



Edition: BP 2025 (Ph. Eur. 11.6 update)

Sodium Bicarbonate



[General Notices](#)

(Sodium Hydrogen Carbonate, Ph. Eur. monograph 0195)

NaHCO₃ 84.0 144-55-8

Action and use

Antacid; used in treatment of electrolyte deficiency.

Preparations

[Sodium Bicarbonate Ear Drops](#)

[Sodium Bicarbonate Eye Lotion](#)

[Sodium Bicarbonate Infusion](#)

[Sodium Bicarbonate Oral Solution](#)

[Compound Sodium Bicarbonate Tablets](#)

Ph Eur

DEFINITION

Content

99.0 per cent to 101.0 per cent.

CHARACTERS

Appearance

White or almost white, crystalline powder.

Solubility

Soluble in water, practically insoluble in ethanol (96 per cent).

When heated in the dry state or in solution, it gradually changes into sodium carbonate.

IDENTIFICATION

A. To 5 mL of solution S (see Tests) add 0.1 mL of [phenolphthalein solution R](#). A pale pink colour is produced. Heat; gas is evolved and the solution becomes red.

- B. It gives the reaction of carbonates and bicarbonates ([2.3.1](#)).
- C. Solution S gives reaction (a) of sodium ([2.3.1](#)).

TESTS

Solution S

Dissolve 5.0 g in 90 mL of [carbon dioxide-free water R](#) and dilute to 100.0 mL with the same solvent.

Appearance of solution

Solution S is clear ([2.2.1](#)) and colourless ([2.2.2, Method II](#)).

Carbonates

The pH ([2.2.3](#)) of freshly prepared solution S is not greater than 8.6.

Chlorides ([2.4.4](#))

Maximum 150 ppm.

To 7 mL of solution S add 2 mL of [nitric acid R](#) and dilute to 15 mL with [water R](#).

Sulfates ([2.4.13](#))

Maximum 150 ppm.

To a suspension of 1.0 g in 10 mL of [distilled water R](#) add [hydrochloric acid R](#) until neutral and about 1 mL in excess. Dilute to 15 mL with [distilled water R](#).

Ammonium ([2.4.1](#))

Maximum 20 ppm.

Dilute 10 mL of solution S to 15 mL with [water R](#). Prepare the standard using a mixture of 5 mL of [water R](#) and 10 mL of [ammonium standard solution \(1 ppm NH₄\) R](#).

Calcium ([2.4.3](#))

Maximum 100 ppm.

To a suspension of 1.0 g in 10 mL of [distilled water R](#) add [hydrochloric acid R](#) until neutral and dilute to 15 mL with [distilled water R](#).

Iron ([2.4.9](#))

Maximum 20 ppm.

Dissolve 0.5 g in 5 mL of [dilute hydrochloric acid R](#) and dilute to 10 mL with [water R](#).

ASSAY

Dissolve 0.750 g in 50 mL of [carbon dioxide-free water R](#). Titrate with [1 M hydrochloric acid](#), determining the end-point potentiometrically ([2.2.20](#)). Read the volume added at the 2nd point of inflection, or at the point of inflection if only 1 point is detected.

1 mL of [1 M hydrochloric acid](#) is equivalent to 84.0 mg of NaHCO₃.

