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

GB 13482-2011

Replacing GB 13482-2010

**National food safety standards of food additives sorbitan
monooleate (Span 80)
(English Translation)**

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Foreword

This standard replaces GB 13482-2010 "national food safety standards for food additives sorbitan monooleate (Span 80)." this standard compared with GB 13482-2010 main changes are as follows.

- Changes A.4.3.2 "acidification, extraction and separation," the analysis step.

This standard replaces the standards previously issued as follows.

--GB 13482-1992;

--GB 13482-2010.

National Food Safety Standard Food additives sorbitan monooleate (Span 80)

1 Scope

This standard applies to oleic acid and sorbitan as raw material, obtained by esterification of food additives sorbitan monooleate (Division Plate 80).

2 Technical Requirements

2.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

Project requires test methods Color amber to brown take appropriate laboratory samples in a clean, dry glass tube, in natural light, visually observed. Organizational traits viscous oily liquid

2.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Fatty acids, w /% 73 ~ 77 in Appendix A A.4 Polyols, w /% 28 ~ 32

in Appendix A A.5 Acid value (in dollars KOH)/(mg/g) ≤ 8 Appendix A A.6 Saponification value (in dollars KOH)/(mg/g) 145 ~ 160 Appendix A A.7 Hydroxyl value (KOH meter)/(mg/g) 193 ~ 210 Appendix A A.8 Water, w /% ≤ 2.0 A.9 in Appendix A Arsenic (As)/(mg/kg) ≤ 3 Appendix A A.10 Lead (Pb)/(mg/kg) ≤ 2 Appendix A A.11 Appendix A Testing method A.1 Warning Some test procedures prescribed test method can lead to dangerous situations. The operator shall take appropriate safety and health practices.

A.2 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.

A.3 Identification Test A.3.1 Determination of iodine value of fatty acids A.3.1.1 Reagents and materials A.3.1.1.1 carbon tetrachloride.

A.3.1.1.2 potassium iodide solution. 100g/L.

A.3.1.1.3 Webster solution. preparation methods, see Appendix B.

A.3.1.1.4 sodium thiosulfate standard titration solution. $c(\text{Na}_2\text{S}_2\text{O}_3) = 0.1\text{mol/L}$.

A.3.1.1.5 starch indicator solution. 10g/L.

A.3.1.2 discrimination step Weigh in about 0.27g A.4.3.2 goo D, accurate to 0.000 1g, in a dry 500mL iodometric flask, 10mL CTC dissolved. Webster was added 25mL $\pm 0.02\text{mL}$, stoppered bottle, with potassium iodide solution and sealed in a dark 30min. Join Potassium iodide solution 15mL and 100mL water, titrated to a solution of sodium thiosulfate standard titration pale yellow solution is added 1mL starch means Shows fluid, shaking vigorously continue titration to the disappearance of the blue just is the end.

Measured at the same time, according to the same procedure and the determination of the sample without using the same amount of reagent blank test solution.

A.3.1.3 Calculation Results Fatty acids Iodine value w_1 , iodine and its value in grams per hundred grams (g/100g) said, according to the formula (A.1) Calculated.

$(\text{g}/1000)$

$VV \text{ cM}$

Where.

Numerical V_0 -- blank consumption of sodium thiosulfate standard titration solution (A.3.1.1.4) volume in milliliters (mL);

V -- sample consumption levels of sodium thiosulfate standard titration solution (A.3.1.1.4) volume in milliliters (mL);

Accurate c -- sodium thiosulfate standard titration solution concentration value in units of moles per liter (mol/L);

m -- sample mass value in grams (g);

M -- numerical molar mass of iodine in grams per mole (g/mol) [$M = 126.9$].

The arithmetic average of the results of two parallel determination for reporting results. Two parallel determination results of absolute difference is not more than 0.5 (G/100g) (iodine count).

