3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Formamide

Product Number **F 9037**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: CH_3NO
Molecular Weight: 45.04
CAS Number: 75-12-7
Melting Point: 2.55 °C[1]
Boiling Point: 210.5 °C (760 torr; partial decomposition occurs into carbon monoxide and ammonia at atmospheric pressure starting at 180 °C)[1]
Molarity (neat liquid): 25.09 (based on density of 1.13 g/ml)
Synonyms: methanamide; carbamaldehyde

This product is designated as Molecular Biology grade and is suitable for use in nucleic acid hybridizations. It is deionized and packaged under argon in amber glass bottles. Once the bottle is opened and the formamide is exposed to oxygen, this product will begin to oxidize to formic acid. Therefore, once opened, the bottle will need to be purged with nitrogen and stored frozen to prevent oxidation.

Formamide is a reagent that is an ionizing solvent in aqueous buffers. It is widely utilized in biochemistry and molecular biology, particularly in nucleic acids research. Procedures have been reported for the use of formamide in DNA sequencing and in polyacrylamide sequencing gels, which helps to eliminate secondary structure in nucleic acids and thus compressions in the gel data. Other protocols incorporate formamide for RNA denaturation, Northern blot hybridization and stripping, ribonuclease protection assays, RNA storage, and Southern hybridization.[2] The use of formamide for the quantitation of mRNAs in hepatocytes solubilized in guanidium thiocyanate has been reported.[3]

Protocols have been described for the use of formamide in DNA isolation from cultured bacteriophage λ and cultured mammalian cells.[2]

Formamide may be included at levels up to 50% in a streptavidin-induced electrophoretic mobility shift procedure for the isolation of single-stranded DNA from PCR products.[4]

Formamide is also utilized in such large scale applications as the manufacture of formic esters, the production of hydrocyannic acid by catalytic dehydration, and as a softener for paper.[1] A study of the use of formamide to recover estradiol degradation products in a transdermal drug delivery formulation has been published.[5] A protocol that incorporates formamide into the analysis of β-blocker compounds by nonaqueous capillary electrophoresis coupled to electrospray ionization mass spectrometry has been described.[6]

Precautions and Disclaimer

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

Preparation Instructions

This product is miscible in water (formamide:water, 50% v/v), yielding a clear, colorless solution.

References

1. The Merck Index, 12th ed., Entry# 4264.
2. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. and Russell, D.W., CSHL Press (Cold Spring Harbor, NY: 2001), pp. 2.59-2.60, 6.13-6.15, 6.56, 6.58-6.60, 7.8, 7.33, 7.44, 7.45, 7.67, 12.81-12.82, 12.109-12.110.
3. Kaabache, T., et al., Direct solution hybridization of guanidine thiocyanate-solubilized cells for quantitation of mRNAs in hepatocytes. Anal. Biochem., **232(2)**, 225-230 (1995).
4. Pagratis, N. C., Rapid preparation of single stranded DNA from PCR products by streptavidin induced electrophoretic mobility shift. Nucleic Acids Res., **24(18)**, 3645-3646 (1996).

5. Li, J., Elimination of polymer interference in chromatographic analysis of estradiol degradation products in a transdermal drug delivery formulation by proper selection of extraction solvents. J. Pharm. Sci., **91(8)**, 1873-1879 (2002).

6. Geiser, L., et al., Potential of formamide and N-methylformamide in nonaqueous capillary electrophoresis coupled to electrospray ionization mass spectrometry. Application to the analysis of beta-blockers. J. Chromatogr. A, **979(1-2)**, 389-398 (2002).

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