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

GB 4481.2-2010

Replacing GB 4481.2-1999

**National food safety standards of food additives tartrazine
aluminum lake
(English Translation)**

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Foreword

This standard replaces GB 4481.2-1999 "food additive tartrazine aluminum lake." this standard compared with GB 4481.2-1999, the main technical changes are as follows.

- Added safety tips;
- Modify the discrimination test methods;
- Colorimetric method replicates allowable difference from 2% revised to 1.0%;
- Canceled Chloride (NaCl) and sulfate (Na₂SO₄ to count) index;
- Arsenic (As) is modified by chemical detection methods limit law atomic absorption spectrometry;
- Cancel the heavy metals (as Pb) quality specifications;
- Increase the lead (Pb) indicator and detection methods;
- Barium (Ba) detection method to modify the barium sulfate precipitation assay limits.

The Standard Annexes A and B are normative appendix.

This standard replaces the standards previously issued as follows.

--GB 4481.2-1999.

National Food Safety Standard Food additive tartrazine aluminum lake

1 Scope

This standard applies to food additives produced by the effect of aluminum hydroxide and lemon food additive tartrazine aluminum lake.

2 Normative references

The standard file referenced in the application of this standard is essential. For cited documents with dates, only the date of Version applies to this standard. For undated references, the latest edition (including any amendments) applies to this standard.

3 Formula and relative molecular mass

Formula 3.1

$C_{16}H_9N_4Na_3O_9S_2$

3.2 Relative molecular mass

534.36 (according to 2007 international relative atomic mass)

4 Technical Requirements

4.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

Project requires test methods Yellow color by visual assessment of natural light.

Organization Status powder

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Tartrazine (sodium salt dollars), w /% ≥ 10.0 Appendix A A.4 Loss on drying, w /% ≤ 30.0 Appendix A A.5 Hydrochloric acid and ammonia water insolubles, w /% ≤ 0.5 A.6 in Appendix A Deputy dye, w /% ≤ 0.5 Appendix A A.7 Arsenic (As)/(mg/kg) ≤ 3.0 Appendix A A.8 Lead (Pb)/(mg/kg) ≤ 10.0 A.9 in Appendix A Barium (Ba), w /% ≤ 0.05 Appendix A A.10 Appendix A (Normative) Testing method A.1 Safety Tips Reagents The standard test methods used for toxic or corrosive, according to the relevant provisions of the operation, the operation need to be careful.

If splashed on the skin should immediately wash with water, severe cases should be treated immediately. When using a volatile acid, to be carried out in a fume hood.

A.2 General Provisions this standard reagents and water, did not indicate when the other requirements, refer to three analytical reagent and GB/T 6682-2008 specified water. Standard test solution required impurity standard solution, preparations and products at the time did not indicate other provisions, according to GB/T 601, GB/T 602, GB/T 603

regulations formulated and calibration.

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 sulfuric acid.

A.3.1.2 sulfuric acid solution. 120.

A.3.1.3 hydrochloric acid solution. 13.

A.3.1.4 sodium hydroxide solution. 100g/L.

A.3.1.5 ammonium acetate solution. 1.5g/L.

A.3.1.6 activated carbon.

A.3.2 Instruments and Equipment A.3.2.1 Spectrophotometer.

A.3.2.2 cuvette. 10mm.

A.3.3 Identification method it should meet the following conditions.

A.3.3.1 weighed sample of about 0.1g, add 5mL of sulfuric acid, at 50 °C ~ 60 °C water bath shaken from time to time, heated for about 5min, the solution was yellow. After cooling, the supernatant take 2 to 3 drops of drops, add 5mL water, the solution was yellow.

A.3.3.2 weighed sample of about 0.1g, add 5mL sulfuric acid solution, heated and dissolved in a water bath, after the full mix, add up to 1 ammonium acetate solution 00mL, centrifugation the solution is not clarified. Then take this solution 1mL ~ 10mL, plus ammonium acetate solution equipped to 100mL, the measurement of the suction Luminosity values within the range of 0.2 to 0.7, a maximum absorption wavelength of this solution was 428 nm ± 2nm.

A.3.3.3 weighed sample of about 0.1g, was added 10mL hydrochloric acid solution, heated in a water bath, so that most of the dissolved. Add 0.5g of activated carbon, Shake well, cooled and filtered. Take a colorless filtrate, add sodium hydroxide solution and after rendering aluminum reaction.

A.4 Determination of lemon yellow aluminum lake A.4.1 Titanium trichloride titration

(Arbitration Act) A.4.1.1 Method summary in acidic medium, tartrazine aluminum lake dye dissolve transitions into which the azo group is reduced and decomposed titanium trichloride, titanium trichloride according to standard the consumption of titration solution, calculate its content.

A.4.1.2 Reagents and materials A.4.1.2.1 sodium bitartrate.

A.4.1.2.2 titanium trichloride standard titration solution. $c(\text{TiCl}_3) = 0.1\text{mol/L}$ (now with the existing, method of preparation see Appendix B).

A.4.1.2.3 cylinders loaded carbon dioxide.

A.4.1.3 instruments and equipment A-- conical flask (a 500 mL);

B-- Brown burette (50mL);

C-- under glass bottle package black paper (2000mL);

D-- containing 100g/L solution of ammonium carbonate and 100g/L ferrous sulfate solution container of an equivalent mixture (5000mL);

E-- piston;

F-- bottles;

G-- washing bottle filled with water.

Figure A.1 apparatus of FIG titanium trichloride titration

A.4.1.4 analysis step Weigh about 1.0g sample (accurate to 0.0001g), placed in 500mL conical flask, 30g of sodium hydrogen tartrate and 200mL boiling Water, shake vigorously to dissolve, according to Figure A .1 instrument installed at the same time the level of carbon dioxide fed with titanium trichloride standard titration solution Droplet making natural color disappears as the end point.

A.4.1.5 Calculation Results Lemon yellow aluminum lake (sodium salt meter) mass fraction 1w its value is expressed in%, according to formula (A.1) Calculated.

0) 4 /) (1000/(

MVcw (A.1)

Where.

c - accurate titanium trichloride standard titration solution concentration value in units of moles per liter (mol/L);

V - accurate value of the sample consumed titration of titanium trichloride standard titration solution volume in milliliters (mL);

M - molar mass values tartrazine aluminum lake, in units of grams per mole (g/mol) [M (C₁₆H₉N₄Na₃O₉S₂) = 534.36];

m₁ - mass value of the sample in grams (g).

The results represent a decimal.

The absolute difference between the parallel determination results is not more than 1.0% (mass fraction), the arithmetic mean value as a measurement result.

A.4.2 Colorimetric method A.4.2.1 Method summary the samples with known content in lemon yellow standards were dissolved in water or in an aqueous medium, diluted to volume with ammonium acetate solution, in the maximum absorption wavelength, absorbance values were measured to calculate its content.