

DICALCIUM PYROPHOSPHATE

Prepared at the 24th JECFA (1980), published in FNP 17 (1980) and FNP 52 (1992). Metals and arsenic specifications revised at the 55th JECFA (2000). A group MTDI of 70 mg/kg bw, as phosphorus from all food sources, was established at the 26th JECFA (1982)

SYNONYMS Calcium pyrophosphate; INS No. 450(vi)

DEFINITION

Chemical names Dicalcium diphosphate, dicalcium pyrophosphate

C.A.S. number 7790-76-3

Chemical formula $\text{Ca}_2\text{P}_2\text{O}_7$

Formula weight 254.12

Assay Not less than 96%

DESCRIPTION Fine, white, odourless powder

FUNCTIONAL USES Buffering agent, neutralizing agent, yeast food

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Insoluble in water; soluble in dilute hydrochloric and nitric acids

pH (Vol. 4) 5.5-7.0 (1 in 10 slurry)

Test for phosphate
(Vol. 4) Passes test

Test for calcium (Vol. 4) Passes test

PURITY

Loss on ignition (Vol. 4) Not more than 1.5%
Weigh accurately about 1 g of the sample, and ignite, preferably in a muffle furnace, at 800-825° for 30 min.

Fluoride (Vol. 4) Not more than 50 mg/kg (Method I or III)

Arsenic (Vol. 4) Not more than 3 mg/kg (Method II)

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."

METHOD OF ASSAY

Dissolve about 200 mg of the sample accurately weighed in 10 ml of dilute hydrochloric acid TS. Add about 120 ml of water and cool for 30 min, keeping the volume and pH of the solution constant during the cooling period by adding dilute hydrochloric acid or water if necessary. After cooling add 25 ml of 0.05 M disodium ethylenediamine tetraacetate and dilute to 200 ml with water. Neutralize with strong ammonia TS. Add 10 ml of buffer solution (pH 10) and a few drops of eriochrome black TS. Titrate with 0.05 M zinc sulfate. Each ml of 0.05 M disodium ethylenediamine tetraacetate is equivalent to 6.352 mg of $\text{Ca}_2\text{P}_2\text{O}_7$.