



TECHNICAL DATA SHEET

TRIMAGNESIUM PHOSPHATE

Prepared at the 17th JECFA (1973), published in FNP 4 (1978) and in FNP 52 (1992). Metals and arsenic specifications revised at the 57th JECFA (2001). A group MTDI of 70 mg/kg bw, as phosphorus from all food sources, was established at the 26th JECFA (1982).

SYNONYMS: Magnesium phosphate, tribasic, tertiary magnesium phosphate; INS No. 343(iii)

DEFINITION: May contain 4, 5 or 8 molecules of water of hydration. The article of commerce can be specified further as to titration value.

Chemical names Trimagnesium orthophosphate

C.A.S. number 7757-87-1

Chemical formula Mg₃(PO₄)₂ (various hydrates)

Formula weight 262.86 (anhydrous)

Assay Not less than 98% of Mg₃(PO₄)₂ after ignition at 425°

DESCRIPTION White, odourless crystalline powder FUNCTIONAL

USES Anticaking agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Practically insoluble in water; insoluble in ethanol, soluble in dilute mineral acids.

Test for phosphate: To a warm solution of the sample in a slight excess of nitric acid add ammonium molybdate TS. A yellow precipitate of ammonium phosphomolybdate forms which is soluble in ammonia TS.

Test for magnesium: Dissolve about 100 mg of the sample in 0.7 ml of dilute acetic acid TS and 20 ml of water. Add 1 ml of ferric chloride TS, let stand for 5 min., and filter. Add ammonium chloride TS and ammonium carbonate TS. No precipitated is formed Add sodium phosphate TS. A white crystalline precipitate is formed which is insoluble in ammonia TS.

PURITY

Loss on ignition (Vol. 4) Tetrahydrate: Between 15% and 23% (425° to constant weight)

Pentahydrate: Between 20% and 27% (425° to constant weight)

Octahydrate: Between 30% and 37% (425° to constant weight)

Fluoride (Vol. 4) Not more than 5 mg/kg See description under TESTS

Lead (Vol. 4) Not more than 4 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."