

ICS 67.220.20
CCS X 41



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

GB 10287-2012

Replacing GB 10287-1988

**National food safety standards -- Food additives -- Rosin and
partially hydrogenated rosin
(English Translation)**

Issued on: December 25, 2012

Implemented on: January 25, 2013

Issued by: Ministry of Health of the People's Republic of China

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Foreword

This standard replaces GB 10287-1988 >.

This standard compared with GB 10287-1988, the main changes are as follows.

- Modify the main ingredient and naming, adds structural formula of the major component (see Chapter 3);
- Increase the sensory requirements (see Table 1);
- Modify the physical and chemical indicators of "solubility" to "soluble" (see Table 2);
- Modify the acid value by 3.0 ~ 9.0mgKOH/g to ≤ 9.0 mg/g;
- Modified hydrogenated rosin ester softening point from 88.0 to 78.0 - 78.0 to 90.0 (see Table 2);
- Modified rosin ester relative density from 1.080 to 1.060 - 1.090 - 1.090 (see Table 2);
- Modified hydrogenated rosin ester relative density from 1.060 to 1.060 - 1.070 - 1.090 (see Table 2);
- Modify the total arsenic (As) Limited index from 0.0002% to 1.0mg/kg, to a reference test method GB/T 5009.11 (See Table 2);
- Modify the heavy metals (Pb) Limited index from 0.002% to 10.0mg/kg, to a reference test method GB/T 5009.74 (See Table 2);
- Modify the proportion to the relative density and the modified formula (see Table 2, Appendix A.4);
- Modify the acid value, determination of ash instead direct reference (see Table 2).

National Food Safety Standard Food Additives rosin ester and hydrogenated rosin ester

1 Scope

This standard applies to premium, a gum rosin, hydrogenated rosin as the raw material, reacted with glycerol prepared food additive pine Hong glycerides; and hydrogenated rosin as the raw material, which was prepared with glycerol food additive hydrogenated rosin esters.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 HYDROGENATED

Ordinary hydrogenated rosin (the main component of dihydro abietic acid) or highly hydrogenated rosin (main component tetrahydro-abietic acid and dihydro abietic acid) as raw materials, and glycerol reacted by steam blowing steam treatment system.

3 Chemical Name, main components and structure of the formula

Rosin ester of formula principal components.

CH₂-O-OC-R₁ CH₂-O-OC-R₁ || CH-OH CH -O-OC-R₁ || CH₂-O-OC-R₁ CH₂-O-OC-R₁
Two abietic acid glyceride glyceryl trinitrate Hydrogenated formula main components.

CH₂-O-OC-R₂ CH₂-O-OC-R₂ || CH-OH CH-O-OC-R₂ || CH₂-O-OC-R₂ CH₂-O-OC-R₂
Bis (dihydro abietic acid) glyceryl trinitrate (dihydro abietic acid) glyceryl CH₂-O-OC-R₃
CH₂-O-OC-R₃ || CH-OH CH -O-OC-R₃ || CH₂-O-OC-R₃ CH₂-O-OC-R₃ Bis
(tetrahydro-abietic acid) glyceryl trinitrate (tetrahydro-abietic acid) glyceryl among them,
COOH Abietic acid COOH Dihydro abietic acid COOH Tetrahydro-abietic acid R₁ = R₂ =
R₃ =

4 Technical Requirements

4.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

Project requires test methods Appearance yellow transparent, no visible impurities GB/T 8146-2003 3.3 Solid state at room temperature Take appropriate sample in a clean, dry white porcelain dish, under natural light mesh Visual observation status

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

project

index

Testing method

Rosin ester hydrogenated rosin ester Solubility tests by Appendix A A.3 Acid value/(mg/g) ≤ 9.0 GB/T 8146-2003 Chapter 5 a Softening Point (R)/°C 80.0 ~ 90.0 78.0 ~ 90.0 GB/T 8146-2003 Chapter 4 Total arsenic (As)/(mg/kg) ≤ 1.0 GB/T 5009.11 Heavy metals (Pb)/(Mg/kg) ≤ 10.0 GB/T 5009.74 Ash/(g/100g) ≤ 0.10 GB/T 8146-2003 Chapter 8 Relative density/d₂₅ 1.060 ~ 1.090 in Appendix A A.4 Color (Fe-Co method), Ghana Color ≤ 8 GB/T 1722-1992 Chapter 3 b a sample was dissolved in ethanol to a neutral benzene - ethanol (1. 1) solution, and 0.5mol/L aqueous potassium hydroxide standard solution to 0.05mol/L potassium hydroxide ethanol solution.

b remove the outer part of the good and pulverized sample with toluene 1. 1 (mass ratio) was dissolved, into a clean, dry Chiari colorimetric tube.

Appendix A

Testing method

A.1 General Provisions Unless otherwise indicated in the analysis using only confirm three analytical grade reagents and water GB/T 6682-2008 stipulated.

Test Methods standard titration solution, when measured impurity standard solution, preparations and products, with no other requirements noted, According to GB/T 601, the provisions of GB/T 602 and GB/T 603 of the preparation. Test methods used in the solution when the solvent is not specified, all refer to water Solution.

A.2 Identification Test Infrared Spectroscopy A.2.1 Instruments and Equipment infrared spectrometer.

A.2.2 Sample Preparation Potassium bromide tablet method. The sample was ground into powder, adding an appropriate amount of potassium bromide, mixing and grinding evenly, with tableting machine into a uniform and transparent thin membrane.

A.2.3 Identification Test the sample was placed in a test infrared spectrometer, infrared spectra obtained with the rosin ester appendix infrared spectrum B (see Figure B.1) Hydrogenated and infrared spectrum (see Figure B.2) should be consistent.

A.3 Determination of solubility A sample with toluene 1. 1 (mass ratio) was dissolved, into a clean, dry, transparent glass tube, in order to diffuse light under lateral entry Depending on the way were observed. The liquid should be clear and transparent, no impurities, no suspension.

A.4 Determination of relative density A.4.1 Analysis step A.4.1.1 Take about 10 g bulk

sample, remove surface debris, check should be free of cracks and bubbles, smooth surface.

A.4.1.2 Take a wire diameter of less than 0.15 mm, it said accurate to 0.001 g. The wire in the alcohol lamp heating, hot insertion block Depth form samples approximately 2 mm ~ 3 mm, cooled, the wire will hang in the balance one end of the sample, weighed to the nearest 0.001 g.

A.4.1.3 The hanging sample is immersed in $25\text{ }^{\circ}\text{C} \pm 0.5\text{ }^{\circ}\text{C}$ water thermostat 0.5 h ~ 1 h after removal. Then there was immersed in $25\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ Water beaker (beaker on a tripod support, not in contact with the pan). Samples from the upper level of not less than 1 cm, the surface of the specimen shall be attached Bubbles. Rapid weighing, accurate to 0.001 g.

A.4.2 Calculation Results Relative density 2525d said, according to the formula (A.1) Calculated.

Where.

m-- sample and wire in the air mass in grams (g);

m1-- sample and the quality of the wire in the water, in grams (g);

m2-- wire in the air mass in grams (g);

rho25-- relative density of water at 25 °C when.

The absolute difference between two parallel determinations should be less than 0.005, the arithmetic mean value for the report.

Appendix B

Rosin ester and hydrogenated rosin ester IR spectrum B.1 Rosin infrared spectrum is shown in Figure B.1.

Figure B.1 Rosin infrared spectra

B.2 HYDROGENATED infrared spectrum is shown in Figure B.2.

Figure B.2 HYDROGENATED infrared spectrum