A.3.1.4 result of the judgment Fatty acid iodine value should be 80 (g/100g) ~ 135 (g/100g) (iodine count).

A.3.2 polyols color test Take about 2g A.5.2 of goo E, added 2mL catechol solution (100g/L) (using now), mix, plus 5mL sulfur Sour mix, should be significantly red or reddish-brown.

A.4 Determination of Fatty Acids A.4.1 Method summary Samples by saponification hydrolysis, after acidification resulting fatty acids and polyols, isolated and concentrated and dried by repeated extraction to give back Received quality of fatty acids, fatty acid weighed to calculate the mass fraction.

A.4.2 Reagents and materials A.4.2.1 potassium hydroxide.

A.4.2.2 ethanol (95%).

A.4.2.3 petroleum ether.

A.4.2.4 sulfuric acid solution. 12.

A.4.3 Analysis step

A.4.3.1 saponification. Weigh about 25g laboratory samples, accurate to 0.01g. Placed in 500mL flask, 250mL of ethanol (95%) and 7.5g of potassium hydroxide. Connected to the condenser, water bath heated at reflux for 2h. The saponification was transferred to 800mL beaker, with about 200mL the flask was washed with water and transferred to the beaker. The beaker was placed in a water bath until the evaporation of volatile ethanol Yat do. Regulating body with hot water solution Volume to about 250mL, the solution A.

A.4.3.2 acidification, extraction separation. adding sulfuric acid solution to the solution A under heating with stirring to precipitate coagulum, and then added an excess of about 10% sulfuric acid solution, it was heated with stirring to precipitate an oil. This mixture was transferred to 500mL separating funnel rested stratification. The lower layer the second solution was transferred to a separatory funnel 500mL, 100mL three times with petroleum ether extraction, standing stratification. Lower solution B was transferred to 800mL Beaker; petroleum ether extracts were combined with the oil in the first upper 500mL separatory funnel, washed 3 times with 100mL of water. The lower aqueous the combined washings and solution B is a solution C, reserved for determination of the content of the polyol used;

Transfer the upper petroleum ether were combined in another 800mL beaker, Placed on a water bath and concentrated to about 100mL, and then moved to pre-evaporated to viscous at 80 °C constant quality 250mL beaker, dry at 80 °C Dry to constant mass to give D as a viscous mass recovered fatty acids. After weighing dope D as the determination of the iodine value of the fatty acid.

A.4.4 Calculation Results Fatty mass fraction w_2 , expressed in%, according to equation (A.2) Calculated.

twenty one

Where.

m_1 --250mL beaker quality value in units of grams (g);

Numerical m_2 --250mL beaker plus goo D mass in grams (g);

m -- sample mass value in grams (g).

The arithmetic average of the results of two parallel determination for reporting results. Two parallel determination results of absolute difference is not more than 1%.

Determination A.5 polyol A.5.1 Reagents and materials A.5.1.1 ethanol.

A.5.1.2 potassium hydroxide solution. 100g/L.

A.5.2 Analysis step

With potassium hydroxide solution and the solution obtained A.4.3.2 C to pH 7 (using pH paper test). The solution was placed in a water bath Evaporated to a white crystalline precipitate. Then 4 times with 150mL hot ethanol extraction residue of the polyol, and the combined extracts were washed with G4 glass filter funnel, washed with absolute ethanol. The filtrate was transferred to another 800mL beaker, placed in a water bath concentrated to about 100mL.

Transferred again to advance at 80 °C constant quality 250mL beaker, and evaporation was continued until viscous. At 80 °C dried to constant mass to give E as the goo quality recycled polyols. After weighing goo E polyol used color test.

A.5.3 Calculation Results Polyol mass fraction w_3 , expressed in%, according to equation (A.3) Calculated.

twenty one

Where.

m_1 --250mL beaker mass in grams (g);

Quality m_2 --250mL beaker plus goo E, expressed in grams (g);

m - A.4.4 The sample mass value in grams (g).