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Bleached Starch (Tentative)

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BLEACHED STARCH (TENTATIVE)

Prepared at the 82nd JECFA (2016) and published in FAO JECFA Monograph 19 (2016), superseding specifications for Bleached starch included in the specifications for Modified starches prepared at the 79th JECFA (2014), published in FAO JECFA Monographs 16 (2014). An ADI "not specified" was established at the 26th JECFA (1982).

Information is required on:

- *Typical levels of residual reagents or byproducts*

SYNONYMS

INS No. 1403

DEFINITION

Starch is a carbohydrate polymer consisting of a large number of glucose units linked together primarily by alpha 1-4 glucosidic bonds. The starch polymers come in two forms: linear (amylose) and branched through alpha 1-6 glucosidic bonds (amylopectin), with each glucose unit possessing a maximum of three hydroxyls that can undergo chemical substitution.

Bleached starch is a modified starch. It is obtained by treatment of food starch, in accordance with good manufacturing practice, with peracetic acid and/or hydrogen peroxide, or sodium hypochlorite or sodium chlorite, or sulfur dioxide or alternative permitted forms of sulfites, or potassium permanganate or ammonium persulfate. The change is essentially in the colour only. Reagents are either removed or limited to technically unavoidable levels.

Bleached starch may additionally be subjected to acid, alkali or enzyme treatments in accordance with good manufacturing practices.

C.A.S number

977075-42-5

DESCRIPTION

White or nearly white powder or granules or (if pregelatinized) flakes, or amorphous powder or coarse particles.

FUNCTIONAL USES

Thickener, stabilizer, binder, emulsifier

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)

Insoluble in cold water (if not pre-gelatinized); forming typical colloidal solutions with viscous properties in hot water; insoluble in ethanol.

Microscopy

Passes test
See description under TESTS

Iodine stain

Passes test
See description under TESTS

<u>Copper reduction</u>	Passes test See description under TESTS
PURITY	
<u>Loss on drying</u>	Cereal starch: not more than 15.0% Potato starch: not more than 21.0% Other starches: not more than 18.0% (120°, 4 h, vacuum not exceeding 100 mm Hg)
<u>Sulfur dioxide</u> (Vol. 4)	Not more than 50 mg/kg on the dried basis for modified cereal starches Not more than 10 mg/kg on the dried basis for other modified starches
<u>Lead</u> (Vol. 4)	Not more than 2 mg/kg on the dried basis Determine using a method appropriate to the specified level. The selection of sample size and method of sample preparation may be based on principles of methods described in Volume 4 (under “General Methods, Metallic Impurities”).
<u>Manganese</u> (Vol. 4)	Not more than 50 mg/kg on the dried basis Determine using a method appropriate to the specified level. The selection of sample size and method of sample preparation may be based on principles of methods described in Volume 4 (under “General Methods, Metallic Impurities”).
<i>[Residual reagents]</i>	<i>Information required</i>
<u>Carboxyl groups</u> (Vol. 4)	Not more than 0.1% on the dried basis
TESTS	
IDENTIFICATION TESTS	
<u>Microscopy</u>	Modified starches which have not been pre-gelatinized retain their granular structure and can be identified as starches by microscopic observation. Shape, size and sometimes striations are characteristics of the botanical origin. In polarized light under cross nicol prisms the typical polarization cross will be observed
<u>Iodine stain</u>	Add a few drops of 0.1 N potassium tri-iodide to an aqueous suspension of the sample. These starches stain with iodine in the same way as native starches. The colour can range from dark blue to red
<u>Copper reduction</u>	Place about 2.5 g of the sample previously washed with water, in a boiling flask, add 10 ml of dilute hydrochloric acid (3%) and 70 ml of water, mix, reflux for about three hours and cool. Add 0.5 ml of the resulting solution to 5 ml of hot alkaline cupric tartrate TS. A copious red precipitate is produced