Column:

– *material*: fused silica;

– *size*: *l* = 25 m, Ø = 0.32 mm;

– *stationary phase*: *poly(dimethyl)(diphenyl)siloxane R* (film thickness 0.51 µm).

Carrier gas: *helium for chromatography R*.

Flow rate: 1.8 ml/min.

Temperature:

	Time (min)	Temperature (°C)
Column	0 - 1	85
	1 - 9	85 → 150
	9 - 13	150
Injection port		250
Detector		270

Detection: flame ionisation.

Injection: 1.5 µl; use a split vent at a flow rate of 20 ml/min.

Relative retention with reference to impurity C (retention time = about 2.3 min): impurity B = about 1.4; tetradecane = about 4.3; impurity D = about 4.5.

Limits:

– *impurity C*: maximum 10 ppm;

– *impurities B, D*: for each impurity, maximum 1 ppm.

Sulphates (*2.4.13*): maximum 0.1 per cent.

Dilute 1.5 ml of solution S to 15 ml with *distilled water R*.

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 4 h.

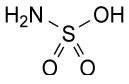
ASSAY

Dissolve without heating 0.150 g in 60 ml of *anhydrous acetic acid R*. Titrate with *0.1 M perchloric acid*, determining the end-point potentiometrically (*2.2.20*).

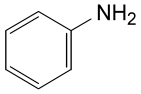
1 ml of *0.1 M perchloric acid* is equivalent to 20.12 mg of $C_6H_{12}NNaO_3S$.

IMPURITIES

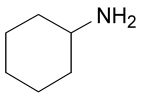
Specified impurities: A, B, C, D.



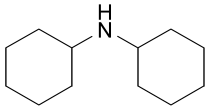
A. sulphamic acid,



B. aniline (phenylamine),



C. cyclohexanamine,



D. *N*-cyclohexylcyclohexanamine.

01/2008:0194
corrected 6.0

SODIUM DIHYDROGEN PHOSPHATE DIHYDRATE

Natrii dihydrogenophosphas dihydricus

$NaH_2PO_4,2H_2O$ M_r 156.0
[13472-35-0]

DEFINITION

Content: 98.0 per cent to 100.5 per cent (dried substance).

CHARACTERS

Appearance: white or almost white powder or colourless crystals.

Solubility: very soluble in water, very slightly soluble in ethanol (96 per cent).

IDENTIFICATION

A. Solution S (see Tests) is slightly acid (*2.2.4*).

B. Solution S gives the reactions of phosphates (*2.3.1*).

C. Solution S previously neutralised using a 100 g/l solution of *potassium hydroxide R* gives reaction (a) of sodium (*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*).

pH (*2.2.3*): 4.2 to 4.5.

To 5 ml of solution S add 5 ml of *carbon dioxide-free water R*.

Reducing substances. To 5 ml of solution S add 0.25 ml of *0.02 M potassium permanganate* and 5 ml of *dilute sulphuric acid R* and heat in a water-bath for 5 min. The solution retains a slight red colour.

Chlorides (*2.4.4*): maximum 200 ppm.

Dilute 2.5 ml of solution S to 15 ml with *water R*.

Sulphates (*2.4.13*): maximum 300 ppm.

To 5 ml of solution S add 0.5 ml of *hydrochloric acid R* and dilute to 15 ml with *distilled water R*.

Arsenic (*2.4.2, Method A*): maximum 2 ppm, determined on 0.5 g.

Iron (*2.4.9*): maximum 10 ppm, determined on solution S.

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*): 21.5 per cent to 24.0 per cent, determined on 0.50 g by drying in an oven at 130 °C.

ASSAY

Dissolve 2.500 g in 40 ml of *water R*. Titrate with carbonate-free *1 M sodium hydroxide*, determining the end-point potentiometrically (*2.2.20*).

1 ml of *1 M sodium hydroxide* is equivalent to 0.120 g of NaH_2PO_4.

01/2008:0514

SODIUM FLUORIDE

Natrii fluoridum

NaF M_r 41.99
[7681-49-4]

DEFINITION

Content: 98.5 per cent to 100.5 per cent (dried substance).

CHARACTERS

Appearance: white or almost white powder or colourless crystals.

Solubility: soluble in water, practically insoluble in ethanol (96 per cent).

IDENTIFICATION

A. To 2 ml of solution S (see Tests) add 0.5 ml of *calcium chloride solution R*. A gelatinous white precipitate is formed that dissolves on adding 5 ml of *ferric chloride solution R1*.

