CALCIUM DIHYDROGEN DIPHOSPHATE

New specifications prepared at the 57th JECFA (2001) and published in FNP 52 Add 9 (2001). No ADI, but a group MTDI of 70 mg/kg bw, expressed as phosphorus from all food sources, was established at the 26th JECFA (1982).

SYNONYMS Acid calcium pyrophosphate, monocalcium dihydrogen pyrophosphate; INS No. 450 (vii)

DEFINITION

Chemical names	Monocalcium dihydrogen diphosphate
C.A.S. number	14866-19-4
Chemical formula	$CaH_2P_2O_7$
Formula weight	215.97
Assay	Not more than 64% expressed as P_2O_5 on dried basis.

DESCRIPTION White crystals or powder

FUNCTIONAL USES Stabilizer, leavening agent, emulsifier, nutrient

CHARACTERISTICS

IDENTIFICATION

Test for calcium (Vol. 4)	Passes test
Test for phosphate (Vol. 4)	Passes test

PURITY

Loss on drying (Vol. 4)	Anhydrous: Not more than 1% (105°, 4 h)
Acid insoluble matter (Vol. 4)	Not more than 0.4%
Fluoride (Vol. 4)	Not more than 30 mg/kg Method III; use an appropriate sample size and appropriate volumes of standard solution for construction of the calibration curve.
Arsenic (Vol. 4)	Not more than 3 mg/kg
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

Weigh accurately about 200 mg of the sample, dissolve in 25 ml of water and 10 ml of diluted nitric acid TS and boil for 30 min. Filter if necessary, and wash any precipitate, then dissolve the precipitate by the addition of 1 ml diluted nitric acid TS. Adjust the temperature to about 50^{o}, add 75 ml of ammonium molybdate TS, and maintain the temperature at about 50^{o} for 30 min, stirring occasionally. Allow to stand for 16 h or overnight at room temperature. Decant the supernate, through a filter paper, wash the precipitate once or twice with water by decantation using 30 to 40 ml each time, and pour the washings through the same filter. Transfer the precipitate to the same filter, and wash with potassium nitrate solution (1 in 100) until the filtrate is no longer acid to litmus paper. Transfer the precipitate with filter paper to the original precipitation vessel, add 50.0 ml of 1N sodium hydroxide, agitate until the precipitate is dissolved, add 3 drops of phenolphthalein TS and titrate the excess alkali with 1N sulfuric acid. Each ml of 1N sodium hydroxide consumed is equivalent to 3.088 mg of P_2O_5.