



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

GB 1886.2-2015

**National Food Safety Standard - Food Additives - Sodium
bicarbonate**

食品安全国家标准 食品添加剂 碳酸氢钠

(English Translation)

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1 Scope

This Standard is applicable to food additives - sodium bicarbonate.

2.1 Molecular Formula

NaHCO₃

2.2 Relative Molecular Mass

84.01 (in accordance with the international relative atomic mass in 2007)

3.1 Sensory Requirements

The sensory requirements shall comply with the provisions of Table 1.

3.2 Physical and Chemical Indicators

The physical and chemical indicators shall comply with the provisions of Table 2.

Appendix A

Inspection Method

A.1 Safety Tips

Some of the reagents used in this test method are toxic or corrosive and shall be handled with caution. If they splash on the skin, immediately use water to rinse them. If it becomes serious, immediately seek medical treatment.

A.2 General Provisions

Unless otherwise specified, the reagents and water used in this Standard refer to analytically pure reagents and Grade-3 water as specified in GB/T 6682. Unless otherwise specified, the standard solutions, impurity standard solutions, preparations and products

required in the test shall be prepared in accordance with the provisions of GB/T 601, GB/T 602 and GB/T 603.

Unless the solvent used is specified, the solutions used in the test are aqueous solutions.

A.3.1 Identification of sodium

Use hydrochloric acid to wet the platinum wire and burn it on the flame, until it becomes colorless. Then, dip a small amount of the test solution and burn it on the flame. The flame will then turn bright yellow.

A.3.2 Identification of bicarbonate

A.3.2.1 Take a small amount of the specimen and add hydrochloric acid solution (1+2) to generate gas. This gas is passed into calcium hydroxide solution (3 g/L) to generate a white precipitate.

A.3.2.2 When magnesium sulfate solution (120 g/L) is dropwise added to the test solution, no precipitation occurs at room temperature, but a white precipitate is generated after boiling.

A.4.1 Method Summary

Dissolve the specimen in water, use bromocresol green-methyl red as an indicator and use a standard hydrochloric acid titration solution to perform titration.

A.4.2 Reagents and materials

A.4.2.1 Standard hydrochloric acid titration solution. $c(\text{HCl}) = 1 \text{ mol/L}$.

A.4.2.2 Bromocresol green-methyl red indicator solution.

A.4.3 Analytical steps

Weigh-take about 2.5 g of specimen, accurate to 0.0002 g, place in a 250 mL conical flask, and add 50 mL of water to completely dissolve it. Dropwise add 10 drops of bromocresol green- methyl red indicator solution, use the standard hydrochloric acid titration solution to titrate it, until the test solution turns from green to dark red, boil for 2 minutes, cool to room temperature, and use the standard hydrochloric acid titration solution to continue titrating, until it turns dark red, which is the end point.

Meanwhile, perform a blank test. The blank test shall be carried out in parallel with determination, using the same analytical steps and the same amounts of all reagents (except the standard titration solution), but no specimen is added to the blank test.

A.4.4 Result calculation

The mass fraction w_1 of the total alkali content (by NaHCO_3) is calculated in accordance with

Formula (A.1).

Where, c ---the concentration of standard hydrochloric acid titration solution, expressed in (mol/L);

V_1 ---the volume of the standard hydrochloric acid titration solution consumed by the titration of the test solution, expressed in (mL);

V_0 ---the volume of the standard hydrochloric acid titration solution consumed by the blank test, expressed in (mL);

M ---the molar mass of sodium bicarbonate, expressed in (g/mol), [$M(\text{NaHCO}_3) = 84.01$];

m ---the mass of the specimen, expressed in (g);

1,000---the conversion factor.

The test result shall be based on the arithmetic mean of the parallel determination results. The absolute difference between two independent determination results obtained under repeatability conditions is not greater than 0.2%.

A.5.1 Method summary

Place the specimen in a vacuum drying oven for 4 h, then, take it out and determine its loss on drying.

A.5.2 Instruments and equipment

Weigh-take about 1 g of specimen, accurate to 0.01 g. Place in a 50 mL beaker and add 10 mL of water to dissolve it. There is no ammonia smell during heating to boiling.

A.8.1 Method Summary

At room temperature, use a quantitative amount of water to dissolve the specimen. Under the same conditions, compare it with the standard.

A.8.2.1 Hexamethylenetetramine solution. 100 g/L. Weigh-take 10.0 g $\pm$ 0.1 g of

hexamethylenetetramine that has been dried in a silica gel dryer for 24 hours, place it in a beaker, add a small amount of water to dissolve it, transfer it all to a 100 mL volumetric flask, use water to dilute to the scale, and shake it well.

A.8.2.2 Hydrazine sulfate solution. 10 g/L. Weigh-take 1.0 g $\pm$ 0.1 g of hydrazine sulfate that

has been dried in a silica gel dryer for 24 hours, place it in a beaker, add a small amount of water to dissolve it, transfer it all to a 100 mL volumetric flask, use water to dilute to the scale, and shake it well.

A.8.2.3 Standard turbidimetric solution. Use a pipette to transfer-take 25 mL of

hexamethylenetetramine solution and 25 mL of hydrazine sulfate solution into a dry reagent bottle, shake it well, and leave at room temperature for 24 hours to prepare standard turbidimetric solution A. This solution is valid for 60 days. Use a pipette to transfer-take 10.0 mL of the standard turbidimetric solution A into a 1,000 mL volumetric flask, use water to dilute to the scale, and shake it well to prepare standard turbidimetric solution B. This solution is valid for 1 day.

A.8.3 Analytical steps

Weigh-take $1.00\text{ g} \pm 0.01\text{ g}$ of specimen and place it in a 25 mL colorimetric tube. After adding water to dissolve it, use water to dilute to the scale and shake it well. After standing for 5 minutes, compare it with the standard turbidimetric solution, against a black background, and observe from above the colorimetric tube. The clarity of the test solution must not be lower than that of the standard turbidimetric solution.

The standard turbidimetric solution is prepared by using a pipette to transfer-take 5.00 mL of the standard turbidimetric solution B into a 25 mL colorimetric tube, using water to dilute to the scale and shaking it well.

A.9.1.1 Method Summary

1,000---the conversion factor.

The test result shall be based on the arithmetic mean of the parallel determination results. The absolute difference between two independent determination results obtained under repeatability conditions is not greater than 0.01%.

A.9.2.1 Method summary

Add silver nitrate solution to an acidic medium, the silver ions and chloride ions generate a white silver chloride suspension, which is compared with the standard turbidimetric solution simultaneously treated in the same mode.

A.9.2.2 Reagents and materials

A.9.2.2.1 95% ethanol.

A.9.2.2.2 Nitric acid solution. 1 + 6.

A.9.2.2.3 Silver nitrate solution. 17 g/L.