B. To about 4 mg add a mixture of 0.1 ml of *alizarin S solution R* and 0.1 ml of *zirconyl nitrate solution R* and mix. The colour changes from red to yellow.

C. Solution S gives reaction (a) of sodium (*2.3.1*).

TESTS

Solution S. Dissolve 2.5 g in *carbon dioxide-free water R* without heating 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. Dissolve 2.5 g of *potassium nitrate R* in 40 ml of solution S and dilute to 50 ml with *carbon dioxide-free water R*. Cool to 0 °C and add 0.2 ml of *phenolphthalein solution R*. If the solution is colourless, not more than 1.0 ml of *0.1 M sodium hydroxide* is required to produce a red colour that persists for at least 15 s. If the solution is red, not more than 0.25 ml of *0.1 M hydrochloric acid* is required to change the colour of the indicator.

Chlorides (*2.4.4*): maximum 200 ppm.

Dilute 10 ml of solution S to 15 ml with *water R*.

Fluorosilicates. Heat to boiling the neutralised solution obtained in the test for acidity or alkalinity and titrate whilst hot. Not more than 0.75 ml of *0.1 M sodium hydroxide* is required to change the colour of the indicator to red.

Sulphates (*2.4.13*): maximum 200 ppm.

Dissolve 0.25 g in 10 ml of a saturated solution of *boric acid R* in *distilled water R*. Add 5 ml of *distilled water R* and 0.6 ml of *hydrochloric acid R1*. Prepare the standard by mixing 0.6 ml of *hydrochloric acid R1*, 5 ml of *sulphate standard solution (10 ppm SO_4) R* and 10 ml of a saturated solution of *boric acid R* in *distilled water R*.

Loss on drying (*2.2.32*): maximum 0.5 per cent, determined on 1.000 g by drying in an oven at 130 °C for 3 h.

ASSAY

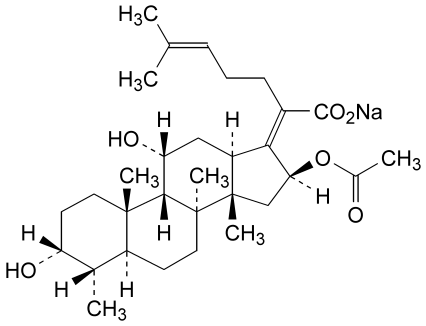
Dissolve 0.100 g in *water R* and dilute to 60 ml with the same solvent. Titrate with *0.1 M lanthanum nitrate*, determining the end-point potentiometrically (*2.2.20*) using a fluoride-selective indicator electrode and a silver-silver chloride reference electrode.

1 ml of *0.1 M lanthanum nitrate* is equivalent to 12.60 mg of NaF.

01/2008:0848

SODIUM FUSIDATE

Natrii fusidas



$C_{31}H_{47}NaO_6$ M_r 538.7
[751-94-0]

DEFINITION

Sodium (*Z*)-*ent*-16α-(acetyloxy)-3β,11β-dihydroxy-4β,8,14-trimethyl-18-nor-5β,10α-cholesta-17(20),24-dien-21-oate.

Antimicrobial substance produced by the growth of certain strains of *Fusidium coccineum* or by any other means.

Content: 97.5 per cent to 101.0 per cent (anhydrous substance).

CHARACTERS

Appearance: white or almost white, crystalline powder, slightly hygroscopic.

Solubility: freely soluble in water and in ethanol (96 per cent).

IDENTIFICATION

A. Infrared absorption spectrophotometry (*2.2.24*).

Preparation: dissolve 0.1 g in 5 ml of *water R*, add 5 ml of *chloroform R* and 0.1 ml of *dilute phosphoric acid R*. Shake vigorously for 1 min, allow to separate and filter the lower layer through absorbent cotton covered with *anhydrous sodium sulphate R*. Repeat the extraction with 2 quantities, each of 5 ml, of *chloroform R* and evaporate the combined extracts to dryness under reduced pressure. Dry the residue over *diphosphorus pentoxide R* under reduced pressure for 2 h, dissolve in 1 ml of *chloroform R*.

Comparison: *Ph. Eur. reference spectrum of fusidic acid*.

B. 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. Dissolve 24 mg of *diethanolamine fusidate CRS* in *methanol R* and dilute to 10 ml with the same solvent.

Plate: *TLC silica gel F_{254} plate R*.