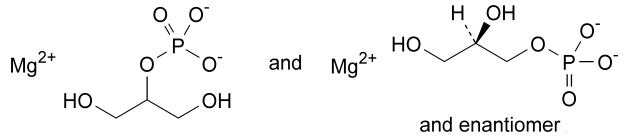
01/2005:1446

MAGNESIUM GLYCEROPHOSPHATE

Magnesii glycerophosphas



$C_3H_7MgO_6P$ M_r 194.4

DEFINITION

Magnesium glycerophosphate is a mixture, in variable proportions, of magnesium (*RS*)-2,3-dihydroxypropyl phosphate, and of magnesium 2-hydroxy-1-(hydroxymethyl)ethyl phosphate, which may be hydrated. Magnesium glycerophosphate contains not less than 11.0 per cent and not more than 12.5 per cent of Mg, calculated with reference to the dried substance.

CHARACTERS

A white powder, hygroscopic, practically insoluble in alcohol. It dissolves in dilute solutions of acids.

IDENTIFICATION

A. Mix 1 g with 1 g of *potassium hydrogen sulphate R* in a test tube fitted with a glass tube. Heat strongly and direct the white vapour towards a piece of filter paper impregnated with a freshly prepared 10 g/l solution of *sodium nitroprusside R*. The filter paper develops a blue colour in contact with *piperidine R*.

B. Ignite 0.1 g in a crucible. Take up the residue with 5 ml of *nitric acid R* and heat on a water-bath for 1 min. Filter. The filtrate gives reaction (b) of phosphates (*2.3.1*).

C. It gives the reaction of magnesium (*2.3.1*).

TESTS

Solution S. Dissolve 2.5 g in *carbon dioxide-free water R* prepared from *distilled water R*, and dilute to 50 ml with the same solvent.

Appearance of solution. Solution S is not more opalescent than reference suspension III (*2.2.1*).

Acidity. Dissolve 1.0 g in 100 ml of *carbon dioxide-free water R*. Add 0.1 ml of *phenolphthalein solution R*. Not more than 1.5 ml of *0.1 M sodium hydroxide* is required to change the colour of the indicator.

Glycerol and alcohol-soluble substances. Shake 1.0 g with 25 ml of *alcohol R* for 2 min. Filter and wash the residue with 5 ml of *alcohol R*. Combine the filtrate and the washings, evaporate to dryness on a water-bath and dry the residue at 70 °C for 1 h. The residue weighs not more than 15 mg (1.5 per cent).

Chlorides (*2.4.4*). Dissolve 1.0 g in *water R* and dilute to 100 ml with the same solvent. Dilute 3.5 ml of the solution to 15 ml with *water R*. The solution complies with the limit test for chlorides (0.15 per cent).

Phosphates (*2.4.11*). Dilute 4 ml of solution S to 100 ml with *water R*. Dilute 1 ml of the solution to 100 ml with *water R*. The solution complies with the limit test for phosphates (0.5 per cent).

Sulphates (*2.4.13*). Dilute 3 ml of solution S to 15 ml with *distilled water R*. The solution complies with the limit test for sulphates (0.1 per cent).

Iron (*2.4.9*). Dissolve 67 mg in *water R* and dilute to 10 ml with the same solvent. The solution complies with the limit test for iron (150 ppm).

Heavy metals (*2.4.8*). To 20 ml of solution S add 15 ml of *hydrochloric acid R* and shake with 25 ml of *methyl isobutyl ketone R* for 2 min. Allow to stand, separate the aqueous layer and evaporate to dryness. Dissolve the residue in 2.5 ml of *acetic acid R* and dilute to 20 ml with *water R*. 12 ml of the solution complies with limit test A for heavy metals (20 ppm). Prepare the standard using *lead standard solution (1 ppm Pb) R*.

Loss on drying (*2.2.32*). Not more than 12.0 per cent, determined on 1.000 g by drying in an oven at 150 °C for 4 h.

