GB

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National Food Safety Standard - Food Nutritional Fortification Substance - Sodium Iodide

食品安全国家标准

食品营养强化剂 碘化钠

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National Food Safety Standard - Food Nutritional Fortification Substance - Sodium Iodide

1 Scope

This Standard is applicable to food nutritional fortification substance - sodium iodide, which is obtained through the reaction of sodium hydroxide and iodine to generate sodium iodate, and then, through reduction.

2 Chemical Name, Molecular Formula and Relative Molecular Mass

2.1 Chemical Name

Sodium iodide

2.2 Molecular Formula

NaI

2.3 Relative Molecular Mass

149.89 (in accordance with the international relative atomic mass of Year 2018)

3 Technical Requirements

3.1 Sensory Requirements

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

Table 1 -- Sensory Requirements

3.2 Physical and Chemical Indicators

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

Appendix A

Inspection Method

A.1 General Provisions

When no other requirements are indicated, the reagents and water used in this Standard refer to analytically pure reagents and Grade-3 water specified in GB/T 6682. When no other requirements are indicated, the standard titration solutions, and standard solutions, preparations and products for impurity determination shall be prepared in accordance with the stipulations of GB/T 601, GB/T 602 and GB/T 603. When the solvent used for solution preparation is not specified, it refers to aqueous solution in the tests.

A.2 Identification Test

A.2.1 Sodium ion test

A.2.1.1 Reagents and materials

A.2.1.1.1 Potassium carbonate solution: 150 g/L.

A.2.1.1.2 Potassium hydroxide solution: 150 g/L.

A.2.1.1.3 Potassium pyroantimonate solution: accurately weigh-take 2 g of potassium pyroantimonate (accurate to 0.01 g); dissolve it in 85 mL of hot water; quickly cool it down; add 10 mL of potassium hydroxide solution; let it stand for 24 h. Then, filter it; add water to reach a constant volume of 100 mL.

A.2.1.2 Identification steps

Weigh-take 0.1 g of the sample and place it in a 10 mL test tube; add 2 mL of water to dissolve it. Add 2 mL of potassium carbonate solution; heat it up to boiling; there shall be no generation of precipitate. Add 4 mL of potassium pyroantimonate solution; heat it up to boiling. Place it in ice water to cool it down. If necessary, use a glass rod to rub the inner wall of the test tube, and dense precipitate shall be generated.

A.2.2 Iodine ion test

A.2.2.1 Reagents and materials

A.2.2.1.1 Hydrochloric acid.

A.2.2.1.2 Trichloromethane.

A.5 Determination of Iodate (calculated as IO_3)

A.5.1 Reagents and materials

A.5.1.1 Sulfuric acid solution: *c* (H_2SO_4) = 0.5 mol/L.

A.5.1.2 Iodate standard solution: accurately weigh-take 0.4 g of potassium iodate (accurate to 0.01 g); place it in a 1,000 mL volumetric flask. Use water to dilute it to the scale, then, shake it well. Take 1 mL of the solution and place it in a 100 mL volumetric flask. Use water to dilute it to the scale, then, shake it well. Store it in a brown bottle.

A.5.1.3 Starch indicator solution: 10 g/L.

A.5.1.4 Ammonia-free and carbon dioxide-free water: pour ammonia-free water into a flask; boil it for 15 min. Then, immediately use a rubber plug equipped with a soda lime tube to plug it; cool it down.

A.5.2 Analytical procedures

Accurately weigh-take 1.1 g (accurate to 0.01 g) of the sample; place it in a 10 mL volumetric flask. Use ammonia-free and carbon dioxide-free water to dissolve it and dilute to the scale; shake it well; transfer it to a colorimetric tube. Add 1 mL of starch indicator solution; add 0.25 mL of sulfuric acid solution and evenly mix it. The color of the solution shall not be darker than that of the standard colorimetric solution.

The preparation of the standard colorimetric solution: accurately weigh-take 0.1 g (accurate to 0.01 g) of the sample; place it in a 10 mL volumetric flask. Add 1 mL of iodate standard solution; use ammonia-free and carbon dioxide-free water to dilute to the scale; shake it well, then, transfer it a colorimetric tube. Add 1 mL of starch indicator solution; add 0.25 mL of sulfuric acid solution; evenly mix it.

A.6 Determination of Potassium

A.6.1 Reagents and materials

A.6.1.1 Acetic acid solution: take 6 mL of glacial acetic acid; add water to dilute it to 100 mL, then, shake it well.

A.6.1.2 Sodium tetraphenylborate solution: 33.33 g/L.

A.6.1.3 Potassium chloride solution: 9.5 mg/L.

A.6.2 Analytical procedures

Accurately weigh-take 1 g (accurate to 0.01 g) of the sample; place it in a 100 mL volumetric flask. Add water to dissolve it and dilute to the scale; shake it well. Take 4 mL of the solution; add 1 mL of acetic acid solution; evenly mix it. Add 5 mL of sodium tetraphenylborate solution; immediately shake it and let it stand for 10 min. If turbidity

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