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ProductInformation

Sodium chloride

Product Number **S 3014**
Store at Room Temperature

Product Description

Molecular Formula: NaCl
Molecular Weight: 58.44
CAS Number: 7647-14-5

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 chloride is a widespread material that is the source of chlorine and sodium for the production of related compounds such as sodium carbonate, sodium hydroxide, and chlorates. It occurs in nature as the mineral halite and can be isolated by the mining of rock salt, or the evaporation of brine or sea water. Large-scale applications include the manufacture of soap and dyes, food preservation, and the dyeing and printing of fabrics.[1]

Sodium chloride is widely used in biochemistry and molecular biology research. It is a component of phosphate buffered saline (Product No. P 3813) and SSC buffer (Product Nos. S 0902 and S 8015). Applications of sodium chloride include the removal of small nucleic acid fragments from plasmid DNA preparations and the precipitation of DNA from SDS-containing samples. Sodium chloride has been used in the purification of bacteriophage λ arms and the isolation of single-stranded DNA from bacteriophage M13. Protocols that use sodium chloride for the isolation of DNA from mammalian cells which have been grown in multiwell plates and from small mammalian tissue samples have been described. Sodium chloride is also utilized in the chemical sequencing of DNA.[2]

Sodium chloride is widely used in protein crystallization (Product Nos. 70437, 75403, and 73513).[3,4,5,6] It is also used in the column chromatography of proteins.[7,8] The use of sodium chloride in the analysis of human α-thrombin by hydrophobic interaction HPLC has been reported.[9] Capillary electrophoresis of proteins on an anion-exchange column that uses a buffer of phosphate and sodium chloride has been investigated.[10]

The use of sodium chloride in the determination of heavy and transition metals in biochemical samples by ion chromatography has been published.[11]

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. It is also soluble in glycerol.[1]

Storage/Stability

The pH of an aqueous NaCl solution is neutral, in the range of 6.7 - 7.3. The density of a saturated aqueous NaCl solution at 25 °C is 1.202 g/ml.[1]

References

1. The Merck Index, 12th ed., Entry# 8742.
2. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. F., et al., Cold Spring Harbor Laboratory Press (Cold Spring Harbor, NY: 2001), pp. 1.78-1.79, 2.71-2.75, 6.19-6.20, 6.24-6.25, 6.26, 12.23, 12.61-12.65, 16.43, A8.12.
3. Curtis, R. A., et al., Hydrophobic forces between protein molecules in aqueous solutions of concentrated electrolyte. Biophys. Chem., **98(3)**, 249-265 (2002).
4. Smith, B. S., et al., Crystallization and preliminary X-ray analysis of ferric enterobactin receptor FepA, an integral membrane protein from *Escherichia coli*. Acta Crystallogr. D Biol. Crystallogr., **54 (Pt 4)**, 697-699 (1998).
5. Discipio, R. G., et al., Crystallization of human complement component C5. Acta Crystallogr. D Biol. Crystallogr., **54 (Pt 4)**, 643-646 (1998).

6. Solovyova, A., et al., Non-ideality by sedimentation velocity of halophilic malate dehydrogenase in complex solvents. Biophys. J., **81(4)**, 1868-1880 (2001).
7. Lee, W. C, and Chen, C. H., Predicting the elution behavior of proteins in affinity chromatography on non-porous particles. J. Biochem. Biophys. Methods, **49(1-3)**, 63-82 (2001).
8. Li, Y., and Beitle, R. R., Protein purification via aqueous two-phase extraction (ATPE) and immobilized metal affinity chromatography. Effectiveness of salt addition to enhance selectivity and yield of GFPuv. Biotechnol. Prog., **18(5)**, 1054-1059 (2002).
9. Karlsson, G., Analysis of human α-thrombin by hydrophobic interaction high-performance liquid chromatography. Protein Expr. Purif., **27(1)**, 171-174 (2003).
10. Zhang, J., et al., Capillary electrochromatography of proteins on an anion-exchanger column. Anal. Chem., **72(14)**, 3022-3029 (2000).
11. Lu, H., et al., Use of ion chromatography for the determination of heavy and transition metals in biochemical samples. J. Chromatogr. A, **857(1-2)**, 343-349 (1999).

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