



Product Information

Sodium bicarbonate

Product Number **S 7277**
Store at Room Temperature

Product Description

Molecular Formula: NaHCO_3
Molecular Weight: 84.01
CAS Number: 144-55-8
 pK_a : 6.37, 10.25 (carbonic acid)
Synonyms: sodium hydrogen carbonate, sodium acid carbonate, baking soda

This product is designated as Molecular Biology grade and is suitable for molecular biology applications. It has been analyzed for the absence of nucleases and proteases.

Sodium bicarbonate occurs in nature as the mineral nahcolite. It is used in the production of many sodium salts and as a source of carbon dioxide. Manufacturing applications of sodium bicarbonate include fire extinguishers and cleaning compounds.¹ Bicarbonate is an important agent of pH regulation *in vivo* and the intracellular transport of sodium bicarbonate has been widely investigated.^{2,3,4}

Sodium bicarbonate is used as a buffer in biochemistry, molecular biology, and chromatography. The use of sodium bicarbonate in cell culture media has been discussed.⁵ A review of methods of analysis for ochratoxin A from plasma and foods that includes the use of sodium bicarbonate has been published.⁶ A protocol has been reported on the separation of inorganic and organic arsenic species by HPLC in tandem with ICP mass spectrometry.⁷ The copper-mediated cleavage of histidine-containing peptides in sodium bicarbonate buffer has been studied.⁸

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (100 mg/ml), yielding a clear, colorless solution. At 25 °C, the pH of a freshly prepared 0.1 M aqueous solution of sodium bicarbonate is 8.3.¹

References

1. The Merck Index, 12th ed., Entry# 8726.
2. Deitmer, J. W., A role for CO_2 and bicarbonate transporters in metabolic exchanges in the brain. *J. Neurochem.*, **80**(5), 721-726 (2002).
3. Soleimani, M., $\text{Na}^+:\text{HCO}_3^-$ cotransporters (NBC): expression and regulation in the kidney. *J. Nephrol.*, **15 Suppl 5**, S32-40 (2002).
4. Gross, E., and Kurtz, I., Structural determinants and significance of regulation of electrogenic $\text{Na}^+:\text{HCO}_3^-$ cotransporter stoichiometry. *Am. J. Physiol. Renal Physiol.*, **283**(5), F876-887 (2002).
5. McLimans, W. F., Mass culture of mammalian cells. *Methods Enzymol.*, **58**, 194-211 (1979).
6. Scott, P. M., Methods of analysis for ochratoxin A. *Adv. Exp. Med. Biol.*, **504**, 117-134 (2002).
7. Bissen, M., and Frimmel, F. H., Speciation of As^{III} , As^{V} , MMA and DMA in contaminated soil extracts by HPLC-ICP/MS. *Fresenius J. Anal. Chem.*, **367**(1), 51-55 (2000).
8. Allen, G., and Campbell, R. O., Specific cleavage of histidine-containing peptides by copper(II). *Int. J. Pept. Protein Res.*, **48**(3), 265-273 (1996).

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