

CCS X 40



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

GB 1886.84-2015

**National Food Safety Standard -- Food Additives -- Brazil palm
wax**

食品安全国家标准 食品添加剂 巴西棕榈蜡

(English Translation)

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1 Scope

This standard applies to carnauba wax (*Coperniciacerifera*) leaves and buds as raw material, purified extract prepared food additives Agent carnauba wax.

2 Molecular formula and relative molecular mass

Formula 2.1

C₇H₅HgNO₃

2.2 Relative molecular mass

351.70 (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 Light yellow to light brown color Waxy solid state hard brittle nature Take the right amount of sample is placed in a clean, dry white porcelain dish, self Under natural light, observe the color and 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

Item Index Test Method Acid value (in dollars KOH)/(mg/g) 2 ~ 7 Appendix A A.3 Saponification value (in dollars KOH)/(mg/g) 78 ~ 95 in Appendix A A.4 Ester value (KOH meter)/(mg/g) 71 ~ 93 acid value obtained by subtracting the saponification value Residue

on ignition, w /% ≤ 0.25 Appendix A A.5 Unsaponifiables, w /% 50 ~ 55 in Appendix A A.6 Lead (Pb)/(mg/kg) ≤ 2.0 GB 5009.12 Appendix A Testing method A.1 General Provisions this standard reagents and water in the absence of other specified requirements, refer to the three water analytical reagent and GB/T 6682 regulations. test Used in the standard solution, standard solution for measuring impurities, formulations and products, did not indicate when the other requirements according to GB/T 601, GB/T 602, GB/T 603 provisions of preparation. 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 Insoluble in water, slightly soluble in boiling ethanol, ethyl ether.

A.2.2 melting range

80 °C ~ 86 °C.

A.3 acid value (in dollars KOH) Determination A.3.1 Reagents and materials A.3.1.1 sodium hydroxide standard titration solution. c_1 (NaOH) = 0.1mol/L.

A.3.1.2 phenolphthalein indicator solution. 10g/L.

A.3.2 Analysis step

Weigh about 10g sample, accurate to 0.0002g, dissolved beforehand titrated with sodium hydroxide solution and standard (phenolphthalein indicator solution indicates A) of 50mL neutral ethanol. If it is not completely dissolved, slowly heated to reflux to completely dissolve. Plus phenolphthalein indicator solution 1mL, titrated to a standard titration with sodium hydroxide solution, the solution was pink, and shaken 10s does not fade.

A.3.3 Calculation Results Acid value (in dollars KOH) w_1 , in milligrams per gram (mg/g), according to formula (A.1) Calculated.

$V_1 \times c_1 \times M_1$

Where.

V_1 --- sodium hydroxide standard titration solution (A.3.1.1) volume in milliliters (mL);

c_1 --- sodium hydroxide standard titration solution, expressed in moles per liter (mol/L);

--- M_1 molar mass of potassium hydroxide in grams per mole (g/mol), ($M = 56.109$);

m_1 --- sample mass, in grams (g).

A.4 saponification value (KOH meter) measurement A.4.1 Reagents and materials A.4.1.1 ethanol.

A.4.1.2 ethanolic potassium hydroxide. 40g/L.

A.4.1.3 hydrochloric acid standard titration solution. c_2 (HCl) = 0.5mol/L.

A.4.1.4 phenolphthalein indicator solution. 10g/L.

A.4.2 Instruments and Equipment Air condenser. length greater than 65cm.

A.4.3 Analysis step

Weighed amount of sample, accurate to 0.0001g, placed in 250mL grinding mouth Erlenmeyer flask, added in an amount generally based on a sample by sample after the saponification Need 0.5mol/L hydrochloric acid standard titrant volume accounted for about 45% to 50% still appropriate. Potassium hydroxide was added 50mL $\pm$ 0.02mL Ethanol solution, connecting the air condenser, heated to reflux for 1h, coolish rinsed with 10mL ethanol condenser, remove the Erlenmeyer flask, add 5 drops Phenolphthalein indicator solution, titration solution was titrated with standard hydrochloric acid solution to red just disappeared, the test solution was heated to boiling. If there is pink, continue to drop Given to the red disappear shall end.

