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ProductInformation

N,N,N′,N′-Tetramethylethylenediamine

Product Number **T 8133**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_{16}N_2$
Molecular Weight: 116.2
CAS Number: 110-18-9
Boiling Point: 120-122 °C
Refractive Index: 1.4179 (20 °C)
Density: 0.770 g/ml
Molarity: 6.63 M (based on molecular weight and density)
Synonyms: 1,2-Bis(dimethylamino)ethane, TEMED, TMEDA

This product is suitable for electrophoresis and is tested as a catalyst for polyacrylamide gel electrophoresis (PAGE).

TEMED is a tertiary amine that is used to catalyze the formation of free radicals from ammonium persulfate or riboflavin. Such TEMED generated free radicals cause the compounds acrylamide and bis-acrylamide to polymerize and form the gel matrix polyacrylamide. Polyacrylamide gels are commonly used for the electrophoretic resolution of macromolecules such as nucleic acids and proteins. Because TEMED is functional only in its free base form, low pH conditions will inhibit polymerization.[1,2,3]

The potential contribution of TEMED in the presence of elevated background in silver stained SDS PAGE has been studied.[4] TEMED has been used in the coating of soft polymers, such as polyacrylamide, in capillaries for investigation by atomic force microscopy.[5] Microchips containing oligonucleotides and proteins immobilized within gel pads have been prepared using TEMED.[6]

The capillary isoelectric focusing of proteins with an isoelectric point (pI) > 12 has been investigated through the use of TEMED.[7] TEMED has been used in the HPLC of small organic molecules.[8]

Precautions and Disclaimer

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

Preparation Instructions

This product is miscible in water (1 ml/1 ml, 50%), yielding a clear, colorless to faint yellow solution.

References

1. Ogden, R. C., and Adams, D. A. Electrophoresis in agarose and acrylamide gels. Methods Enzymol., **152**, 61-87 (1987).
2. Electrophoresis: Theory, Techniques, and Biochemical and Clinical Applications, 2nd ed., Andrews, A. T., Oxford University Press (Oxford, UK: 1986), pp. 21-24.
3. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. and Russell, D. W., CSHL Press (Cold Spring Harbor, NY: 2001), pp. 5.40-5.48, 12.74-12.82, 13.49-13.56, A8.42.
4. Patras, G., et al., On the mechanism of background silver staining during sodium dodecyl sulphate-polyacrylamide gel electrophoresis. Electrophoresis, **20(10)**, 2039-2045 (1999).
5. Barberi, R., et al., Probing soft polymeric coatings of a capillary by atomic force microscopy. J. Chromatogr. B Biomed. Appl., **683(1)**, 3-13 (1996).
6. Vasiliskov, A. V., et al., Fabrication of microarray of gel-immobilized compounds on a chip by copolymerization. Biotechniques, **27(3)**, 592-4, 596-8, 600 passim (1999).

7. Mohan, D., and Lee, C. S., Extension of separation range in capillary isoelectric focusing for resolving highly basic biomolecules. J. Chromatogr. A, **979(1-2)**, 271-276 (2002).

8. Rosing H, et al., Related Articles, High-performance liquid chromatographic determination of the novel antitumour drug topotecan and topotecan as the total of the lactone plus carboxylate forms, in human plasma. J. Chromatogr. B. Biomed. Appl., **668(1)**, 107-115 (1995).

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