

MAGNESIUM CHLORIDE

Prepared at the 27th JECFA (1983), published in FNP 28 (1983) and in FNP 52 (1992). Metals and arsenic specifications revised at the 63rd JECFA (2004). An ADI 'Not limited' was established at the 23rd JECFA (1979).

SYNONYMS INS No. 511

DEFINITION

Chemical names Magnesium chloride hexahydrate

C.A.S. number 7786-30-3

Chemical formula $MgCl_2 \cdot 6H_2O$

Formula weight 203.30

Assay Not less than 99.0% and not more than 105.0%

DESCRIPTION Colourless, odourless flakes, granules, lumps or crystals; it is very deliquescent

FUNCTIONAL USES Firming agent, colour retention agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Very soluble in water; freely soluble in ethanol

Test for chloride (Vol. 4) Passes test

Test for magnesium (Vol. 4) Passes test

PURITY

Ammonium Not more than 50 mg/kg
Dissolve 1 g of the sample in 90 ml of water, and slowly add 10 ml of a freshly boiled and cooled solution of sodium hydroxide (1 in 10 soln). Allow to settle, then decant 20 ml of the supernatant liquid into a colour comparison tube, dilute to 50 ml with water, and add 2 ml of Nessler's TS. Any colour does not exceed that produced by 10 µg of ammonium (NH₄) ion in 48 ml of water and 2 ml of the sodium hydroxide solution.

Lead (Vol. 4) Not more than 2 mg/kg
Determine using an atomic absorption technique appropriate to the

specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, "Instrumental Methods."

METHOD OF ASSAY

Dissolve about 450 mg of the sample, accurately weighed, in 25 ml of water, add 5 ml of ammonia/ammonium chloride buffer TS and 0.1 ml of eriochrome black TS and titrate with 0.05 M disodium ethylenediaminetetraacetate until the solution is blue in colour. Each ml of 0.05 M disodium ethylenediaminetetra-acetate is equivalent to 10.16 mg of $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$.