reaction (a) of chlorides (*2.3.1*).

TESTS

Solution S. Dissolve 1.25 g in *carbon dioxide-free water R* and dilute to 25.0 ml with the same solvent.

Appearance of solution. Solution S is clear (*2.2.1*) and colourless (*2.2.2, Method II*).

Acidity or alkalinity. Dilute 2 ml of solution S to 10 ml with *carbon dioxide-free water R*. Add 0.1 ml of *methyl red solution R* and 0.1 ml of *0.01 M sodium hydroxide*; the solution is yellow. Add 0.2 ml of *0.01 M hydrochloric acid*; the solution is red.

Specific optical rotation (*2.2.7*): + 61.0 to + 62.5 (dried substance), determined on solution S.

Related substances. Liquid chromatography (*2.2.29*).

Test solution. Dissolve 50.0 mg of the substance to be examined in the mobile phase and dilute to 25.0 ml with the mobile phase.

Reference solution (a). Dissolve 20.0 mg of *ephedrine hydrochloride CRS* (impurity A) in the mobile phase and dilute to 20.0 ml with the mobile phase. Dilute 1.0 ml of this solution to 50.0 ml with the mobile phase.

Reference solution (b). Dilute 1.0 ml of the test solution to 200.0 ml with the mobile phase.

Reference solution (c). Dissolve 10 mg of *ephedrine hydrochloride CRS* (impurity A) in 5 ml of the test solution and dilute to 100 ml with the mobile phase.

Column:

- *size*: *l* = 0.25 m, Ø = 4.6 mm;
- *stationary phase*: *phenylsilyl silica gel for chromatography R* (5 µm).

Mobile phase: mix 6 volumes of *methanol R* and 94 volumes of an 11.6 g/l solution of *ammonium acetate R* previously adjusted to pH 4.0 with *glacial acetic acid R*.

Flow rate: 1 ml/min.

Detection: spectrophotometer at 257 nm.