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

GB 1886.116-2015

**National Food Safety Standard -- Food Additives -- Xylitol
monostearate**

食品安全国家标准 食品添加剂 木糖醇酐单硬脂酸酯

(English Translation)

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1 Scope

This standard applies to xylitol or xylitol mother liquor by the reaction of stearic acid and food additives made of xylitol monostearate.

2 Molecular formula, relative molecular mass and structural formula

Formula 2.1

C₂₃H₄₄O₅

2.3 Relative molecular mass

400.59 (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 light yellow or brown Waxy solid state Take the right amount of sample is placed within the white porcelain plate, under natural light, Views its color and state police

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) ≤ 10.0 Appendix A A.3
Saponification value (in dollars KOH)/(mg/g) 140 ~ 160 Appendix A A.4 A hydroxyl value

(KOH meter)/(mg/g) 210 ~ 250 Appendix A A.5 Heavy metals (Pb)/(mg/kg) ≤ 10.0 GB 5009.74 Arsenic (As)/(mg/kg) ≤ 2.0 GB 5009.76 Nickel (Ni)/(mg/kg) ≤ 3.0 GB 5009.138 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.

Used in the test standard titration solution, measured impurity standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, the provisions of GB/T 602 and 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 Reagents and materials A.2.1.1 ethanol.

A.2.1.2 sulfuric acid solution. 1mol/L.

A.2.1.3 catechol solution. 10%.

A.2.2 Analysis step

Take this product 0.5g in a test tube, add 5mL ethanol, heating dissolved, 1mol/L sulfuric acid solution 5mL, placed in a water bath on heating 30min, after cooling oil droplets or solid precipitated, this was separated oil droplets or solid, to which was added diethyl ether 5mL, shaking mixing to dissolution.

Take been isolated droplets or solid residue 2mL, adding catechol solution 2mL freshly shaken, when mixed with sulfuric acid 5mL, shaking when mixed reddish to reddish brown.

A.3 acid value (in dollars KOH) Determination A.3.1 Method summary the acid value is the number of milligrams of sample required for neutralizing 1g of potassium hydroxide.

A.3.2 Reagents and materials A.3.2.1 Potassium hydroxide standard titration solution. $c(\text{KOH}) = 0.05\text{mol/L}$.

A.3.2.2 phenolphthalein indicator solution. 10g/L.

A.3.2.3 ethanol.

A.3.3 Analysis step

Weigh the sample 0.5g (accurate to 0.01g), placed in 100mL conical flask, adding ethanol 25mL, add 2 drops of phenolphthalein indicator solution, Standard titration with potassium hydroxide solution to titrate until the red, while the blank test.

A.3.4 Calculation Results Acid value (in dollars KOH) w_1 , in milligrams per gram (mg/g), according to formula (A.1) calculations.

$(V_0 - V_1) \times c_1 \times M$

Where.

Sample volume V_0 --- consume potassium hydroxide standard titration solution, in milliliters (mL);

V_1 --- blank test consumption volume of potassium hydroxide standard titration solution, in milliliters (mL);

C_1 --- concentration of potassium hydroxide standard titration solution, expressed in moles per liter (mol/L);

--- The M molar mass of potassium hydroxide in grams per mole (g/mol), [$M(\text{KOH}) = 56.10$];

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

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

A.4 saponification value (KOH meter) measurement A.4.1 Method summary Saponification value is the number of milligrams of sample required for saponification 1g of potassium hydroxide.

A.4.2 Reagents and materials A.4.2.1 KOH - ethanol solution. 0.5mol/L.

A.4.2.2 hydrochloric acid standard titration solution. $c(\text{HCl}) = 0.5\text{mol/L}$.

A.4.2.3 phenolphthalein indicator solution. 1%.

A.4.3 Analysis step

1.500 g of sample was weighed out, placed in 250mL Erlenmeyer flask equipped with a reflux condenser, was added with a pipette KOH - ethanol solution 25mL, installed reflux condenser, placed in a water bath of 80 deg.] C, refluxed for 30min, heating was stopped, from the condenser is added anhydrous ethanol catch 20mL, remove the Erlenmeyer flask, add 2 drops of phenolphthalein indicator solution, titration with hydrochloric acid standard solution titration to pink just faded so far. While doing Blank test, record the number of milliliters of standard solution of hydrochloric acid consumed.

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

$(V_2 - V_3) \times c_2 \times M$

Where.

Volume V_2 --- blank consumption hydrochloric acid standard titration solution, in milliliters (mL);

V_3 --- sample consumption hydrochloric acid standard titrant volume in milliliters (mL);

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

--- The M molar mass of potassium hydroxide in grams per mole (g/mol), [M (KOH) = 56.10];

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

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

A.5 hydroxyl value (KOH meter) measurement A.5.1 Method summary the hydroxyl value refers to the time required for acetylation 1g sample of acid equivalent to the number of milligrams of potassium hydroxide.

A.5.2 Reagents and materials A.5.2.1 acetic anhydride - pyridine solution. 15.

A.5.2.2 Potassium hydroxide standard titration solution. c (KOH) = 0.5mol/L.

A.5.2.3 phenolphthalein indicator solution. 1%.

A.5.3 Analysis step

Accurate sampling 1g ~ 2g, set conical flask with a reflux condenser, with a pipette accurately added acetic anhydride - pyridine solution 5mL, set Water bath at 90 °C ~ 100 °C and refluxed 60min, 20mL with distilled water from condenser catchy added, removed after cooling, add phenolphthalein indicator 3 drops of potassium hydroxide standard titration solution was titrated to pink up, while doing the blank test.

A.5.4 Calculation Results Hydroxyl value (KOH dollars) w_3 , in milligrams per gram (mg/g), according to equation (A.3) Calculated.

$(V_4 - V_5) \times c_3 \times M$

Where.

V_4 --- blank consumption volume of potassium hydroxide standard titration solution, in milliliters (mL);

Volume V_5 --- sample consumption of potassium hydroxide standard titration solution, in milliliters (mL);

C_3 --- concentration of potassium hydroxide standard titration solution, expressed in moles per liter (mol/L);

--- The M molar mass of potassium hydroxide in grams per mole (g/mol), [M (KOH) = 56.10];

m_3 --- sample mass, in grams (g).

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