ASSAY

Dissolve 0.200 g in 40 ml of *water R*. Carry out the complexometric titration of magnesium (*2.5.11*).

1 ml of *0.1 M sodium edetate* is equivalent to 2.431 mg of Mg.

STORAGE

Store in an airtight container.

01/2005:0039

MAGNESIUM HYDROXIDE

Magnesii hydroxidum

$Mg(OH)_2$ M_r 58.32

DEFINITION

Content: 95.0 per cent to 100.5 per cent of $Mg(OH)_2$.

CHARACTERS

Appearance: white, fine, amorphous powder.

Solubility: practically insoluble in water. It dissolves in dilute acids.

IDENTIFICATION

A. Dissolve about 15 mg in 2 ml of *dilute nitric acid R* and neutralise with *dilute sodium hydroxide solution R*. The solution gives the reaction of magnesium (*2.3.1*).

B. It complies with the test for loss on ignition (see Tests).

TESTS

Solution S. Dissolve 5.0 g in a mixture of 50 ml of *acetic acid R* and 50 ml of *distilled water R*. Not more than slight effervescence is produced. Boil for 2 min, cool and dilute to 100 ml with *dilute acetic acid R*. Filter, if necessary, through a previously ignited and tared porcelain or silica filter crucible of suitable porosity to give a clear filtrate.

Appearance of solution. Solution S is not more intensely coloured than reference solution B_3 (*2.2.2, Method II*).

Soluble substances: maximum 2.0 per cent.

Mix 2.00 g with 100 ml of *water R* and boil for 5 min. Filter whilst hot through a sintered-glass filter (40), allow to cool and dilute to 100 ml with *water R*. Evaporate 50 ml of the filtrate to dryness and dry at 100-105 °C. The residue weighs not more than 20 mg.

Substances insoluble in acetic acid: maximum 0.1 per cent.

Any residue obtained during the preparation of solution S, washed, dried, and ignited at 600 °C, weighs not more than 5 mg.

Chlorides (*2.4.4*): maximum 0.1 per cent.

1 ml of solution S diluted to 15 ml with *water R* complies with the limit test for chlorides.

Sulphates (*2.4.13*): maximum 0.5 per cent.

0.6 ml of solution S diluted to 15 ml with *distilled water R* complies with the limit test for sulphates.

Arsenic (*2.4.2*): maximum 4 ppm.

5 ml of solution S complies with limit test A.

Calcium (*2.4.3*): maximum 1.5 per cent.

Dilute 1.3 ml of solution S to 150 ml with *distilled water R*. 15 ml of the solution complies with the limit test for calcium.

Iron (*2.4.9*): maximum 0.07 per cent.

Dissolve 0.15 g in 5 ml of *dilute hydrochloric acid R* and dilute to 10 ml with *water R*. 1 ml of this solution diluted to 10 ml with *water R* complies with the limit test for iron.

Heavy metals (*2.4.8*): maximum 30 ppm.

Dissolve 2.0 g in 20 ml of *hydrochloric acid R1* and shake with 25 ml of *methyl isobutyl ketone R* for 2 min. Allow to stand, separate the aqueous layer and evaporate to dryness. Dissolve the residue in 30 ml of *water R*. 12 ml of the solution complies with limit test A. Prepare the standard using *lead standard solution (2 ppm Pb) R*.

Loss on ignition: 29.0 per cent to 32.5 per cent.

Heat 0.5 g gradually to 900 °C and ignite to constant mass.

ASSAY

Dissolve 0.100 g in a mixture of 20 ml of *water R* and 2 ml of *dilute hydrochloric acid R* and carry out the complexometric titration of magnesium (*2.5.11*).

1 ml of *0.1 M sodium edetate* is equivalent to 5.832 mg of $Mg(OH)_2$.

01/2005:0041

MAGNESIUM OXIDE, HEAVY

Magnesii oxidum ponderosum

MgO M_r 40.30

DEFINITION

Content: from 98.0 per cent to 100.5 per cent of MgO (ignited substance).

CHARACTERS

Appearance: fine, white powder.

Solubility: practically insoluble in water. It dissolves in dilute acids with at most slight effervescence.

IDENTIFICATION

A. 15 g has an apparent volume (*2.9.15*) before settling of about 30 ml.

B. Dissolve about 15 mg in 2 ml of *dilute nitric acid R* and neutralise with *dilute sodium hydroxide solution R*. The solution gives the reaction of magnesium (*2.3.1*).

C. It complies with the test for loss on ignition (see Tests).

TESTS

Solution S. Dissolve 5.0 g in a mixture of 30 ml of *distilled water R* and 70 ml of *acetic acid R*, boil for 2 min, cool and dilute to 100 ml with *dilute acetic acid R*. Filter, if necessary, through a previously ignited and tared porcelain or silica filter crucible of suitable porosity to give a clear solution.

Appearance of solution. Solution S is not more intensely coloured than reference solution B3 (*2.2.2, Method II*).

Soluble substances: maximum 2.0 per cent.

Mix 2.00 g with 100 ml of *water R* and boil for 5 min. Filter whilst hot through a sintered-glass filter (40), allow to cool and dilute to 100 ml with *water R*. Evaporate 50 ml of the filtrate to dryness and dry at 100-105 °C. The residue weighs not more than 20 mg.

Substances insoluble in acetic acid: maximum 0.1 per cent.

Any residue obtained during the preparation of solution S, washed, dried, and ignited at 600 °C, weighs not more than 5 mg.

Chlorides (*2.4.4*): maximum 0.1 per cent.

1 ml of solution S diluted to 15 ml with *water R* complies with the limit test for chlorides.

Sulphates (*2.4.13*): maximum 1.0 per cent.

0.3 ml of solution S diluted to 15 ml with *distilled water R* complies with the limit test for sulphates.

Arsenic (*2.4.2*): maximum 4 ppm.

5 ml of solution S complies with limit test A.

Calcium (*2.4.3*): maximum 1.5 per cent.

Dilute 1.3 ml of solution S to 150 ml with *distilled water R*. 15 ml of the solution complies with the limit test for calcium.

Iron (*2.4.9*): maximum 0.07 per cent.

Dissolve 0.15 g in 5 ml of *dilute hydrochloric acid R* and dilute to 10 ml with *water R*. 1 ml of the solution diluted to 10 ml with *water R* complies with the limit test for iron.

Heavy metals (*2.4.8*): maximum 30 ppm.

To 20 ml of solution S add 15 ml of *hydrochloric acid R1* and shake with 25 ml of *methyl isobutyl ketone R* for 2 min. Separate the layers, evaporate the aqueous layer to dryness, dissolve the residue in 1 ml of *acetic acid R* and dilute to 30 ml with *water R*. 12 ml of the solution complies with limit test A. Prepare the standard using *lead standard solution (1 ppm Pb) R*.

Loss on ignition: maximum 8.0 per cent, determined on 1.00 g at 900 °C.

ASSAY

Dissolve 0.320 g in 20 ml of *dilute hydrochloric acid R* and dilute to 100.0 ml with *water R*. Using 20.0 ml of the solution, carry out the complexometric titration of magnesium (*2.5.11*).

1 ml of *0.1 M sodium edetate* is equivalent to 4.030 mg of MgO.

01/2005:0040

MAGNESIUM OXIDE, LIGHT

Magnesii oxidum leve

MgO M_r 40.30

DEFINITION

Content: 98.0 per cent to 100.5 per cent of MgO (ignited substance).

CHARACTERS

Appearance: fine, white, amorphous powder.

Solubility: practically insoluble in water. It dissolves in dilute acids with at most slight effervescence.

IDENTIFICATION

A. 15 g has an apparent volume (*2.9.15*) before settling of about 150 ml.