NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 1886.387-2025

National Food Safety Standard - Food Additive - Acorn Shell Brown

食品安全国家标准 食品添加剂 橡子壳棕

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Table of Contents

1 Scope

This standard applies to the food additive acorn shell brown obtained from acorn shells as raw material by extraction with pure water or alkaline water, separation, concentration, drying and other operations.

2 Technical requirements

2.1 Sensory requirements. The sensory requirements shall comply with Table 1. Table 1 fixes the colour as brown to deep brown, the state as powder, and the odour as the odour characteristic of acorn shells, with no off odour. The test method given against all three is the same: take a suitable amount of the sample, place it in a clean, dry white porcelain dish, observe its colour and state under natural light, and smell it.

2.2 Physical and chemical indexes. The physical and chemical indexes shall comply with Table 2. Table 2 fixes the following limits, each with the test method shown against it. Colour value, measured as the absorbance of a one percent solution in a one centimetre cell at 500 nm, not less than 10, by A.3 of Annex A. Loss on drying, mass fraction not more than 10.0 percent, by the direct drying method of GB 5009.3. Ash, mass fraction not more than 15.0 percent, by GB 5009.4. pH, from 7.0 to 9.0, by A.4 of Annex A. Lead, not more than 3.0 mg/kg, by GB 5009.75 or GB 5009.12. Arsenic, not more than 2.0 mg/kg, by GB 5009.76 or GB 5009.11.

Note to Table 2: a commercial acorn shell brown product shall be made from acorn shell brown complying with this standard as its raw material. Food raw materials complying with the corresponding standards or the relevant provisions, or both, may be added, and so may the following food additives complying with the national food safety standards: starch sodium octenyl succinate, mono- and diglycerides of fatty acids, polyglycerol esters of fatty acids, sucrose esters of fatty acids, polyglycerol polyricinoleate, phospholipids, polysorbates, sorbitan esters, glycerol, tea polyphenols, tea polyphenol palmitate, ascorbic acid, sodium ascorbate, calcium ascorbate, ascorbyl palmitate, rosemary extract, vitamin E, D-isoascorbic acid and its sodium salt, and acidity regulators. The colour value index of such a product shall conform to the declared value, its form may be powder, liquid or paste, and the remaining indexes shall comply with the provisions of this standard.

A.1 General provisions

Unless other requirements are stated, the reagents and the water used in this standard are analytically pure reagents and grade three water as laid down in GB/T 6682.

Unless other requirements are stated, the standard solutions, the standard solutions for the determination of impurities, and the preparations and products used in the tests are prepared as laid down in GB/T 601, GB/T 602 and GB/T 603.

Where the solvent used to prepare a solution is not stated, an aqueous solution is meant.

A.2 Identification test

A.2.1 Solubility. Readily soluble in water or in ethanol; insoluble in non-polar solvents.

A.2.2.1 Reagents and solutions for the colour test. Sodium hydroxide solution, 6 mol/L: weigh 240 g of sodium hydroxide, dissolve it in water, dilute and make up to 1000 mL. Hydrochloric acid solution, 6 mol/L: measure 500 mL of concentrated hydrochloric acid and dilute it by adding 500 mL of water.

A.2.2.2 Procedure for the colour test. Weigh about 0.1 g of the sample and add it to 100 mL of the 6 mol/L sodium hydroxide solution; a deep brown colour appears. Weigh about 0.1 g of the sample and add it to 100 mL of the 6 mol/L hydrochloric acid solution; a yellowish brown colour appears.

A.2.3 Absorption maximum. Take the sample solution used for the determination of colour value in A.3.2 and examine it on an ultraviolet spectrophotometer; there is an absorption maximum within the wavelength range 275 nm plus or minus 5 nm.

A.3 Determination of the colour value at 500 nm

A.3.1 Apparatus and equipment. Ultraviolet spectrophotometer.

A.3.2 Procedure. Weigh 0.05 g to 0.10 g of the sample, to the nearest 0.0001 g, dissolve it in water, make up to 100 mL and shake well. With the solution being shaken, pipette 5 mL of it and make up to 50 mL; this is the sample solution. Place this solution in a 1 cm cell and measure its absorbance at a wavelength of 500 nm on the ultraviolet spectrophotometer, using water as the blank. The absorbance shall be kept between 0.3 and 0.7; if it is not, the concentration of the sample solution shall be adjusted and the absorbance measured again.

A.3.3 Calculation of the result. The colour value, expressed as the absorbance of a one percent solution in a one centimetre cell at 500 nm, is calculated by formula (A.1). In the formula: A is the absorbance of the sample solution; f is the dilution factor; m is the mass of the sample, in grams; and 100 is the concentration conversion factor. The test result is taken as the arithmetic mean of parallel determinations, kept to one decimal place. The

absolute difference between two independent results obtained under repeatability conditions shall not be greater than 2.0 percent of their arithmetic mean.

A.4 Determination of pH

A.4.1 Apparatus and equipment. pH meter.

A.4.2 Procedure. Weigh 0.10 g of the sample, dissolve it in freshly boiled and cooled water of pH 5.0 to 7.0 from which the carbon dioxide has been removed, transfer to a 100 mL volumetric flask, make up to the mark, and measure the pH of the solution with the pH meter. The test result is taken as the arithmetic mean of parallel determinations, kept to two decimal places. The absolute difference between two independent results obtained under repeatability conditions shall not be greater than 0.1.