



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

GB 1886.111-2015

National Food Safety Standard -- Food Additives -- Beet red

食品安全国家标准 食品添加剂 甜菜红

(English Translation)

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1 Scope

This standard applies to extraction from red beet (seaweed head) water extract, concentrated, spray-drying the resulting sweet food additives Red dish.

2 Molecular formula and relative molecular mass

Formula 2.1

C₂₄H₂₆N₂O₁₃

2.2 Relative molecular mass

550.48 (according to 2007 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods Color purple State liquid, powder or granular solid Take the right amount of sample is placed in a clean, dry 50mL beaker in, in natural light, color and visual observation status

3.2 Physical and Chemical Indicators

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

Table 2. Physical and chemical indicators

Project requires test methods the absorbance (E1 m, 535nm) > 3.0 Appendix A A.3 pH 4.0 ~ 6.0 in Appendix A A.4 Residue on ignition, w /% <= 14.0 Appendix A A.5 Total arsenic (As)/(mg/kg) <= 2.0 GB 5009.11 Lead (Pb)/(mg/kg) <= 5.0 GB 5009.12 Note. The

commercialization of beet red products shall comply with the standard red beet 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 A.2.1 solubility Dissolved in water, soluble in ethanol. Transparent solution without precipitation.

A.2.2 color reaction 1mL10% sodium hydroxide solution was added to an aqueous solution of 5mL beet red, or purple color from red to yellow.

A.2.3 absorption maxima Take 0.1g sample, plus pH5.4 acetic acid - sodium acetate buffer volume to 100mL, this was in the vicinity of 535nm absorption peak.

A.2.4 TLC

Silica gel G plate, propanol. acetic acid. water = 6.2.2 (volume ratio) as solvent, betanin gives a single red tailing spot.

A.3 absorbance (E1 m, 535nm) measured A.3.1 Reagents and materials A.3.1.1 acetic acid solution. 0.1mol/L.

A.3.1.2 sodium acetate solution. 0.1mol/L.

A.3.1.3 pH5.4 acetic acid - sodium acetate solution. Take 14mL acetic acid solution was mixed with sodium acetate solution 86mL, adjusted to pH 5.4.

A.3.2 Instruments and Equipment A.3.2.1 1cm glass cuvette.

A.3.2.2 Spectrophotometer.

A.3.3 Analysis step

A sample was weighed 0.1g (accurate to 0.0002g), pH5.4 with acetic acid - sodium acetate buffer volume to 100mL, with buffer solution as reference, Cuvette, the absorbance of the sample solution was measured at 535nm with a spectrophotometer at 1cm. Absorbance should be between 0.3 and 0.7, if you do not Within this range, we need to be adjusted according to the color value of the dilution factor.

A.3.4 formula

Absorbance E_{1m} , according to equation (A.1) Calculated.

$E_{1m} =$

Where.

A --- absorbance;

c --- beet red solution concentration,%;

L --- than the thickness of the cuvette solution centimeters (cm).

The results parallel arithmetic mean of the measurement results shall prevail.

A.4 pH measurement

A sample with distilled water to form 1% solution, then the pH meter.

A.5 Determination of residue on ignition A.5.1 Reagents and materials sulfuric acid.

A.5.2 measuring step Weigh the sample 1g (accurate to 0.01g) has been set constant weight of the crucible, burning, charring, after cooling carefully added sulfuric acid 0.5mL ~ 1mL, making it moist, burning to dryness and then transferred to a high-temperature furnace burning at 800 °C completely gray and constant weight.

A.5.3 Calculation Results Burning residue mass fraction w_2 , according to equation (A.2) calculations.

100% (A.2)

Where.

Mass m_1 --- ash in grams (g);

m_2 --- sample mass, in grams (g).

The results parallel arithmetic mean of the measurement results shall prevail.