

Formic acid

Product Number **F0507**
Store at Room Temperature

Product Description

Molecular Formula: CH₂O₂
Molecular Weight: 46.03
CAS Number: 64-18-6
Density: 1.22 g/ml¹
Molarity (neat liquid, calculated from density): 26.5 M
pK_a: 3.75 (20 °C)¹
Melting Point: 8.4 °C¹
Boiling Point: 100.8 °C¹
Synonym: carboxylic acid C₁

Formic acid, the smallest of the carboxylic acids, was observed in the 17th century from the distillation of ants. Formic acid is utilized in a variety of large scale applications, which include the dyeing of natural and synthetic fibers, feed and fodder preservation, leather tanning, the production of commercial cleaning products, and rubber coagulation.¹ In organic synthesis, formic acid has been used in the synthesis of such classes of compounds as coumarins, optically active styrene oxides, and polyamide oligomers based on 14-amino-3,6,9,12-tetraoxatetradecanoic acid.^{2,3,4}

Formic acid has been used in the mobile phase for various LC-MS analytical methods, such as an LC-MS study of spiroketal stereoisomers of pectenotoxins and an LC/ESI-MS/UV photodiode array method for the analysis of flavonoid glycosides.^{5,6} A method to measure internal nucleoside triphosphate pools of lactococci that uses formic acid in the chromatographic separation has been described.⁷ The use of formic acid in the separation and detection of intact proteins by reversed-phase LC/ESI-MS by flow injection analysis has been reported.⁸ A method of protein hydrolysis using formic acid for MS analysis has been published.⁹

Precautions and Disclaimer

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

Preparation Instructions

This product is miscible in water (0.1 ml/ml, 10%, v/v), yielding a clear, colorless solution. It is also miscible in ether, acetone, ethyl acetate, methanol, and ethanol.¹

References

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3. Hamada, T., et al., Practical synthesis of optically active styrene oxides via reductive transformation of 2-chloroacetophenones with chiral rhodium catalysts. *Org. Lett.*, **4(24)**, 4373-4376 (2002).
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5. Suzuki, T., et al., Liquid chromatography-mass spectrometry of spiroketal stereoisomers of pectenotoxins and the analysis of novel pectenotoxin isomers in the toxic dinoflagellate *Dinophysis acuta* from New Zealand. *J. Chromatogr. A*, **992(1-2)**, 141-150 (2003).
6. Cuyckens, F., and Claeys, M., Optimization of a liquid chromatography method based on simultaneous electrospray ionization mass spectrometric and ultraviolet photodiode array detection for analysis of flavonoid glycosides. *Rapid Commun. Mass Spectrom.*, **16(24)**, 2341-2348 (2002).
7. Martinussen, J., et al., Two nucleoside uptake systems in *Lactococcus lactis*: competition between purine nucleosides and cytidine allows for modulation of intracellular nucleotide pools. *J. Bacteriol.*, **185(5)**, 1503-1508 (2003).
8. Garcia, M. C., et al., Effect of the mobile phase composition on the separation and detection of intact proteins by reversed-phase liquid chromatography-electrospray mass spectrometry. *J. Chromatogr. A*, **957(2)**, 187-199 (2002).
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