



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

GB 1886.247-2016

Replacing GB 25589-2010

**National Food Safety Standard -- Food Additives -- Potassium
Bicarbonate**

食品安全国家标准 食品添加剂 碳酸氢钾

(English Translation)

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Foreword

This standard replaces GB 25589-2010 "national food safety standards for food additives potassium bicarbonate." this standard compared with GB 25589-2010, the main changes are as follows.

--- Modify the scope;

--- Remove the heavy metal indicator;

--- Increased the lead index requirements.

National Food Safety Standard Food additive potassium bicarbonate

1 Scope

This standard applies to ion exchange or carbonate production of food additives potassium bicarbonate.

2.1 Chemical Name

Potassium bicarbonate Formula 2.2 KHCO_3

2.3 Relative molecular mass

100.12 (according to 2013 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods Color White State crystal or powder Take appropriate 50mL sample is placed in a beaker, observe the color in natural light and state organizations

3.2 Physical and Chemical Indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Total alkali content (in terms KHCO_3) (dry basis), w /% 99.0 ~ 101.5 Appendix A A.4 Water-insoluble, w /% ≤ 0.02 Appendix A A.5 Loss on drying, w /% ≤ 0.25 A.6 in Appendix A TABLE 2 (cont.) Item Index Test Method pH (100g/L solution) ≤ 8.6 Appendix A A.7 Lead (Pb)/(mg/kg) ≤ 2.0 GB 5009.75 Arsenic (As)/(mg/kg) ≤ 3.0 GB 5009.76 Appendix A Testing method A.1 Warning Reagents The standard test methods used for toxic or corrosive shall be as careful operation splashed on the skin or eyes on immediately with plenty of water, severe cases should be treated immediately. Test used in the flammable and should not use an open flame during operation.

A.2 General Provisions this standard reagents and water, did not indicate when the other requirements, refer to the three water analytical reagent and GB/T 6682 stipulated.

Used in the test standard titration solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 603 system requirements Preparation. The solution in a solvent which does not indicate by when formulated, refers to an aqueous solution.

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 hydrochloric acid.

A.3.1.2 ethanol.

A.3.1.3 saturated calcium hydroxide solution. Weigh 3g calcium hydroxide into 1000mL water, by vigorous stirring or shaking, place clarification, Take clear solution spare.

A.3.1.4 magnesium sulfate solution. 120g/L.

A.3.1.5 ethanol solution of sodium tetraphenylborate. 34g/L.

A.3.1.6 red litmus paper.

A.3.2 Identification method A.3.2.1 carbonate A.3.2.1.1 take 50mL 0.1g/sample solution mL, placed in 250mL conical flask, a solution of hydrochloric acid, which release gases. This gas guide the saturated solution of calcium hydroxide, a white turbidity.

A.3.2.1.2 take appropriate 0.1g/sample solution mL, solution of magnesium sulfate solution, namely a white precipitate.

A.3.2.2 Potassium

A.3.2.2.1 take appropriate 0.1g/sample solution mL, was added sodium tetraphenylborate

ethanol solution, that is a lot of white precipitate formed.

A.3.2.2.2 first to colorless combustion flame with hydrochloric acid in the colorless infiltration of platinum wire. Then dipped a little sample solution in a colorless flame combustion, by cobalt glass observe the flame was purple.

A.4 Total alkali content (in terms KHCO_3) (dry basis) of the Determination A.4.1 Reagents and materials A.4.1.1 hydrochloric acid standard titration solution. $c(\text{HCl}) = 0.5\text{mol/L}$.

A.4.1.2 Bromocresol green - methyl red indicator solution.

A.4.2 Analysis step

Weigh about 1.5g sample was placed in a silica gel dryer after 4h, accurate to 0.0002g, placed in 250mL Erlenmeyer flask with 50mL water to dissolve, add 5 drops of Bromocresol green - methyl red indicator solution, titration with hydrochloric acid standard titration solution until the solution turns from green to dark red.

The solution was boiled for 2min, after cooling, continue titration to dark red, do not fade in the 30s is the end.

While doing the blank test. In addition to the blank test without the sample, but (except for standard titration solution) the type and amount of addition of reagents and other operations and the same test solution.

A.4.3 Calculation Results Total Alkalinity potassium bicarbonate (KHCO_3) mass fraction w_1 , according to equation (A.1) Calculated.

$c \times (V - V_0) \times M$

$m \times 1000 \times$

100% (A.1)

Where.

C --- the exact concentration of hydrochloric acid standard titration solution, expressed in moles per liter (mol/L);

Volume V --- hydrochloric acid standard titration solution consumed titration test solution, in milliliters (mL);

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

--- The M potassium hydrogen carbonate (KHCO_3 or) molar mass in grams per mole (g/mol) ($M = 100.12$);

M --- the quality of the sample, in grams (g);

1000 --- conversion factor.

The results parallel arithmetic mean of the measurement results shall prevail. Twice under the same condition of independent determination results obtained absolute difference not more than 0.3%.

A.5 Determination of insoluble matter A.5.1 Instruments and Equipment A.5.1.1 sintered glass crucible. filter plate aperture $5\mu\text{m} \sim 15\mu\text{m}$.

A.5.1.2 electric oven. temperature can be controlled to $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

A.5.2 Analysis step

Weighing about 50g sample, accurate to 0.1g, placed in 400mL beaker, add 300mL water dissolved by heating. Use was $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ dried to a constant mass of sintered glass crucible was filtered, washed with hot water until the filtrate was neutral (pH paper with test). The glass sand crucible Crucible placed in $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ in electric oven dried to a constant mass.

A.5.3 Calculation Results the mass fraction of water-insoluble w_2 , according to equation (A.2) Calculated.

$m_1 - m_2$

100% (A.2)

Where.

Mass m_1 --- debris and sand glass crucible, in grams (g);

M_2 --- quality glass sand crucible in grams (g);

m_3 --- sample mass, in grams (g).

The results parallel arithmetic mean of the measurement results shall prevail. Twice under the same condition of independent determination results obtained absolute difference not more than 0.002%.

A.6 Determination of loss on drying A.6.1 Instruments and Equipment Weighing bottle. $\phi 50\text{mm} \times 30\text{mm}$.

A.6.2 Analysis step

Silica gel was dried with a dryer to a constant mass weighing bottle Weigh about 2g samples, accurate to 0.0002g, tile in the sample said Bottom flask. The weighing bottle placed on silica gel dryer is placed after 4h weighing.

A.6.3 Calculation Results Loss on drying mass fraction w_3 , according to equation (A.3) Calculated.

$m_4 - m_5$

100% (A.3)