

Product Information

Sodium chloride

Catalog Numbers **S7653, S9625, S9888**

S7653: BioXtra, ≥99.5%, analyzed for anion and cation traces

S9625: ReagentPlus®, ≥99.5% (titration)

S9888: ACS Reagent, meets criteria set by the American Chemical Society, ≥99.0%

CAS RN: 7647-14-5

Synonyms: halite; common or table salt; rock salt

Physical Description:

Appearance: white powder (crystalline)

Molecular formula: NaCl

Molecular weight: 58.44

Density: 2.17 g/mL¹

Melting point: 804 °C¹

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Sodium chloride is stable. If kept dry, it will remain a free-flowing solid for years.

Solubility/Solution Stability

Sodium chloride dissolves in water to give a clear colorless solution.

S7653 tested at 1 M (~58.5 mg/mL).²

S9625 tested at 100 mg/mL²

Maximum solubility of NaCl in water at 25 °C is 357 mg/mL. NaCl is unusual in that its solubility does not increase appreciably with temperature, since at 100 °C, the solubility is 384 mg/mL.¹ The solubility of NaCl in water is decreased by adding HCl; it is almost insoluble in concentrated HCl. The density of a saturated solution at 25 °C is 1.202 g/mL. A saturated solution (23% w/v) freezes at -20.5 °C (5 °F).¹

Solutions of sodium chloride are stable at room temperature and may be autoclaved.

General Remarks

Sodium chloride is a commonly used chemical found in nature and in all body tissue, and is considered an essential nutrient. Although generally not considered poisonous, excess NaCl can destroy electrolyte balance and cause death.

Sodium chloride is used in a wide variety of biochemical applications, including intravenous fluids (0.85% in water), density gradients, and as a diluent to increase ionic strength in buffers or culture media. Traditionally, it has been used in high concentrations for preservation of foods, etc., since bacteria cannot grow in high-salt conditions. A salt-and-ice mixture in the ratio 33 g NaCl to 100 g ice (at -1 °C) will drop in temperature to as low as -21 °C, depending on the rate of stirring and the size of the ice chunks.³

References

1. *Merck Index*, 14th Ed., #8599.
2. Sigma assay values
3. *The Chemist's Companion: A Handbook of Practical Data, Techniques and References*, eds. Gordon, A.J. and Ford, F.A. (John Wiley & Sons, 1972), p. 452.

ReagentPlus is a registered trademark of Sigma-Aldrich Biotechnology LP and Sigma-Aldrich Co.

PHC 04/10-1