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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 31634-2014

National Food Safety Standard -- Food Additives -- Perlite

食品安全国家标准 食品添加剂 珍珠岩

(English Translation)

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1 Scope

This standard applies to the expansion upon heating, grinding, crushing the resulting food additive grade perlite.

2.1 Sensory requirements

Shall comply with the requirements in Table 1.

Table 1 Sensory requirements

Project requires test methods Color status white powder Proper amount of sample is placed in a 50mL beaker, self Observed under natural light, the color and state

2.2 Physical and Chemical Indicators

Shall be in accordance with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Water soluble (w) /% ≤ 0.20 Appendix A A.4 pH 5 ~ 11 A.5 Loss on drying (w) /% ≤ 3.0 A.6 Loss on ignition (w) /% ≤ 7.0 A.7 Inorganic arsenic (As)/(mg/kg) ≤ 3.0 A.8 Lead (Pb)/(mg/kg) ≤ 4 A.9 Appendix A Testing method A.1 Warning Reagents of this standard test method for use in corrosive or toxic, the operation should take appropriate safety and protective measures.

A.2 General Provisions this standard reagents and water, in the absence of other requirements specified, refer to three predetermined water analytical reagents and GB/T 6682 in.

Determination of standard solutions, formulations and products, in the absence of other requirements specified are by GB/T 602 required in this standard test, impurities, GB/T 603 specified prepared. When used in a solution prepared with a solvent which is not specified, refer to an aqueous solution.

A.3 Identification Test A.3.1 Reagents and materials Hydrochloric acid solution A.3.1.1. 13.

Ammonia solution A.3.1.2. 23.

Sodium hydroxide solution A.3.1.3. 40g/L.

A.3.1.4 sodium tartrate solution. 100g/L. Using now.

Methyl red indicator solution A.3.1.5.

A.3.1.6 Shi Rui paper.

A.3.2 identification method A sample solution A.3.2.1 Preparation of 1.0g sample was weighed to the nearest 0.01g, a 100mL beaker was added 25mL of hydrochloric acid mixed solution, cover the surface of the dish is set 15min was heated in a water bath, cooled to room temperature and filtered. The filtrate was adjusted with aqueous ammonia solution pH = 4.5, and detected with Shi Rui paper. The filtrate was A sample solution for aluminum, potassium, sodium authentication.

A.3.2.2 identification aluminum Take 5mL sample solution A (A.3.2.1), aqueous ammonia solution was added dropwise, a white gummy precipitate, addition of excess aqueous ammonia solution, the insoluble precipitate solution. Sodium hydroxide solution was added dropwise a white gelatinous precipitate, the precipitate dissolved upon addition of an excess.

A.3.2.3 Identification potassium Take 5mL sample solution A (A.3.2.1), was added dropwise a solution of sodium hydrogen tartrate, white crystalline precipitate appears slowly. The soluble ammonia solution and aqueous sodium hydroxide solution. Was stirred with a glass rod or a small amount of acetic acid or ethanol may accelerate the formation of a precipitate.

A.3.2.4 Identification of Sodium Wetting platinum wire with hydrochloric acid, the combustion flame to colorless, and then dipped in a sample solution little combustion flame, i.e. flame dark yellow.

Identification silicon A.3.2.5 Platinum wire ring dipped with little sodium sulfate crystals, melting crystals manipulation in the flame to form a molten bead. The molten bead contacting the sample, a silicon the surface of the molten surfaced bead, formed an opaque mesh-like structure.

Determination of water soluble matter A.4 A.4.1 Instruments and Equipment A.4.1.1 boat. 100mL.

A.4.1.2 membrane filter. the filter membrane support.

A.4.1.3 filtration membrane. filter made of Teflon or other material, a pore size of 0.45μm.

A.4.1.4 pump and filtration equipment.

A.4.1.5 electric oven. 105 °C ± 2 °C.

A.4.2 Preparation of sample solution B 10.0g sample was weighed to the nearest 0.01g. Was placed in a 250mL beaker was added 100mL of water, heated in a water bath 2h, stirred during Mixed, and to pay the original volume. After cooling, the membrane filters, such as a cloudy filtrate, filtered off with suction again. Beaker and washed with water until the filtrate residue to 100mL, this solution is a solution B, the solution for the determination of water soluble and pH.

A.4.3 Analysis step

Pipette 50mL sample solution to a pre-B at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ dried to constant mass in an evaporating dish, at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ Drying 2h, cooled 30min, weighing.

A.4.4 calculation results the mass fraction of water-soluble w_1 according to formula (A.1) is calculated.

$m_1 - m_2$ () $\times 100$

$m \times 50 \times$

100% (A.1)

Where.

--- mass M_1 and the residue was dried in an evaporating dish in grams (G);

After evaporating dish --- M_2 dried mass in grams (G);

100 --- volume of the sample solution, in milliliters (mL);

--- m sample mass in grams (G);

50 --- pipetted sample solution volume in milliliters (mL).

The test result to the arithmetic mean of replicates results. Obtained in two independent determination results under repeatability conditions of absolute difference Value is not more than 0.01%.

A.5 pH is measured

A.5.1 instruments and equipment pH meter. 0.02 accuracy.

A.5.2 Analysis step

The appropriate amount of the sample solution B, the pH was measured predetermined GB/T 9724's.

Determination of loss on drying A.6 A.6.1 Instruments and Equipment A.6.1.1 weighing bottle. $\phi 30\text{mm} \times 25\text{mm}$.

A.6.1.2 electric oven. $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

A.6.2 Analysis step

In advance at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ dried to constant mass in the weighing bottle was weighed about 2g specimen to the nearest 0.0002g, in at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ drying 2h, cooled 30min, weighing.

A.6.3 calculation results Loss on drying of the mass fraction w_2 by the formula (A.2) is calculated.

$$m_1 - m_2$$

$$m \times 100\%$$

Where.

Mass M_1 --- weighing bottle and the sample in grams (G);

--- M_2 dried weighing bottle and the sample mass in grams (G);

--- m sample mass, in grams (g).

The test result to the arithmetic mean of replicates results. Obtained in two independent determination results under repeatability conditions of absolute difference Value is not more than 0.2%.

Determination of loss on ignition A.7 A.7.1 Instruments and Equipment A.7.1.1 porcelain crucible. 50mL.

A.7.1.2 furnace temperature. $1000\text{ }^{\circ}\text{C} \pm 50\text{ }^{\circ}\text{C}$.

A.7.2 Analysis step

In advance to the burning at $1000\text{ }^{\circ}\text{C} \pm 50\text{ }^{\circ}\text{C}$ constant mass in a porcelain crucible weighed approximately 0.25g specimen to the nearest 0.0002g, in 2h calcined at $1000\text{ }^{\circ}\text{C} \pm 50\text{ }^{\circ}\text{C}$, cooling 30min, weighing.

A.7.3 calculation results Ignition loss of mass fraction w_3 according to formula (A.3) is calculated.

$$m_1 - m_2$$

$$m \times 100\%$$

Where.

--- M_1 porcelain crucible and the sample mass in grams (G);

--- M_2 and after burning a sample in a porcelain crucible mass in grams (G);

--- m sample mass, in grams (g).

The test result to the arithmetic mean of replicates results. Obtained in two independent determination results under repeatability conditions of absolute difference Value is not greater than 0.5%.