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CCS X 42



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

GB 14750-2010

Replacing GB 14750-1993

**National food safety standards -- Food additives -- Vitamin A
(English Translation)**

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Foreword

This standard replaces GB 14750-1993 "Food Additives Vitamin A".

This standard compared with GB 14750-1993, the main changes are as follows.

- Vitamin A by the labeled amount "not less than 95.0%" to "97.0% -103.0%";
- Increase the TLC project identification and test methods;
- Increase the lead indicators and test methods;
- Increased arsenic indicators and test methods;
- Increase the absorption coefficient than the target and test methods.

Appendix A of this standard is a normative appendix.

This standard replaces the standards previously issued as follows.

--GB 14750-1993.

National Food Safety Standard Vitamin A food additive

1 Scope

This standard applies to beta- ionone as a starting material, obtained by chemical synthesis of food additives vitamin A.

2 Normative references

The standard file referenced in the application of this standard is essential. For dated references, only the note Version Date apply to this standard. For undated references, the

latest edition (including all amendments) fitness for this standard.

3.1 Chemical Name

Trans-3,7-dimethyl-9- (2,6,6-trimethyl-1-cyclohexen-1) -2,4,6,8-nonyl acetate tetraene

Formula 3.2 C₂₂H₃₂O₂

3.3 Formula

CH₃

CH₃

CH₃

CH₂OCOCH₃

H₃C CH₃

3.4 Relative molecular mass

328.49 (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 Pale yellow color take appropriate sample is placed in a clean, dry test tube, in natural light the line, observe its color and texture, smell the smell. Odour rancid smell, almost odorless or has a slight smell of fish Tissue state in oil, frozen curable

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Vitamin A (C₂₂H₃₂O₂) of the labeled amount a, w /% 97.0 ~ 103.0 Appendix A A.4 Acid value (in dollars KOH) (mg/g) ≤ 2.0 A.5 in Appendix A Peroxide value test by test A.6 in Appendix A the absorption coefficient ratio ≥ 0.85 A Appendix A .7 Lead (Pb)/(mg/kg) ≤ 2 GB 5009.12 Arsenic (As)/(mg/kg) ≤ 2 GB/T 5009.76 a per 1g vitamin A 10 ~ 100 million units (equivalent per 1g of vitamin A 30 mg ~ 300mg) 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, I have the honor to be careful when operating Shen. If splashed on the skin should immediately wash with

water, severe cases should be treated immediately. When using a volatile acid is required in the hood get on.

A.2 General Provisions Unless otherwise indicated in the analysis using only recognized as analytical reagents and GB/T 6682-2008 stipulated three water.

Test standard titration solution used in the method of determination of impurities standard solution, preparations and products, not specified in other when requested, according to GB/T 601, GB/T 602, the provisions of the preparation of GB/T 603's.

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 chloroform.

A.3.1.2 antimony trichloride solution. 250g/L chloroform solution, if necessary, use should be filtered.

A.3.1.3 developing solvent. cyclohexane - ether (41).

A.3.1.4 antimony trichloride test solution. 200g/L chloroform solution. After use, if desired, be filtered.

A.3.2 coloring test

A.3.2.1 Method summary Antimony high vitamin A and an electrophilic reagent to form the unstable chlorination Jin Weng blue carbon ions.

A.3.2.2 analysis step Take 1 drop of laboratory samples, add chloroform 10mL, shake to dissolve; remove the 2 drops, plus 2mL chloroform, 0.5mL Antimony trichloride solution that was blue, gradually turns purple.

A.3.3 TLC

A.3.3.1 Method summary Laboratory sample solution shows the same main spots of the R value of the main spots of the reference solution and the vitamin A is displayed.

A.3.3.2 analysis step Weigh vitamin A reference laboratory samples and about 15000 IU placed 10mL volumetric flask, dissolved with chloroform Solution and diluted to the mark, then 0.01mL were spotted on silica gel TLC plate in developing solvent expand after started to dry.

Antimony trichloride test solution color, blue spots. The main spots of the reference solution and the solution was the main spots laboratory samples displayed Consistent location.

A.4 Determination of vitamin A A.4.1 Method summary Vitamin A molecule contains 5 conjugated double bonds, at a wavelength between 325nm ~ 328nm has a maximum absorption peak which most Position of the large absorption peak varies with the solvent, which can be used to determine the content. Law is at three wavelengths measured absorbance A correction value calculated based on the corrected absorbance formula, and then calculate the content.

A.4.2 Reagents and materials Cyclohexane.

A.4.3 Instruments and Equipment UV spectrophotometer.

A.4.4 Determination

A.4.4.1 analysis step Take the right amount of laboratory samples, accurate to 0.000 2 g, add cyclohexane dissolved and quantitatively diluted into 9 ~ 15 IU solution, press According vitamin A assay ("People's Republic of China Pharmacopoeia" 2005 edition two Appendix JVII vitamin A assays items Dir A method) absorption peak wavelength and wavelength listed in Table A.1 absorbance was measured. Calculate the absorbance and wavelength 328nm the ratio of absorbance at a wavelength of 328nm and at a 1 mE value.

Table A.1 vitamin A absorbance ratio at different wavelengths

wavelength

Absorbance ratio

300 0.555

316 0.907

328 1.000

340 0.811

360 0.299

A.4.4.2 Calculation Results If the absorption peak wavelength between 326nm ~ 329nm, and the absorbance measured at each wavelength ratio does not exceed the specified A.1 ± 0.02 value using equation (A.1) content is calculated.

1 mx E = (328nm) x 1900 (A.1) where.

x-- IU of Vitamin A per gram sample contains;

1cmE - percentage absorption coefficient.

If the absorption peak wavelength of 326nm ~ 329nm between, but each wavelength measured absorbance ratio exceeds Table A.1 Regulation ± 0.02 of the set value, shall formula (A.2) absorbance obtained after the correction, and then calculate the content.

A328 (corrected) = 3.52 (2A328-A316-A340) (A.2) where.

A328 (calibration) - absorbance at a wavelength of 328nm at after correction;

A328-- absorbance at a wavelength of 328nm at;

A316-- absorbance at a wavelength of 316nm at;

A340-- absorbance at 340nm wavelength.