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

Magnesium Acetate Tetrahydrate

General Notices

(Ph. Eur. monograph 2035)

$Mg(CH_3COO)_2,4H_2O$ 214.5 *16674-78-5*

Action and use

Used in dialysis solutions.

Ph Eur

DEFINITION

Content

98.0 per cent to 101.0 per cent of magnesium acetate (anhydrous substance).

CHARACTERS

Appearance

Colourless crystals or white or almost white, crystalline powder.

Solubility

Freely soluble in water and in ethanol (96 per cent).

IDENTIFICATION

A. Dissolve about 100 mg in 2 mL of *water R*. Add 1 mL of *dilute ammonia R1* and heat. A white precipitate is formed that dissolves slowly on addition of 5 mL of *ammonium chloride solution R*. Add 1 mL of *disodium hydrogen phosphate solution R*. A white crystalline precipitate is formed.
B. It gives reaction (b) of acetates (*2.3.1*).

TESTS

pH (*2.2.3*)

7.5 to 8.5.

Dissolve 2.5 g in *carbon dioxide-free water R* and dilute to 50 mL with the same solvent.

Chlorides (*2.4.4*)

Maximum 330 ppm.

Dissolve 1.0 g in *water R* and dilute to 100 mL with the same solvent.

Nitrates

Maximum 3 ppm.

Dissolve 1.0 g in *distilled water R* and dilute to 10 mL with the same solvent, add 5 mg of *sodium chloride R*, 0.05 mL of *indigo carmine solution R* and while stirring, 10 mL of *nitrogen-free sulfuric acid R*. A blue colour is produced which persists for at least 10 min.

Sulfates (*2.4.13*)

Maximum 600 ppm.

Dissolve 0.25 g in *distilled water R* and dilute to 15 mL with the same solvent.

Aluminium (*2.4.17*)

Maximum 1 ppm.

Prescribed solution Dissolve 4.0 g in *water R* and dilute to 100 mL with the same solvent. 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*.

Calcium (*2.4.3*)

Maximum 100 ppm.

Dissolve 1.0 g in *distilled water R* and dilute to 15 mL with the same solvent.

Potassium

Maximum 0.1 per cent.

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

Test solution Dissolve 0.5 g in *water R* and dilute to 100 mL with the same solvent.

Reference solutions Prepare the reference solutions using *potassium standard solution (600 ppm K) R*, diluted as necessary with *water R*.

Wavelength 766.5 nm.

Sodium

Maximum 0.5 per cent.

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

Test solution Dissolve 1.0 g in *water R* and dilute to 100 mL with the same solvent.

Reference solutions Prepare the reference solutions using *sodium standard solution (200 ppm Na) R*, diluted as necessary with *water R*.

Wavelength 589.0 nm.

Readily oxidisable substances

Dissolve 2.0 g in 100 mL of boiling *water R*, add 6 mL of a 150 g/L solution of *sulfuric acid R* and 0.3 mL of *0.02 M potassium permanganate*. Mix and boil gently for 5 min. The pink colour is not completely discharged.

Water (*2.5.12*)

33.0 per cent to 35.0 per cent, determined on 0.100 g.

ASSAY

Dissolve 0.150 g in 300 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 14.24 mg of $C_4H_6MgO_4$.

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