

Sodium bicarbonate or sodium hydrogen carbonate is the chemical compound with the formula  $\text{NaHCO}_3$ . Sodium bicarbonate is a white solid that is crystalline but often appears as a fine powder. It has a slightly salty, alkaline taste resembling that of washing soda (sodium carbonate). It is a component of the mineral natron and is found dissolved in many mineral springs. The natural mineral form, nahcolite, is found in dissolved form in bile, where it serves to neutralize the acidity of the hydrochloric acid produced by the stomach, and is excreted into the duodenum of the small intestine via the bile duct. It is also produced artificially.

Since it has long been known and is widely used, the salt has many related names such as **baking soda, bread soda, cooking soda, bicarbonate of soda**

. Colloquially, its name is shortened to sodium bicarb, bicarb soda, or simply bicarb. The word saleratus, from Latin sal æratus meaning "aerated salt", was widely used in the 19th century for both sodium bicarbonate and potassium bicarbonate. The term has now fallen out of common usage.

Sodium bicarbonate is primarily used in cooking (baking) where it reacts with other components to release carbon dioxide, which helps dough rise. The acidic compounds that induce this reaction include phosphates, cream of tartar, lemon juice, yogurt, buttermilk, cocoa, vinegar, etc. Sodium bicarbonate can be substituted for baking powder provided sufficient acid reagent is also added to the recipe.[4] Many forms of baking powder contain sodium bicarbonate combined with one or more acidic phosphates (especially good) or cream of tartar. It can also be used for softening peas ( $\frac{1}{8}$  tsp. per pint of water and bring to boil for one hour)

Sodium bicarbonate was sometimes used in cooking vegetables, to make them softer, although this has gone out of fashion as most people now prefer firmer vegetables which contain more nutrients, and fibre. Bicarb destroys acids in food, including Vitamin C.

Thermal decomposition causes sodium bicarbonate alone to act as a raising agent by releasing carbon dioxide at baking temperatures. The carbon dioxide production starts at temperatures above 80 C. The mixture for cakes using this method can be allowed to stand before baking without any premature release of carbon dioxide.

### Medical uses

Sodium bicarbonate is used in an aqueous solution as an antacid taken orally to treat acid indigestion and heartburn.[8] It may also be used in an oral form to treat chronic forms of metabolic acidosis such as chronic renal failure and renal tubular acidosis. Sodium bicarbonate may also be useful in urinary alkalinization for the treatment of aspirin overdose and uric acid renal stones. It is used as the medicinal ingredient in gripe water for infants.[9]

Bicarb has been known to be used in first aid, in treating scalding, to prevent blistering and scarring. Cover scald area with a liberal layer of bicarb and seek medical assistance.

An aqueous solution is sometimes administered intravenously for cases of acidosis, or when

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Written by W.J.Pais

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there are insufficient sodium or bicarbonate ions in the blood.[10] In cases of respiratory acidosis, the infused bicarbonate ion drives the carbonic acid/bicarbonate buffer of plasma to the left and, thus, raises the pH. It is for this reason that sodium bicarbonate is used in medically supervised cardiopulmonary resuscitation. Infusion of bicarbonate is indicated only when the blood pH is marked ( $<7.1$ - $7.0$ ) low.[11]

It is used as well for treatment of hyperkalemia. Since sodium bicarbonate can cause alkalosis, it is sometimes used to treat aspirin overdoses. Aspirin requires an acidic environment for proper absorption, and the basic environment diminishes aspirin absorption in the case of an overdose. Sodium bicarbonate has also been used in the treatment of tricyclic antidepressant overdose.[12] It can also be applied topically as a paste, with three parts baking soda to one part water, to relieve insect bites.[13]

Adverse reactions to the administration of sodium bicarbonate can include metabolic alkalosis, edema due to sodium overload, congestive heart failure, hyperosmolar syndrome, hypervolemic hyponatremia, and hypertension due to increased sodium. In patients who consume a high calcium or dairy-rich diet, calcium supplements, or calcium-containing antacids such as calcium carbonate (e.g., Tums), the use of sodium bicarbonate can cause milk-alkali syndrome, which can result in metastatic calcification, kidney stones, and kidney failure.

Sodium bicarbonate is also used as an ingredient in some mouthwashes. It works as a mechanical cleanser on the teeth and gums, neutralizes the production of acid in the mouth and also as an antiseptic to help prevent infections occurring.

Sodium bicarbonate can be used to cover an allergic reaction of poison ivy, oak, or sumac to relieve some of the itching that is associated with it (an alternative to buying hydrocortisone cream).[14]

Sodium bicarbonate can be used as an exfoliant. Its particles are rounded and fine in texture, making it both effective and gentle on the skin. Using baking soda as an exfoliating scrub will remove dead skin cells, which can be discolored from hyperpigmentation and scarring.

### Personal hygiene

A paste made from sodium bicarbonate and a 3% hydrogen peroxide solution can be used as an alternative to commercial non-fluoride toothpastes, and sodium bicarbonate in combination with other ingredients can be used to make a dry or wet deodorant. Sodium bicarbonate is a common ingredient in alternative and natural brands of toothpaste and deodorant. It may also be used as a shampoo.

[Source](#)