

ICS 67.220.20
CCS X 42



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

GB 25575-2010

**National food safety standards of food additives potassium
hydroxide**

(English Translation)

Issued on: December 21, 2010

Implemented on: February 21, 2011

Issued by: Ministry of Health of the People's Republic of China

Table of Contents

Foreword
1 Scope
2 Normative references
3 Formula and relative molecular mass
3.2 Relative molecular mass
4 Technical Requirements

Foreword

Appendix A of this standard is a normative appendix, Appendix B is an informative annex.

National Food Safety Standard Food additive potassium hydroxide

1 Scope

This standard applies to potassium chloride solution through the membrane or diaphragm electrolysis production of food additives potassium hydroxide.

2 Normative references

The standard file referenced in the application of this standard is essential. For dated references, only the dated edition of fitness for this standard. For undated references, the latest edition (including any amendments) applies to this standard.

3 Formula and relative molecular mass

Formula 3.1

KOH

3.2 Relative molecular mass

56.11 (according to 2007 international relative atomic mass)

4 Technical Requirements

4.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

project

Claim

Testing method

Solid and liquid

Color and odor white or nearly white, no Colorless, odorless take appropriate solid sample is placed in a plastic beaker 50mL, natural Light to observe the color and texture. Smell the odor.

Take 50mL liquid sample is placed in 50mL colorimetric tube in natural light by determining black appearance of the sample perpendicular to the substrate a.

State organization granules, flakes, rods or melted solid Clear or slightly turbid liquid After this test a complete wash immediately cuvette.

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Solid and liquid Potassium hydroxide (KOH), w /% 85.0 ~ 100.5
 >=45.0 Appendix A A.4 Potassium carbonate (K₂CO₃), w /% <= 2.0 2.0 (dry basis)
 Appendix A A.4 Mercury (Hg)/(mg/kg) <= 0.1 0.1 (dry basis) A Appendix A.5 Arsenic
 (As)/(mg/kg) <= 3 3 (dry basis) A.6 in Appendix A Heavy metals (Pb)/(mg/kg) <= 10 10 (dry
 basis) Appendix A A.7 Lead a (Pb)/(mg/kg) <= 5 5 (dry basis) Appendix A A.8 Clarity
 through test by test A.9 in Appendix A when a heavy metal when measured result is less
 than 5mg/kg, the item can be measured free.

Appendix A

(Normative)

Testing method

A.1 Warning

The standard test methods and some reagents used toxic or corrosive, highly corrosive sample obtained shall be handled with care cautious! As splashed on the skin should immediately wash with water, severe cases should be treated immediately.

A.2 General Provisions the standard test methods used in the reagents and water, did not indicate when the other requirements, refer to analytically pure reagents and GB/T 6682-2008 in Three water regulations. Used in the test standard titration solution, impurity standard solution, preparations and products, did not indicate when the other requirements, according to HG/T 3696.1, HG/T 3696.2, HG/T 3696.3 regulations of preparation.

A.3 Identification Test A.3.1 Identification of hydroxyl ions A small sample, dissolved in

water, can make red litmus paper blue; dropping 2 drops of phenolphthalein indicator solution the solution was purple.

A.3.2 Identification of potassium ions Take about 0.1g sample was dissolved in 2mL water and access to clean platinum wire with hydrochloric acid to a colorless wet combustion in the flame; dipped into the sample solution, in the absence of Color flame combustion, flame observed through cobalt glass that is purple.

A.4 Determination of potassium hydroxide and potassium carbonate A.4.1 Determination of potassium hydroxide - sodium tetraphenylborate gravimetric method (Arbitration Act)

A.4.1.1 Method summary Under weakly acidic conditions, potassium and sodium tetraphenylborate generate potassium tetraphenylborate precipitate. Filtration, drying and weighing.

A.4.1.2 Reagents and materials A.4.1.2.1 ethanol.

A.4.1.2.2 glacial acetic acid. 19.

A.4.1.2.3 ethanol solution of sodium tetraphenylborate. 0.1mol/L.

