MAGNESIUM CARBONATE

Prepared at the 17th JECFA (1973), published in FNP 4 (1978) and in FNP 52 (1992). Metals and arsenic specifications revised at the 63rd JECFA (2004). An ADI 'not limited' was established at the 9th JECFA (1965)

SYNONYMS INS No. 504(i)

DEFINITION A basic hydrated or a normal hydrated magnesium carbonate or a mixture of the two

Chemical names Magnesium carbonate

C.A.S. number 546-93-0

Assay Not less than 24.0% and not more than 26.4% of Mg

DESCRIPTION Odourless, light, white friable masses or as a bulky white powder

FUNCTIONAL USES Anticaking agent, antibleaching agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Practically insoluble in water; insoluble in ethanol

Test for carbonate (Vol. 4) Passes test

Test for magnesium (Vol. 4) Passes test

PURITY

Acid insoluble substances Not more than 0.05%
Weigh 5 g of the sample to the nearest mg, and mix with 75 ml of water. Add hydrochloric acid in small portion, with agitation until no more of the sample dissolves, and boil for 5 min. If an insoluble residue remains, filter, wash well with water until the last washing is free from chloride, ignite, cool and weigh. Calculate as percentage.

Water soluble substances Not more than 1%
Weigh 2 g of the sample to the nearest mg. Add 100 ml of freshly boiled and cooled water, boil while stirring, cool and filter. Evaporate a 50 ml portion of the filtrate to dryness on a water bath, and dry the residue at 120^{o} for 3 h. Cool, weigh and calculate as percentage. (The weight of the residue should not exceed 10 mg).

Calcium Not more than 0.4%
Weigh 1 g of the sample to the nearest 0.1 mg and dissolve in a mixture of 3 ml of sulfuric acid and 22 ml of water. Add 50 ml of ethanol, and allow the mixture to stand overnight. If crystals of magnesium sulfate separate, warm the mixture to about 50^{o} to dissolve. Filter through a tared previously ignited

porcelain filter crucible and wash the precipitate several times with a mixture of 2 volumes of ethanol and 1 volume of dilute sulfuric acid TS. Ignite the crucible and contents at a dull red heat, cool and weigh. The weight of calcium sulfate obtained, multiplied by 0.294, gives the equivalent of calcium in the sample taken for the test.

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

Weigh 1 g of the sample to the nearest 0.1 mg, and transfer to a 250 ml conical flask. Pipette into the flask 50 ml of N sulfuric acid and swirl to dissolve. Titrate the excess acid with N sodium hydroxide solution, using methyl orange TS as indicator. Subtract from the volume of N sulfuric acid consumed the number of ml of N sulfuric acid corresponding to the weight of Ca in the sample taken, using as a factor 20.04 mg of Ca for each ml of N sulfuric acid. The difference is the volume of N sulfuric acid used to neutralize the magnesium carbonate and each ml is equivalent to 12.16 of Mg.