

ICS 67.220.20
CCS X 40



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

GB 29203-2012

**National food safety standards -- Food additives -- Potassium
iodide**

食品添加剂 碘化钾

(English Translation)

Issued on: December 25, 2012

Implemented on: January 25, 2013

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

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1 Scope

This standard applies to potassium hydroxide and iodine reaction after the formation of potassium iodate, and then reduced by the preparation of food additives potassium iodide.

2.1 Chemical name

Potassium iodide

2.3 Relative molecular mass

166.0 (according to the 2007 international relative atomic mass)

3.1 Sensory requirements

Shall comply with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Colorless or white color State crystal Take appropriate sample in a 50 mL beaker and observe the color and state under natural light

3.2 Physical and chemical indicators

Shall comply with the provisions of Table 2.

Table 2 Physical and chemical indicators

Item Index Test Method Potassium iodide (KI) content (on a dry basis), w /% 99.0 to 101.5
Appendix A, A.4 Dry reduction, w /% ≤ 1 Appendix A A.5 Iodide/(mg/kg) ≤ 4 Appendix A
A.6

Table 2 (continued)

Item Index Test Method Lead (Pb)/(mg/kg) ≤ 4 GB 5009.12 Nitrate, Nitrite and Ammonia through Test Appendix A, A.7 Thiosulfate and barium through test Appendix A, A.8 pH (10 g/L solution) 6 to 10 GB/T 23769 Appendix A Testing method A.1 Warning Some of the reagents used in the test methods of this standard are toxic or corrosive and should be operated with appropriate safety and protective measures.

A.2 General provisions the reagents and water used in this standard, when not specified in other requirements, refer to the analysis of pure reagents and GB/T 6682-2008 in the provisions of the three Water level. Standard solution, preparation and articles for the determination of standard solutions and impurities for testing in this standard are not specified when other requirements are indicated GB/T 601, GB/T 602, GB/T 603. The solution used refers to an aqueous solution when it is not specified with any solvent formulation.

A.3 Identification test A.3.1 Reagents and materials A.3.1.1 Hydrochloric acid.

A.3.1.2 Hydrogen peroxide.

A.3.1.3 Starch indicator. 10 g/L.

A.3.2 Identification method A.3.2.1 Identification of potassium ions Weigh 0.1g sample, add water to dissolve. With platinum wire ring dipped in hydrochloric acid, burning on the flame to colorless. And then dip the test solution on the flame Burning, observed under cobalt glass, the flame should be purple.

A.3.2.2 Identification of iodide ions Weigh 0.1g sample, add 20mL water, 1mL hydrochloric acid, 2 drops of starch indicator and 2 drops of hydrogen peroxide, the solution should be blue.

Determination of Potassium Iodide (KI) Content A.4.1 Methodological Summary in the hydrochloric acid medium solution, the titration was titrated with standard potassium iodate standard, and the end point was judged by the disappearance of the color of the chloroform layer.

A.4.2 Reagents and materials A.4.2.1 Hydrochloric acid.

A.4.2.2 Trichloromethane.

A.4.2.3 potassium iodate standard titration solution. $c(1/6\text{KIO}_3) = 0.3\text{mol/L}$.

A.4.3 Analysis steps Weigh about 0.5g in accordance with the A.5 after the operation of the sample, accurate to 0.0002g. Placed in a 250 mL Erlenmeyer flask and 10 mL of water was added Dissolved, add 35mL hydrochloric acid, shake. Plus 5mL of chloroform, titration with potassium iodate standard titration (near the end, the strong vibration Shake) until the chloroform layer colorless after standing for 5min no longer purple so far, that is the end.

A.4.4 Calculation of results Potassium iodide (KI) content of the mass fraction w_1 , according to formula (A.1) calculation.

$V \times c \times M$

$m \times 1000 \times 100\%$

Where.