Weigh 3.4g sodium tetraphenylborate, dissolved in 100mL anhydrous ethanol, placed 24h. Before using glass sand crucible filtration.

A.4.1.2.4 ethanol - saturated solution of potassium tetraphenylborate.

1g test before taking the resulting precipitate potassium tetraphenylborate (A.4.1.4.2), plus ethanol 50mL, 950mL of water, and shake to make it saturated, use weighed filter.

A.4.1.2.5 methyl red indicator solution; 1g/L.

A.4.1.3 instruments and equipment Glass sand crucible. Aperture 5 μ m ~ 15 μ m.

A.4.1.4 analysis step A.4.1.4.1 Preparation of test solution with rapid weighing bottle, weigh about 80g of solid potassium hydroxide (or equivalent liquid sample 80g solid potassium hydroxide), to the nearest 0.001g, set Filled with the right amount of water in a beaker of 250mL, dissolved placed to room temperature, all moved into 1000mL volumetric flask, diluted with water to the mark.

Immediately placed in a clean, dry plastic bottle 1000mL save this solution as the test solution A, for potassium hydroxide, potassium content determination.

A.4.1.4.2 Determination Pipette Pipette 20mL test solution A into 500mL volumetric flask, dilute to the mark, shake. If necessary dry filtration. Pipette Tube Pipette 20mL of this solution was placed in 100mL beaker, add 1 drop of methyl red indicator solution, with glacial acetic acid solution was adjusted to reddish. Heated to 40 °C take Under stirring was added dropwise an ethanol solution of sodium tetraphenylborate 8mL ~ 9mL, about 5min plus complete. Place 10min. With constant quality glass sand has been a crucible Filtered, washed with 40 mL ~ 50mL ethanol - saturated solution of potassium tetraphenylborate

precipitate was washed, each with 5mL, drained every time. Stop filtration with 2mL Ethanol wash, then dry. Drying at $120\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ to constant mass.

NOTE: potassium hydroxide solution configured for glass containers corrosive.

A.4.1.5 Calculation Results Potassium hydroxide and potassium hydroxide (KOH) mass fraction w_1 and its value is expressed in%, according to formula (A.1) Calculated.

$$w_1 = \frac{m_1 \times 0.050020}{m} \times \frac{156.6}{100} \times \frac{1}{M} \times 100\%$$
 (A.1) where.

Numerical quality m_1 -- potassium tetraphenylborate precipitate in grams (g) ;.

m -- sample mass value in grams (g);

0.1566-- Tetraphenylboron potassium in terms of potassium hydroxide coefficient;

w_2 - A.4.2 measured value of potassium carbonate mass fraction, expressed as a percentage;

0.8119-- potassium carbonate in terms of potassium hydroxide coefficients.

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 0.3%.

A.4.2 Determination of potassium - titration A.4.2.1 Reagents and materials with GB/T 7698-2003 of Chapter 4.

A.4.2.2 instruments and equipment with GB/T 7698-2003 of Chapter 5.

A.4.2.3 analysis step According to GB/T 7698-2003 Chapter 6 of the pre-test. According to GB/T 7698-2003 7.2 blank test.

Weigh about 25g sample (or the equivalent of liquid sample 25g solid potassium hydroxide), accurate to 0.01g, following in GB/T 7698-2003 Section 7.3.

A.4.2.4 Calculation Results Potassium content of potassium carbonate (K_2CO_3) mass fraction w_2 and its value is expressed in%, according to formula (A.2) calculated as follows.

$$w_2 = \frac{m \times c \times (V - V_0)}{M} \times 100\%$$
 (A.2) where.

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

V_0 -- value hydrochloric acid standard titration solution consumed in the blank test volume, in milliliters (mL);

V_1 -- measured value hydrochloric acid standard titration solution volume of sample consumed in milliliters (mL);

m -- sample mass value in grams (g);

M -- potassium carbonate ($\frac{1}{2}\text{K}_2\text{CO}_3$) molar mass values, in units of grams per mole