

KONJAC FLOUR

Prepared at the 46th JECFA (1996), published in FNP 52 Add 4 (1996) superseding specifications prepared at the 39th JECFA (1993), published in FNP 52 Add 3 (1993). Metals and arsenic specifications revised at the 57th JECFA (2001). An ADI 'not specified' was established at the 46th JECFA (1996)

SYNONYMS Konjac mannan, Konjac, konnyaku; INS No. 425

DEFINITION The hydrocolloidal polysaccharide obtained from the tubers of various species of *Amorphophallus*; principal component is a high molecular weight, slightly branched, non-ionic glucomannan consisting of mannose and glucose, connected by β -1,4 linkages, at a respective molar ratio of approximately 1.6-4:1; acetyl groups along the glucomannan back-bone contribute to solubility properties and are located, on average, every 9 to 19 sugar units

C.A.S. number 37220-17-0

Formula weight The main component, glucomannan, has an average molecular weight of 200,000 to 2,000,000

Assay Not less than 75% carbohydrate

DESCRIPTION White or cream to light tan powder

FUNCTIONAL USES Gelling agent, thickener, emulsifier, stabilizer

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Dispersible in hot or cold water forming a highly viscous solution with a pH between 4.0 and 7.0

Solubility is increased by heat and mechanical agitation. Addition of mild alkali to the solution results in the formation of a heat-stable gel that resists melting, even under extended heating conditions

Gel formation Add 5 ml of a 4% sodium borate solution to a 1% solution of the sample in a test tube, and shake vigorously. A gel forms.

Formation of heat-stable gel Prepare a 2% solution of the sample by heating it in a boiling water bath for 30 min, with continuous agitation and then cooling the solution to room temperature. For each g of the sample used to prepare the 2% solution, add 1 ml of 10% potassium carbonate solution to the fully hydrated sample at ambient temperature. Heat the mixture in a water bath to 85°, and maintain for 2 h without agitation. Under these conditions a thermally stable

gel is formed. Related hydrocolloids such as guar gum and locust bean gum do not form thermally stable gels and are negative by this test.

PURITY

Loss on drying (Vol. 4) Not more than 15% (105°, 5 h)

Total ash (Vol. 4) Not more than 5% (800°, 3-4 h)

Protein Not more than 8%
Proceed as directed under *Nitrogen Determination (Kjeldahl method)*. The percentage of nitrogen in the sample multiplied by 5.7 gives the percent of protein in the sample

Lead (Vol. 4) Not more than 2 mfg/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

The remainder, after subtracting from 100% the sum of the percentages of total ash, loss on drying and protein, represents the percentage of carbohydrate (glucomannans) in the sample.