SODIUM ALUMINOSILICATE

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 PTWI of 1 mg/kg bw for aluminium and its salts was established at the 67th JECFA (2006).

SYNONYMS Sodium silicoaluminate; INS No. 554

DEFINITION A series of hydrated sodium aluminium silicates. The article of commerce may be specified further as to silicon dioxide, aluminium oxide, and sodium oxide content, loss on drying, loss on ignition and pH of a slurry in water.

Chemical names Sodium aluminosilicate

DESCRIPTION Odourless, fine, white amorphous powder, or as beads.

FUNCTIONAL USES Anticaking agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Insoluble in water and ethanol, partially soluble in strong acids and alkali hydroxides

Test for sodium (Vol. 4) Passes test

Test for aluminium (Vol. 4) Passes test

Test for silicate Passes test
See description under TESTS

PURITY

Lead (Vol. 4) Not more than 5 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.”

TESTS

IDENTIFICATION TESTS

Test for silicate Mix about 500 mg of the sample with about 200 mg of anhydrous sodium carbonate and 2 g of anhydrous potassium carbonate, and heat the mixture in a platinum or nickel crucible until it melts completely. Cool, add 5 ml of

water, and allow to stand for 3 min. Heat the bottom of the crucible gently, detach the melt, and transfer it to a beaker with the aid of about 50 ml of water. Add gradually hydrochloric acid until no effervescence is observed, then add 10 ml more of the acid, and evaporate the mixture on a steam bath to dryness. Cool, add 20 ml of water, boil and filter the mixture through an ash-free filter paper. An insoluble residue of silica remains. (Note. Retain the filtrate for the test for aluminium). Transfer the gelatinous residue into a platinum dish, and cautiously add 5 ml of hydrofluoric acid (warning: toxic, corrosive, must not contact skin; work under fume hood). The precipitate dissolves. (If it does not dissolve, repeat the evaporation with hydrofluoric acid.) Heat and hold in the vapours a glass stirring rod with a drop of water on the tip. The drop becomes turbid.