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

GB 1886.17-2015

Replacing GB 4571-1996

National Food Safety Standard -- Food Additives -- Lac dye

食品安全国家标准 食品添加剂 紫胶红（又名虫胶红）

(English Translation)

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Foreword

This standard replaces GB 4571-1996 "food additive shellac red pigment." this standard compared with GB 4571-1996, the main changes are as follows.

--- Standard name was changed to "national food safety standards for food additives Shellac Red (aka shellac red)." National Food Safety Standard Food Additives shellac red (also known as shellac red)

1 Scope

This standard applies to collagen purple plastic as raw material by hydrochloric acid method were food additives shellac red (also known as shellac red).

2.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods Bright red color Powdered state, 100% 180 μ m (80 mesh) standard sieve Take appropriate 50mL sample is placed in a beaker, observe the color in natural light Chak and status, and the use of 180 μ m (80 mesh) standard sieve test

2.2 Physical indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Color value (E1 m, 490nm) ≥ 130.0 Appendix A A.3 Loss on drying, w /% ≤ 10.0 Appendix A A.4 Residue on ignition, w /% ≤ 0.8 A.5 in Appendix A pH 3.0 ~ 4.0 in Appendix A A.6 Lead (Pb)/(mg/kg) ≤ 5.0 GB 5009.75 Arsenic (As)/(mg/kg) ≤ 2.0 GB 5009.76 Heavy metals (Pb)/(mg/kg) ≤ 30.0 GB 5009.74 Note. The red lac

commercialization of products conforming to this standard shall shellac red as raw material, add edible dextrin, antioxidants and other accessories made of.

Appendix A

Testing method

A.1 General Provisions this standard reagents and water, did not indicate when the other requirements, refer to analytical reagent and third grade water GB/T 6682 regulations.

Standard solutions used in the tests, impurity standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 602 and the provisions of GB/T 603 formulation. Solution was used in the tests did not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test Shellac Red (aka shellac red) is a mixture of natural organic acids, 20 °C when the solubility in water 0.0335g, was dissolved in 95% ethanol Solutions degree 0.916g, soluble in sodium bicarbonate, sodium carbonate and sodium hydroxide solution. Above pH 6 was easily than with an alkali metal Metal ions to form water-insoluble lake. Its solution color changes with pH changes, pH less than 4 orange, pH4.0 ~ 5.0 for the Orange, pH greater than 6 to purple.

A.3 color value (E1 m, 490nm) Determination A.3.1 principle of the method by measuring the absorbance of the sample solution at a specific wavelength to indicate the purity of the sample.

A.3.2 Reagents and materials A.3.2.1 Anhydrous sodium carbonate solution. 10g/L.

A.3.2.2 hydrochloric acid solution. 0.1mol/L.

A.3.2.3 potassium hydrogen phthalate solution. 0.1mol/L.

A.3.2.4 pH = 3.0 buffer solution. take potassium hydrogen phthalate solution 50mL in 100mL flask, add hydrochloric acid solution 22.3mL, Diluted with water to the mark.

A.3.3 Instruments and Equipment A.3.3.1 0.5cm glass cuvette.

A.3.3.2 Spectrophotometer.

A.3.4 Analysis step

A sample was weighed 0.1g (accurate to 0.0002g), placed in 150mL beaker, add 10mL of anhydrous sodium carbonate solution, stir to dissolve, Poured into 100mL volumetric flask, washed with a small amount of water beaker, wash liquid is incorporated 100mL volumetric flask, dilute to the mark, shake. quasi-Indeed draw 5mL set 100mL flask with hydrochloric acid solution to adjust the pH to about 3.0, dilute to the mark with buffer solution pH = 3.0, Shake well. That is, a sample solution.

Remove the sample solution was placed 1cm cuvettes at 490nm wavelength

spectrophotometer measuring the absorbance.

A.3.5 Calculation Results Concentration of the sample solution such that the absorbance measured in the range of 0.3 to 0.7 is preferred. When the absorbance of the sample solution $E_{1\text{ m}} > 140$, the Available sample solution pH = 3.0 buffer solution diluted to the appropriate concentration and determination. The standard color value specified ($E_{1\text{ m}}$, 490nm), According to formula (A.1) Calculated.

$E_{1\text{ m}} =$

$0.01 \times a$

Where.

0.01 --- conversion factor;

--- After a diluted sample absorbance of the solution;

After concentration of the sample solution was diluted --- p in grams per milliliter (g/mL).

A.4 Determination of loss on drying A.4.1 principle of the method at a predetermined temperature, the sample is dried to constant weight, then reduce the quality of the measurement sample.

A.4.2 Instruments and Equipment A.4.2.1 weighing bottle. diameter 5cm, height 3cm.

A.4.2.2 electric oven.

A.4.3 Analysis step

Weigh the sample $2\text{g} \pm 0.1\text{g}$ (accurate to 0.0002g), has been placed at $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ drying to constant weight weighing bottle was placed $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ oven drying to constant weight.

A.4.4 Calculation Results Loss on drying mass fraction w_1 , according to equation (A.2) Calculated.

$m_1 - m_2$

$m_1 - m_3 \times$

100% (A.2)

Where.

m_1 --- weighing bottle and the sample mass before drying, in grams (g);

m_2 --- weighing bottle and the sample mass after drying, in grams (g);

Quality m_3 --- weighing bottle in grams (g).

The results parallel arithmetic mean of the measurement results shall prevail (to one decimal place). In two independent test repeated conditions Given the difference between

the results of not more than 0.2%.

A.5 Determination of residue on ignition A.5.1 principle of the method the sample was carbonized after high temperature burning the remaining inorganic substances, weighing.

A.5.2 Instruments and Equipment A.5.2.1 porcelain crucible. 30mL.

A.5.2.2 high-temperature furnace. temperature can be controlled to $750\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$.

A.5.3 Analysis step

Weigh the sample $3\text{g} \pm 0.1\text{g}$ (accurate to 0.0002g), has been placed at $750\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ burned to constant weight porcelain crucible in an electric furnace on Charring slowly heated to no obvious smoke, moved into high-temperature furnace, the ignition to constant weight at $750\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$.

A.5.4 Calculation Results Burning residue mass fraction w_2 , according to equation (A.3) Calculated.

$m_4 - m_5$

$m_6 - m_5 \times$

100% (A.3)

Where.

Quality m_4 --- crucible and residue on ignition in grams (g);

m_5 --- crucible mass in grams (g);

Quality m_6 --- crucible and the sample in grams (g).

The results parallel arithmetic mean of the measurement results shall prevail (two decimal places). In two independent test repeated conditions Given the difference between the results of not more than 0.05%.

A.6 pH measurement of A.6.1 principle of the method the provisions of the indicator electrode and the reference electrode into the same test solution constituting a primary battery, pH value of the solution are its emf Off by measuring the electromotive force of the original pH of the solution can be derived.

A.6.2 Instruments and Equipment A.6.2.1 pH meter. accuracy 0.1pH.

A.6.2.2 indicator electrode. glass electrode.

A.6.2.3 reference electrode. saturated calomel electrode.

A.6.3 Analysis step

Weigh a sample of approximately 0.034g (accurate to 0.0002g), placed in a clean 150mL beaker, add 100mL water dissolved samples in the chamber Dubbed temperature under