



Product Information

Sodium dodecyl sulfate solution

Product Number **L 4522**
Store at Room Temperature

Product Description

Molecular Formula: $C_{12}H_{25}NaO_4S$ (SDS salt)
Molecular Weight: 288.4 (SDS salt)
CAS Number: 151-21-3 (SDS salt)

This product is a 10% solution, prepared in 18 megohm water, and is 0.2 μ m filtered. It is designated as Molecular Biology grade and is suitable for molecular biology applications. This product has been analyzed for the absence of nucleases.

SDS is an anionic detergent and wetting agent that is effective in both acid and alkaline solutions.¹ SDS has a wide variety of applications, but is most often used as a protein and lipid solubilization reagent. In general, for solubilization of proteins, SDS should be used at its critical micelle concentration.² SDS is also a powerful protein denaturant. The effects of SDS on protein conformation have been published.^{3,4} Comparisons between SDS and other detergents for solubilization of lipids, proteins, and its effect on enzymes activity have been published.^{2,5} SDS has been utilized in the gel electrophoresis of such proteins as cardiac myosin heavy chains.⁶

To remove SDS from protein samples, it is recommended to use Product No. I 6878, Dowex[®] Ion Retardation Resin, which contains paired anion and cation exchange sites. Methods for SDS removal by ion exchange chromatography have been published.⁷ Methylene blue can be used to assay amounts of SDS remaining following removal by ion exchange chromatography.⁸

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (200 mg/ml), yielding a clear, colorless solution.

Storage/Stability

SDS undergoes hydrolysis at elevated temperatures, especially in acidic medium. Prolonged heating at 40 °C or greater causes decomposition of alkyl sulfates into fatty alcohols and sodium sulfate⁹.

References

1. Martindale The Extra Pharmacopoeia, 29th ed., Reynolds, J. E. F., ed., The Pharmaceutical Press (London, England: 1989), p. 1417.
2. Womack, M. D., et al., Detergent Effects on Enzyme Activity and Solubilization of Lipid Bilayer Membranes. *Biochim. Biophys. Acta*, **733(2)**, 210-215 (1983).
3. Protein Structure: A Practical Approach, 2nd ed., Creighton, T. E., ed., IRL Press at Oxford University Press (New York, NY: 1997), pp. 1-19.
4. Protein Structure: A Practical Approach, 2nd ed., Creighton, T. E., ed., IRL Press at Oxford University Press (New York, NY: 1997), pp. 198-199.
5. Weber, K., and Kuter, D. J., Reversible Denaturation of Enzymes by Sodium Dodecyl Sulfate. *J. Biol. Chem.*, **246(14)**, 4504-4509 (1971).
6. Warren, C. M., and Greaser, M. L., Method for cardiac myosin heavy chain separation by sodium dodecyl sulfate gel electrophoresis. *Anal. Biochem.*, **320(1)**, 149-151 (2003).
7. Kapp, O. H., and Vinogradov, S. N., Removal of Sodium Dodecyl Sulfate from Proteins. *Anal. Biochem.*, **91(1)**, 230-235 (1978).
8. Hayashi, K., A Rapid Determination of Sodium Dodecyl Sulfate with Methylene Blue. *Anal. Biochem.*, **67(2)**, 503-506 (1975).
9. Chem. Abstract, vol. 72:22811d (1970).

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MWM/GCY/RXR 8/03

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