



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

GB 1886.223-2016

**National food safety standard - Food additives - Seduction Red
Aluminum Lake**

食品安全国家标准 食品添加剂 诱惑红铝色淀

(English Translation)

Issued on: August 31, 2016

Implemented on: January 1, 2017

Issued by: Health and Family Planning Commission of PRC

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1 Scope

This standard is applicable to the food additive - seduction red aluminum lake, which is prepared by lake-forming the food additives seduction red and aluminum salt, as raw materials.

2.1 Chemical name

Aluminum lake of 6-hydroxy-5-[(2-methoxy-5-methyl-4-sulfobenzene) azo]-2-naphthalenesulfonic acid disodium salt

2.2 Relative molecular mass

496.42 (in terms of seduction red) (according to 2013 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall meet the requirements of Table 1.

Table 1 -- Sensory requirements

3.2 Physical and chemical indicators

The physical and chemical indicators shall meet the requirements of Table 2.

Appendix A

Testing method

A.1 Safety tips

Some reagents, which are used in the test methods of this standard, are toxic or corrosive; therefore, appropriate safety and protective measures shall be taken during operation.

A.2 General provisions

The reagents and water, which are used in this standard, refer to analytical pure reagents and the grade-3 water, which is specified in GB/T 6682, unless otherwise specified. The standard solutions used in the test, standard solutions for impurity determination, preparations and products, are prepared in accordance with GB/T 601, GB/T 602, GB/T 603, unless otherwise specified.

The solution, which is used in the test, refers to an aqueous solution, when it is not specified which solvent is used to prepare it.

A.3.1 Reagents and materials

A.3.1.1 Sulfuric acid solution: 1+20.

A.3.1.2 Hydrochloric acid solution: 1+4.

A.3.1.3 Sodium hydroxide solution: 100 g/L.

A.3.1.4 Ammonium acetate solution: 1.5 g/L.

A.3.1.5 Activated carbon.

A.3.2 Instruments and equipment

A.3.2.1 Spectrophotometer.

A.3.2.2 Cuvette: 10 mm.

A.3.3.1 Color reaction

Weigh about 0.1 g of specimen. Add 5 mL of sulfuric acid solution. Shake continuously in a water bath. Heat for about 5 min. The solution turns red. After cooling, take 2 ~ 3 drops of the upper clear liquid. ADD 5 mL of water, which is still red.

A.3.3.2 Aluminum salt reaction

Weigh about 0.1 g of specimen. Add 5 mL of hydrochloric acid solution. Heat it in a water bath, to dissolve most of it. Add 0.5 g of activated carbon. Shake well.

Filter it after cooling. Take the colorless filtrate. Add sodium hydroxide solution to neutralize it, which shows aluminum salt reaction.

A.3.3.3 Maximum absorption wavelength

Weigh about 0.1 g of the specimen. Add 5 mL of sulfuric acid solution. Heat to dissolve in a water bath. Stir thoroughly. Add ammonium acetate solution to make up to 100 mL. Perform centrifugal separation, when the solution is not clear. Then take 1 mL ~ 5 mL of this

solution. Add ammonium acetate solution, to make up to 100 mL. Make the measured absorbance in the range of 0.3 ~

0.7. The maximum absorption wavelength of the solution is 497 nm ~ 501 nm.

A.4.1.1 Method summary

In acidic medium, seduction red is reduced and decomposed by titanium trichloride; its content is calculated according to the consumption of titanium trichloride standard titration solution.

A.4.1.2 Reagents and materials

A.4.1.2.1 Sodium hydrogen tartrate.

A.4.1.2.2 Titanium trichloride standard titration solution: $c(\text{TiCl}_3) = 0.1 \text{ mol/L}$ (prepared before use, see Appendix B for the preparation method).

A.4.1.2.3 Sulfuric acid solution: 1+20.

A.4.1.2.4 Carbon dioxide: Content $\geq 99\%$.

A.4.1.3 Instruments and equipment

The device diagram of the titanium trichloride titration method is as shown in

Figure A.1.

consumed by titrating the specimen, in milliliters (mL);

c - The concentration of titanium trichloride standard titration solution, in moles per liter (mol/L);

M - The molar mass of seduction red, in grams per mole (g/mol) [$M(\text{C}_{18}\text{H}_{14}\text{N}_2\text{Na}_2\text{O}_8\text{S}_2) = 496.42$];

m - The mass of specimen, in grams (g);

1000 - Volume conversion factor;

4 - Mole conversion factor.

The test results are based on the arithmetic mean of the parallel determination results (keeping 1 decimal place). The absolute difference, between two independent determination results, which are obtained under repeatability conditions, is not more than 1.0% of the arithmetic mean.

A.4.2.1 Method summary

After dissolving the sample and the seduction red standard with known content in water, respectively, measure the absorbance at the maximum absorption wavelength; then calculate the content.

A.4.2.2 Reagents and materials

A.4.2.2.1 Ammonium acetate solution: 1.5 g/L.

A.4.2.2.2 Suction red standard product: Content $\geq 85.0\%$ (determined in accordance with A.4.1).

A.4.2.2.3 Sulfuric acid solution: 1+20.

A.4.2.3 Instruments and equipment

A.4.2.3.1 Spectrophotometer.

A.4.2.3.2 Cuvette: 10 mm.

A.4.2.4 Preparation of seduction red standard solution

Weigh about 0.5 g of seduction red standard product (accurate to 0.0001 g).

Dissolve it in an appropriate amount of water. Transfer it into a 1000 mL volumetric flask. Add water to dilute to the mark. Shake well. Accurately pipette

10 mL into a 500 mL volumetric flask. Add ammonium acetate solution to dilute to the mark. Shake well. Prepare for use (the absorbance value, at the

Appendix B

Preparation method of titanium trichloride standard titration solution

B.1 Reagents and materials

B.1.1 Hydrochloric acid.

B.1.2 Ferrous ammonium sulfate.

B.1.3 Ammonium thiocyanate solution: 200 g/L.

B.1.4 Sulfuric acid solution: 1+1.

B.1.5 Titanium trichloride solution.

B.1.6 Standard titration solution of potassium dichromate: