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

**GB 14753-2010**

Replacing GB 14753-1993

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**National food safety standards -- Food additives -- Vitamin B6  
(hydrochloric acid, pyridoxine alcohol)  
(English Translation)**

**Issued on: December 21, 2010**

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### Foreword

This standard replaces GB 14753-1993 "Food additive vitamin B6".

This standard compared with GB 14753-1993, the main changes are as follows.

- Added Infrared Spectroscopy;
- Vitamin B6  $\geq 98.0\%$  by the index revised to  $98.0\% - 100.5\%$ ;
- Modify the method for the determination of heavy metals, indicators from the  $\leq 0.003\%$  revised to  $\leq 10\text{mg/kg}$ ;
- Added arsenic indicators and measurement methods.

The Standard Annexes A and B are normative appendix.

This standard replaces the standards previously issued as follows.

--GB 14753-1993

National Food Safety Standard Food additives Vitamin B6 (pyridoxine hydrochloride)

### 1 Scope

This standard applies to chemical synthesis of food additives vitamin B6.

### 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.

### 3.1 Chemical Name

6-methyl-5-hydroxy-3,4-dimethanol pyridine hydrochloride Formula 3.2  $C_8H_{11}NO_3 \cdot HCl$

### 3.4 Relative molecular mass

205.64 (according to 2007 international relative atomic mass)

## 4 Technical Requirements

### 4.1

Sensory requirements. comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods White or white color proper amount of sample is placed in a clean, dry test tube, in natural light the line, observe the color and texture, smell the smell. Odour odorless Organization state crystal or crystalline powder

### 4.2

Physical indicators. in accordance with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Vitamin B6 ( $C_8H_{11}NO_3 \cdot HCl$ , dry basis), w /% 98.0 ~ 100.5  
Appendix A A.4 Loss on drying, w /%  $\leq 0.5$  A.5 in Appendix A Residue on ignition, w /%  $\leq 0.1$  A.6 in Appendix A pH (100g/L solution) 2.4 ~ 3.0 GB/T 9724 Arsenic (As)/(mg/kg)  $\leq 2$  Appendix A A.7 Heavy metals (Pb)/(mg/kg)  $\leq 10$  Appendix A A.8 Appendix A (Normative) Testing method A.1 Safety Tips Reagents used in this test method has toxic or corrosive, according to the relevant provisions of the operation, should be used with caution. If the 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 the reagents used in this standard, unless otherwise noted, only in the analysis confirmed analytically pure reagents and GB/T 6682-2008 in Regulation Given three water.

Test Methods standard titration solution, when measured impurity standard solution, preparations and products, with no other requirements noted, 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 sodium acetate solution.200g/L.

A.3.1.2 boric acid. 40g/L.

A.3.1.3 chloro-imino-2,6-dichloro-quinone solution. 5g/L ethanol solution.

A.3.1.4 manganese dioxide.

A.3.1.5 sulfuric acid.

A.3.1.6 starch - iodide test paper.

A.3.2 Analysis step

A.3.2.1 color reaction Take about 10 mg laboratory samples, after adding 100 mL of water dissolved from each 1 mL, respectively, set A, B two tubes, add 2 mL each Sodium acetate solution, A tube was added 1 mL of water, the tube was added 1 mL of acetic acid solution, mix, add 1 mL of each rapid-chloro-2,6-imino Dichloro-quinone solution A tube was blue, disappeared after a few minutes, and converted to red; tube B was not blue.

A.3.2.2 infrared absorption spectrum identification Using potassium bromide tablet method, infrared spectroscopy laboratory samples should be consistent with the control of the map (see map control Appendix B).

A.3.2.3 Identification chloride 0.5g of laboratory samples, test tube, add 0.5g of manganese dioxide, mixing, wet sulfuric acid, slowly heated, namely chlorine generation Gas, moistened with water to make starch - iodide test paper was blue.

A.4 Determination of vitamin B6 A.4.1 Method summary Crystal violet as indicator, titrate with perchloric acid standard solution sample, according to the amount of standard titration with perchloric acid solution, in order to calculate Vitamin B6 content  $C_8H_{11}NO_3 \cdot HCl$  meter.

A.4.2 Reagents and materials A.4.2.1 glacial acetic acid.

A.4.2.2 mercuric acetate solution. Take 5 g mercuric acetate, and research fine, plus warm glacial acetic acid to dissolve into 100 mL.

A.4.2.3 crystal violet indicator solution. 5 g/L of glacial acetic acid.

A.4.2.4 perchloric acid standard titration solution.  $c(HClO_4) = 0.1 \text{ mol/L}$ .

A.4.3 Analysis step

Weigh 0.15 g laboratory samples, accurate to 0.000 2 g, after 20 mL glacial acetic acid and 5 mL of mercuric acetate solution was warmed to dissolve Canada, Cool to room temperature, add 1 drop of crystal violet indicator solution, titration with perchloric acid standard solution titration until the solution was blue-green, and titration with blank test correction.

A.4.4 Calculation Results Vitamin B6 (in  $C_8H_{11}NO_3 \cdot HCl$  meter) mass fraction  $w_1$ , expressed in%, according to formula (A.1) Calculated.

() 100

VV c Mw

Where.

V - standard test solution consumed perchloric acid titration solution (A.4.2.4) the value of the volume, in milliliters (mL);

V<sub>0</sub> - blank test consumed perchloric acid standard titration solution (A.4.2.4) the value of the volume, in milliliters (mL);

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

m - Numerical sample mass (dry product) in grams (g);

M - Numerical Vitamin B<sub>6</sub> (C<sub>8</sub>H<sub>11</sub>NO<sub>3</sub> · HCl) molar mass of the units of grams per mole (g/mol) (M = 205.64).

Take two parallel determination results of the arithmetic average of the measurement results, the results of two parallel determination of the absolute difference is not more than 0.5%.

A.5 Determination of loss on drying A.5.1 Analysis step Weigh 1.0 g laboratory samples, accurate to 0.000 2 g, according to GB/T 6284 Method Determination.

A.5.2 Calculation Results Loss on drying mass fraction w<sub>2</sub>, expressed in%, according to equation (A.2) Calculated.

twenty one

2 100%

m m<sub>w</sub>

Where.

m<sub>2</sub> - weighing bottle before drying and the total mass of the sample in grams (g);

m<sub>1</sub> - After drying the samples and weighing bottle total mass in grams (g);

m - mass of the sample in grams (g).

Take the arithmetic mean of the parallel determination results of the measurement results, the results of two parallel determination of the absolute difference is not more than 0.05%.

A.6 Residue on ignition A.6.1 Reagents and materials sulfuric acid.

A.6.2 Analysis step

Weigh about 1.0 g laboratory samples, accurate to 0.000 2 g, ignition has been set to a constant weight of the crucible, slowly burn to completely carbonized, Cool to room temperature; adding 0.5 mL ~ 1 mL of sulfuric acid so moist, low-temperature heating to sulfuric acid vapor divisible after burning at 750 °C ± 50 °C enable End Full ashing, moved