V --- titration test solution consumed by the potassium iodate standard titration solution volume of the value in milliliters (mL);

c - potassium iodate standard titration solution concentration of the exact value in moles per liter (mol/L);

m - the mass of the sample, in grams (g);

M - potassium iodate ($1/6KIO_3$) in grams per mole (g/mol) ($M = 55.33$);

1000 --- conversion factor.

The experimental results are based on the arithmetic mean of the parallel measurement results. The absolute difference between the two independent determinations obtained under repeatability conditions the value is not more than 0.02%.

A.5 Determination of dry reduction A.5.1 Instruments and equipment A.5.1.1 weighing bottle. $\phi 30\text{mm} \times 25\text{mm}$.

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

A.5.2 Analysis steps and dried at a temperature of $105^\circ\text{C} \pm 2^\circ\text{C}$ until a constant weighing bottle weighing about 2 g was weighed to 0.0002 g, placed in an electric Constant temperature drying oven, drying at $105^\circ\text{C} \pm 2^\circ\text{C}$ 4h, weighing.

A.5.3 Calculation of results the mass fraction w_2 of the drying reduction is calculated according to the formula (A.2) $w_2 = \frac{m_1 - m_2}{m} \times 100\%$ (A.2) where.

m_1 --- the value of the mass of the sample and the weighing bottle before drying, in grams (g);

m_2 --- the value of the sample after drying and the weight of the weighing bottle, in grams (g);

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

The experimental results are based on the arithmetic mean of the parallel measurement results. The absolute difference between the two independent determinations obtained under repeatability conditions the value is not greater than 0.1%.

A.6 Determination of iodate A.6.1 Reagents and materials A.6.1.1 sulfuric acid solution. 397.

A.6.1.2 iodate standard solution. 1mL potassium iodate (KIO_3) 0.010mg. Weigh 0.010g potassium iodate, placed in 1000mL capacity Bottle, diluted with water to the mark, shake. Store in a brown bottle.

A.6.1.3 Starch indicator solution. 10 g/L.

A.6.1.4 Water without ammonia and no carbon dioxide. Water without ammonia is poured into the flask, boiled for 15 minutes, immediately with a plug of sodium lime Tighten and cool.

A.6.2 Analysis steps A sample of $1.10 \text{ g} \pm 0.01 \text{ g}$ was weighed and dissolved in 5 mL of ammonia-free and carbon-free water and transferred to a 10 mL colorimetric tube, Add 2 drops of starch indicator solution, add 2 drops of sulfuric acid solution, mix, with ammonia and no carbon dioxide diluted to the scale of water. The color of the solution is not should be deep in the standard colorimetric solution.

Standard colorimetric solution is removed with a pipette 0.4mL iodate standard solution placed in 10mL colorimetric tube, weighed $0.10 \text{ g} \pm 0.01 \text{ g}$ Sample, plus no ammonia and no carbon dioxide dissolved in water, then add 2 drops of starch instructions, add 2 drops of sulfuric acid solution, mix, with no ammonia and no oxygen the carbonized water is diluted to the mark.

A.7 Determination of nitrates, nitrites and ammonia A.7.1 Reagents and materials A.7.1.1 Sodium hydroxide solution. 40 g/L.

A.7.1.2 Aluminum wire.

A.7.1.3 litmus paper.

A.7.2 Analysis steps Weigh $1.00 \text{ g} \pm 0.01 \text{ g}$ sample, placed in 50mL test tube, add 5mL water dissolved, and then add 5mL sodium hydroxide solution, add 0.2g aluminum wire. With sterile cotton plug test tube mouth, put in the test tube above a moist red litmus paper test paper. Place the test tube in a boiling water bath Heating 15min, test paper should not turn blue.

Determination of thiosulfate and barium A.8.1 Reagents and materials Sulfuric acid solution. 3 97.

A.8.2 Analysis steps Weigh $0.50 \text{ g} \pm 0.01 \text{ g}$ sample, with 10mL of ammonia and no carbon dioxide water (with A.6.1.4) dissolved, add 2 drops of sulfuric acid solution, 1min solution should not be turbid.