

It is efflorescent in warm, dry air.

Identification A solution of Sodium Acetate (1 in 10) responds to the Qualitative Tests for acetate and sodium salt.

Purity (1) Clarity and color of solution—Dissolve 2.0 g of Sodium Acetate in 20 mL of water: the solution is clear and colorless.

(2) Acid or alkali—Dissolve 1.0 g of Sodium Acetate in 20 mL of freshly boiled and cooled water, and add 3 drops of phenolphthalein TS: a red color develops. When cooled to 10°C, or 1.0 mL of 0.01 mol/L hydrochloric acid VS is added after cooling to 10°C, the red color disappears.

(3) Chloride—Perform the test with 1.0 g of Sodium Acetate. Prepare the control solution with 0.30 mL of 0.01 mol/L hydrochloric acid VS (not more than 0.011%).

(4) Sulfate—Perform the test with 1.0 g of Sodium Acetate. Prepare the control solution with 0.35 mL of 0.005 mol/L sulfuric acid VS (not more than 0.017%).

(5) Heavy metals—Proceed with 2.0 g of Sodium Acetate according to Method 1, and perform the test. Prepare the control solution with 2.0 mL of Standard Lead Solution (not more than 10 ppm).

(6) Calcium and magnesium—Dissolve 4.0 g of Sodium Acetate in 25 mL of water, add 6 g of ammonium chloride, 20 mL of ammonia solution (28) and 0.25 mL of a solution of sodium hydrogensulfite (1 in 10), and titrate with 0.01 mol/L disodium dihydrogen ethylenediamine tetraacetate VS until the blue color changes to grayish blue (indicator: 0.1 g of methylthymol blue-potassium nitrate indicator): the amount of 0.01 mol/L disodium dihydrogen ethylenediamine tetraacetate VS consumed is not more than 0.5 mL.

(7) Arsenic—Prepare the test solution with 1.0 g of Sodium Acetate, according to Method 1, and perform the test using Apparatus B (not more than 2 ppm).

(8) Potassium permanganate-reducing substance—Dissolve 1.0 g of Sodium Acetate in 100 mL of water, add 5 mL of dilute sulfuric acid, boil, add 0.50 mL of 0.002 mol/L potassium permanganate VS, and further boil for 5 minutes: the red color of the solution does not disappear.

Loss on drying 39.0 – 40.5% (1 g, first at 80°C for 2 hours, and then at 130°C for 2 hours).

Assay Weigh accurately about 0.2 g of Sodium Acetate, previously dried, dissolve in 50 mL of acetic acid (100), and titrate with 0.1 mol/L perchloric acid VS until the color of the solution changes from yellow to green (indicator: 1 mL of *p*-naphtholbenzein TS). Perform a blank determination, and make any necessary correction.

$$\begin{aligned} \text{Each mL of 0.1 mol/L perchloric acid VS} \\ = 8.203 \text{ mg of } \text{C}_2\text{H}_3\text{NaO}_2 \end{aligned}$$

Containers and storage Containers—Tight containers.

Sodium Bicarbonate and Bitter Tincture Mixture

苦味重曹水

Method of preparation

Sodium Bicarbonate	30 g
Bitter Tincture	20 mL
Water or Purified Water	a sufficient quantity
To make 1000 mL	

Prepare before use, with the above ingredients.

Description Sodium Bicarbonate and Bitter Tincture Mixture is a clear, yellowish liquid, having a bitter taste.

Containers and storage Containers—Tight containers.

Sodium Bisulfite

Sodium Hydrogen Sulfite

亜硫酸水素ナトリウム

NaHSO₃: 104.06

Sodium Bisulfite is a mixture of sodium hydrogensulfite and sodium pyrosulfite. It contains not less than 64.0% and not more than 67.4% of sulfur dioxide (SO₂: 64.06).

Description Sodium Bisulfite occurs as white granules or powder, having the odor of sulfur dioxide.

Sodium Bisulfite is freely soluble in water and practically insoluble in ethanol (95) and in diethyl ether.

A solution of Sodium Bisulfite (1 in 20) is acid.

Sodium Bisulfite is slowly affected by air or by light.

Identification A solution of Sodium Bisulfite (1 in 20) responds to the Qualitative Tests for sodium salt and for bisulfite.

Purity (1) Clarity and color of solution—Dissolve 1.0 g of Sodium Bisulfite in 10 mL of water: the solution is clear and colorless.

(2) Thiosulfate—Dissolve 1.0 g of Sodium Bisulfite in 15 mL of water, add slowly 5 mL of dilute hydrochloric acid, shake, and allow to stand for 5 minutes: no turbidity is produced.

(3) Heavy metals—Dissolve 1.0 g of Sodium Bisulfite in 10 mL of water, add 5 mL of hydrochloric acid, and evaporate on a water bath to dryness. To the residue add 2 mL of dilute acetic acid and water to make 50 mL, and perform the test using this solution as the test solution. Prepare the control solution as follows: evaporate 5 mL of hydrochloric acid on a water bath to dryness, and add 2 mL of dilute acetic acid and 2.0 mL of Standard Lead Solution, and dilute with water to make 50 mL (not more than 20 ppm).

(4) Iron—Prepare the test solution with 1.0 g of Sodium Bisulfite according to Method 1, and perform the test according to Method A. Prepare the control solution with 2.0 mL of Standard Iron Solution (not more than 20 ppm).

(5) Arsenic—Dissolve 0.5 g of Sodium Bisulfite in 10 mL of water. Add 1 mL of sulfuric acid, heat on a sand bath until white fumes are evolved, add water to make 5 mL, and perform the test using Apparatus B with this solution as the test solution (not more than 4 ppm).

