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

GB 4481-1984

Replacing GB 4481.1-1999

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

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Foreword

This standard replaces GB 4481.1-1999 "food additive tartrazine." this standard compared with GB 4481.1-1999, the main changes are as follows.

- Added safety tips;
- Canceled $\geq 60.0\%$ quality specifications, will modify the index $\geq 85.0\%$ $\geq 87.0\%$;
- Loss on drying, chloride and sulfate aggregates by the $\leq 15.0\%$ revised to $\leq 13.0\%$, and revised the detection method;
- Water insoluble $\leq 0.30\%$ by the index revised to $\leq 0.20\%$;
- Modify the discrimination test methods;
- Colorimetric method allows parallel determination by the difference revised to $\leq 2.0\%$ $\leq 1.0\%$;
- Added unsulfonated primary aromatic amine (aniline meter) indicators and detection methods;
- Increases sulfanilic acid, 1- (4'-sulfonic acid) -3-carboxy-5-pyrazolone disodium salt, 1- (4-phenyl sulfonate) 3-carboxylic acid methyl (ethyl) ester-5-pyrazolone sodium salt, 4,4 '- (imino diazo) and other diphenyl sulfonate disodium salt of unreacted Intermediate and indicators and detection methods byproducts;
- Arsenic (As) is modified by chemical detection methods limit law atomic absorption spectrometry;
- Cancel the heavy metals (Pb) quality specifications;
- Increase the lead (Pb) indicator and detection methods;
- An increase of mercury (Hg) indicators and detection methods.

The Standard Appendix A, Appendix B and Appendix C are normative appendices, Appendix D is an informative annex.

This standard replaces the standards previously issued as follows.

--GB 4481.1-1984, GB 4481.1-1999.

National Food Safety Standard Food Additives Tartrazine

1 Scope

This standard applies to the rear of the amino acid diazotization with 1- (4'-sulfonic acid phenyl) -3-carboxy-methyl (ethyl) ester -5- pyrazolone coupling After hydrolysis or by the merger of the amino acid diazotization with 1- (4'-sulfonic acid) -3-carboxy-5-pyrazolone coupling in the system of food additives Additives tartrazine.

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 Chemical name, structural formula, molecular formula, relative molecular mass

3.1

Chemical Name.

1- (4'-sulfonate-phenyl) -3-carboxy-4- (4'-sulfophenylazo) -5-pyrazolone trisodium salt

3.2

Structure.

N = NNaO3S

COONa

SO3Na

Formula 3.3

C16H9N4Na3O9S2

3.4 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 Color orange or bright orange by visual assessment under natural light.

State organization powders or granules

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Lemon yellow, w /% ≥ 87.0 Appendix A A.4 Loss on drying, chloride (based on NaCl) and sulfate (NaSO_4 in dollars) of the total, w /% ≤ 13.0 Appendix A A.5 Water-insoluble, w /% ≤ 0.20 A.6 in Appendix A Amino benzene sulfonate, w /% ≤ 0.20 Appendix A A.7 1- (4'-sulfonic acid) -3-carboxy-5-pyrazolone disodium salt, w /% ≤ 0.20 Appendix A A.8 1- (4'-sulfonate-phenyl) -3-carboxylic acid, methyl (ethyl) ester-5-pyrazolone sodium salt, w /% ≤ 0.10 A.9 Appendix A 4,4 '- (diazo imino) two acid disodium salt, w /% ≤ 0.05 A.10 Appendix A Unsulfonated primary aromatic amine (aniline dollars), w /% ≤ 0.01 Appendix A A.11 Deputy dye, w /% ≤ 1.0 Appendix A A.12 Arsenic (AS)/(mg/kg) ≤ 1.0 Appendix A A.13 Lead (Pb)/(mg/kg) ≤ 10.0 Appendix A A.14 Mercury (Hg)/(mg/kg) ≤ 1.0 A.15 Appendix A 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 ammonium acetate solution. 1.5g/L.

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 Weigh about 0.1g sample (accurate to 0.01g), was dissolved in 100mL of water was yellow clear solution.

A.3.3.2 Weigh about 0.1g sample (accurate to 0.01g), sulfuric acid 10mL was yellow after, take this solution 2 drops to 3 drops of water was added 5mL yellow.

A.3.3.3 Weigh about 0.1g sample (accurate to 0.01g), was dissolved in 100mL ammonium acetate solution of this solution 1mL, plus ammonium acetate solution Liquid distribution to 100mL, the maximum absorption wavelength of the solution was $428 \text{ nm} \pm 2\text{nm}$.

A.4 Determination of lemon A.4.1 Titanium trichloride titration (Arbitration Act) A.4.1.1 Method summary in acidic medium, lemon yellow azo group is reductive decomposition of titanium trichloride, titanium trichloride consumption according to standard titration solution, Calculate the 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 0.5g sample (accurate to 0.0001g), placed in 500mL Erlenmeyer flask was dissolved in 50mL boiling water and cooled to room temperature Added 15g sodium hydrogen tartrate and 150mL boiling water, after shaking dissolved, according to Figure A.1 installed equipment, with carbon dioxide in the subsurface While boiled with titanium trichloride standard titration solution titration end point so that the inherent color disappeared.

A.4.1.5 Calculation Results Lemon mass fraction 1w its value is expressed in%, according to formula (A.1) Calculated.