AMMONIUM HYDROGEN CARBONATE

Prepared at the 29th JECFA (1985), published in FNP 34 (1986) and in FNP 52 (1992). Metals and arsenic specifications revised at the 63rd JECFA (2004). An ADI 'not specified' was established at the 26th JECFA (1982)

SYNONYMS Ammonium bicarbonate, INS No. 503(ii)

DEFINITION

Chemical names	Ammonium hydrogen carbonate
C.A.S. number	1066-33-7
Chemical formula	CH_5NO_3
Structural formula	NH_4HCO_3
Formula weight	79.06
Assay	Not less than 99.0%

DESCRIPTION White crystals or a crystalline powder with a slight odour of ammonia.

FUNCTIONAL USES Raising agent

CHARACTERISTICS

IDENTIFICATION

Solubility	Freely soluble in water, insoluble in ethanol
pH (Vol. 4)	About 8 (1 in 20 soln)
Test for carbonate (Vol. 4)	Passes test
Test for ammonium (Vol. 4)	Passes test
Heat test	When heated, it volatilizes without charring and the vapour is alkaline to moist litmus

PURITY

Non-volatile residue (Vol. 4)	Not more than 500 mg/kg Test 4 g of the sample in 10 ml of water
Chlorides (Vol. 4)	Not more than 30 mg/kg Dissolve 500 mg of the sample in 10 ml of hot water, add about 5 mg of sodium carbonate, and evaporate to dryness on a steam bath. Test the residue as directed under the Limit Test. Any turbidity produced does not exceed that shown in a control containing 15 µg of chloride ion (Cl^-).

Sulfates (Vol. 4)

Not more than 70 mg/kg
Dissolve 4 g of the sample in 40 ml of water, add about 10mg of sodium carbonate and 1 ml of 30% hydrogen peroxide, and evaporate the solution to dryness on a steam bath. Treat the residue as directed under the Limit Test. Any turbidity produced does not exceed that shown in a control containing 280 µg of sulfate ion (SO_4^{2-}).

Lead

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

Place about 10 ml of water in a weighing bottle, tare the bottle and its contents, add about 2 g of the sample and weigh accurately. Transfer the contents of the bottle to a 250-ml flask and slowly add, with mixing, 50 ml of 1 N sulfuric acid. When solution has been effected, wash down the sides of the flask, add methyl orange TS, and titrate the excess acid with 1 N sodium hydroxide. Each ml of 1 N sulfuric acid is equivalent to 79.06 mg of NH_4HCO_3.