

47671 Formamide

(Formic amide, Amide C₁)

CAS number: 75-12-7

Product Description:

Appearance:	Clear colorless to very faint yellow liquid
Molecular formula:	CH ₃ NO
Formula weight:	45.04 g/mol (anhydrous)
Melting Point:	+2.55°C
Boiling Point:	210.5°C at 760 mm (partial decomposition into CO and NH ₃ at atm pressure beginning at 180°C)
Specific Gravity:	1.13340 at 20°C with respect to H ₂ O at 4°C
Refractive Index:	1.44754 at 20°C for sodium light
Dielectric constant:	109 ± 1.5 ⁴

Stability / Storage as supplied:

Formamide may be stored at room temperature and should be protected from exposure to moisture. It will begin to partially decompose into carbon monoxide and ammonia at one atmosphere of pressure at 180°C. Industrial grades may have a faint odor of ammonia.

Solubility / Solution Stability:

Formamide is miscible with water, methanol, ethanol, acetone, acetic acid, dioxane, glycols, glycerol and phenol. It is very slightly soluble in ether and benzene. Many compounds such as tannins, casein, gelatine, glucose, cellulose acetate, starch, lignin, polyvinyl alcohol, cellulose acetate, nylon, chlorides of copper, lead, zinc, tin, cobalt, iron, aluminum, nickel and the acetates of the alkali metals will dissolve in formamide.

Applications:

Formamide is used as an ionizing solvent, in the manufacture of formic esters and vitamins, as a softener for paper, in animal glues and water-soluble gums.

Formamide is used in molecular biology as a denaturing agent for nucleic acids in gel electrophoresis or hybridization experiments. In this latter case the role of formamide is to decrease the temperature necessary for the reassociation of complementary nucleic acids.

Solubilization of RNA in Formamide (contributed by James McCaughern-Carucci, Yale University):

Resuspending RNA in Formamide has several benefits over storage in water or ethanol. First, formamide will protect RNA from RNases. The RNA is also extremely stable, allowing it to be stored overnight at 4°C, or indefinitely at -20°C. Samples can even be left at room temperature overnight without fear of degradation. Samples can be made to be highly concentrated, up to 4 mg/ml. Finally, with concentrated samples, no drying of your RNA is necessary for running Northern blots, RT-PCR, or RNase Protection, saving time and potential degradation.^{2, 3}



References:

1. The Merck Index, 12th ed., p. 718, #4264 (1996).
2. Chomczynski, P. (1992) Nucleic Acids Res. 20(14):3791-2)
3. Daisuke Nakajima, Manabu Nakayama and Osamu Ohara, Modified TRIZOL Reagent Protocol for Large mRNA, Focus (1998) vol. 20, no. 3, p80
4. Römpp Chemie Lexikon Thieme Verlag (1995)

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.

The vibrant M and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. Detailed information on trademarks is available via publicly accessible resources.
© 2018 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada.