Measured at the same time, with the same amount of potassium hydroxide in ethanol blank test.

A.4.4 Calculation Results Saponification value (in dollars KOH) w_2 , in milligrams per gram (mg/g), according to equation (A.2) Calculated.

$$(V_0 - V_2) \times c_2 \times M_2$$

Where.

V_0 --- blank test volume of consumption hydrochloric acid standard titration solution, in milliliters (mL);

V_2 --- sample volume of consumption hydrochloric acid standard titration solution (A.4.1.3), expressed in milliliters (mL);

c_2 --- hydrochloric acid standard titration solution concentration, in units of moles per liter (mol/L);

The M_2 --- molar mass of potassium hydroxide in grams per mole (g/mol), ($M = 56.109$);

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

A.5 Determination of residue on ignition A.5.1 Reagents and materials Sulfuric acid solution. 6 -> 100.

A.5.2 Instruments and Equipment A platinum crucible or a porcelain crucible. 50mL ~ 100mL.

A.5.3 Analysis step

Weigh about 2g samples, accurate to 0.001g, placed constant weight porcelain crucible or platinum crucible. Electric heating plate heated slowly to play Send to no pungent smell released. 10mL sulfuric acid solution was added to wet the entire sample was slowly heated

to sulfuric acid Yat do. Placed in a high temperature furnace, at $800\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ burning 15min or more, into the dryer to cool and weigh.

A.6 Determination of unsaponifiable matter A.6.1 Reagents and materials A.6.1.1 petroleum ether.

A.6.1.2 neutral ethanol. Add a few drops of phenolphthalein indicator solution in an amount of warm ethanol, began with sodium hydroxide solution and micro Lawrence Pink.

A.6.1.3 sodium hydroxide standard titration solution. $c(\text{NaOH}) = 0.02\text{mol/L}$.

A.6.2 Instruments and Equipment A.6.2.1 vacuum drying oven.

A.6.2.2 stoppered cylinder. Fields marked with 40mL, 80mL and 130mL scale, height of about 30cm, diameter 3.5cm.

A.6.3 Analysis step

Weigh 5.0g sample, accurate to 0.0002g, set 250mL flask joined by 2g of potassium hydroxide and 40mL of ethanol Solution, fitted with a reflux condenser, carefully boiled under reflux for 1h, up to complete saponification.

The contents of the flask was transferred to a graduated cylinder, with a certain amount of ethanol washing flask so that the cylinder capacity of 40mL. Then boiled and cooled the flask was washed with water after the lotion into the cylinder, and added to the total capacity of 80mL. With petroleum ether several ml beaker carefully washed, the washings added Into the cylinder, the cylinder was cooled to room temperature and the contents, together with petroleum ether to 130mL. Gasser, strong shaking cylinder 1min more rested after it should be divided into transparent layers. The upper layer is transferred to petroleum ether as completely as possible 500mL separating funnel. Another six extracted with petroleum ether as above Above, each time with petroleum ether and 50mL were characterized by strong shaking. All extracts were concentrated, each with 10% ethanol and washed with 25mL of petroleum ether, Until the eluate is neutral to phenolphthalein, discard the washing liquid, petroleum ether extract was placed in a beaker of known weight, with oil 10mL Ether leaching separating funnel, lotion incorporated into the beaker.

The beaker of petroleum ether extract was evaporated to dryness on a steam bath at $75\text{ }^{\circ}\text{C} \sim 80\text{ }^{\circ}\text{C}$, 26664Pa (200mmHg) Vacuum Dried to a constant mass, or dried 30min at $100\text{ }^{\circ}\text{C}$. Desiccator to cool and weigh, as unsaponifiable matter uncalibrated value.

The evaporation residue was dissolved in 50mL of warm neutral ethanol phenolphthalein indicator, titrated with sodium hydroxide standard titration solution. Compute the amount of fatty acid (oleic acid basis). Per mL $c(\text{NaOH}) = 0.02\text{ mol/L}$ sodium hydroxide is equivalent fatty acid (oleic acid Meter) 5.659mg.

A.6.4 Calculation Results Subtracting the amount of unsaponifiables never calibrated amount of fatty acid, is the amount of unsaponifiable matter.