Assay Weigh accurately about 0.15 g of Sodium Bisulfite, and transfer immediately to an iodine flask containing exactly 50 mL of 0.05 mol/L iodine VS, stopper, shake, and allow to stand for 5 minutes in a dark place. Add 1 mL of hydrochloric acid, and titrate the excess iodine with 0.1 mol/L sodium thiosulfate VS (indicator: 1 mL of starch TS). Perform a blank determination.

Each mL of 0.05 mol/L iodine VS = 3.2032 mg of SO₂

Containers and storage Containers—Tight containers.

Storage—Light-resistant, preferably well-filled, and not exceeding 30°C.

Sodium Carbonate

炭酸ナトリウム

Na₂CO₃·10H₂O: 286.14

Sodium Carbonate contains not less than 99.0% and not more than 103.0% of Na₂CO₃·10H₂O.

Description Sodium Carbonate occurs as colorless or white crystals.

It is freely soluble in water, and practically insoluble in ethanol (95) and in diethyl ether.

A solution of Sodium Carbonate (1 in 10) is alkaline.

It is efflorescent in air.

It liquefies in its water of crystallization at 34°C, and becomes anhydrous at above 100°C.

Identification A solution of Sodium Carbonate (1 in 20) responds to the Qualitative Tests for sodium salt and for carbonate.

Purity (1) Clarity and color of solution—Dissolve 1.0 g of Sodium Carbonate in 5 mL of water: the solution is clear and colorless.

(2) Chloride—Dissolve 0.5 g of Sodium Carbonate in 10 mL of water, add 7 mL of dilute nitric acid, dilute with water to make 50 mL, and perform the test using this solution as the test solution. Prepare the control solution with 1.0 mL of 0.01 mol/L hydrochloric acid VS (not more than 0.071%).

(3) Heavy metals—Dissolve 2.0 g of Sodium Carbonate in 10 mL of water, add 8 mL of dilute hydrochloric acid, and evaporate to dryness on a water bath. Dissolve the residue in 35 mL of water and 2 mL of dilute acetic acid, dilute with water to make 50 mL, and perform the test using this solution as the test solution. Prepare the control solution as follows: evaporate 8 mL of dilute hydrochloric acid on a water bath to dryness, add 2 mL of dilute acetic acid and 2.0 mL of Standard Lead Solution, and dilute with water to make 50 mL (not more than 10 ppm).

(4) Arsenic—Prepare the test solution with 0.65 of Sodium Carbonate according to Method 1, and perform the test using Apparatus B (not more than 3.1 ppm).

Loss on drying 61.0 ~ 63.0% (1 g, 105°C, 4 hours).

Assay Dissolve about 3 g of Sodium Carbonate, weighed accurately, in 25 mL of water, and titrate with 0.5 mol/L sulfuric acid VS until the color of the solution changes from blue to yellow-green. Boil cautiously, cool, and further titrate until a greenish yellow color appears (indicator: 2 drops of bromocresol green TS).

Each mL of 0.5 mol/L sulfuric acid VS
= 143.07 mg of Na₂CO₃·10H₂O

Containers and storage Containers—Tight containers.

Dried Sodium Carbonate

乾燥炭酸ナトリウム

Na₂CO₃: 105.99

Dried Sodium Carbonate, when dried, contains not less than 99.0% of Na₂CO₃.

Description Dried Sodium Carbonate occurs as white crystals or crystalline powder.

It is freely soluble in water, and practically insoluble in ethanol (95) and in diethyl ether.

A solution of Dried Sodium Carbonate (1 in 10) is alkaline.

It is hygroscopic.

Identification A solution of Dried Sodium Carbonate (1 in 20) responds to the Qualitative Tests for sodium salt and for carbonate.

Purity (1) Clarity and color of solution—Dissolve 1.0 g of Dried Sodium Carbonate in 10 mL of water: the solution is clear and colorless.

(2) Chloride—Dissolve 0.5 g of Dried Sodium Carbonate in 10 mL of water, add 12 mL of dilute nitric acid, dilute with water to make 50 mL, and perform the test using this solution as the test solution. Prepare the control solution with 1.0 mL of 0.01 mol/L hydrochloric acid VS (not more than 0.071%).

(3) Heavy metals—Dissolve 1.0 g of Dried Sodium Carbonate in 10 mL of water, add 7.5 mL of dilute hydrochloric acid, and evaporate on a water bath to dryness. Dissolve the residue in 35 mL of water and 2 mL of dilute acetic acid, dilute with water to make 50 mL, and perform the test using this solution as the test solution. Prepare the control solution as follows: evaporate 7.5 mL of dilute hydrochloric acid on a water bath to dryness, add 2 mL of dilute acetic acid and 2.0 mL of Standard Lead Solution, and dilute with water to make 50 mL (not more than 20 ppm).

(4) Arsenic—Prepare the test solution with 0.65 g of Dried Sodium Carbonate according to Method 1, and perform the test using Apparatus B (not more than 3.1 ppm).

Loss on drying Not more than 2.0% (2 g, 106°C, 4 hours).

Assay Dissolve about 1.2 g of Dried Sodium Carbonate, weighed accurately, in 25 mL of water, and titrate with 0.5 mol/L sulfuric acid VS until the color of the solution changes from blue to yellow-green. Then boil cautiously, cool, and further titrate until a greenish yellow color develops (indicator: 2 drops of bromocresol green TS).