



Product Information

Trifluoroacetic acid

Product Number **T 1647**
Store at Room Temperature

Product Description

Molecular Formula: $C_2HF_3O_2$
Molecular Weight: 114.0
CAS Number: 76-05-1
 pK_a : 0.3;¹ 0.23 (water at 25 °C)²;
0.50 (water at 25 °C)³
Melting Point: -15.4 °C¹
Boiling Point: 72.4 °C;¹ 70.5-72 °C²
Density: 1.489 g/ml (20 °C)⁴; 1.535 g/ml (20 °C)¹
Synonym: TFA

This product has a concentration of approximately 13 M based on a density of 1.48 g/ml. This product is moisture sensitive and hygroscopic.⁵ The method of preparation is well documented⁶ and detailed spectral information is available.⁷ This product can be used for the purification of peptides by reverse phase HPLC.^{8,9}

This is the product recommended for use in HPLC because it is a protein sequencing grade and absorbance values in the peptide range are found to be low.

Precautions and Disclaimer

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

Preparation Instructions

This product is miscible in water (100 mg/ml). It is also miscible in ethanol at 0.33 ml/ml. This acid is miscible with ether, acetone, ethanol, benzene, carbon tetrachloride, and hexane.¹

References

1. The Merck Index, 11th ed., Entry# 9595.
2. Dictionary of Organic Compounds, 5th ed., Buckingham, J., ed., Chapman and Hall (New York, NY: 1982), p. 5475.
3. Lange's Handbook of Chemistry, 13th ed., Dean, J. A., ed., McGraw-Hill (New York: 1985), pp. 5-58.
4. Lange's Handbook of Chemistry, 13th ed., Dean, J. A., ed., McGraw-Hill (New York: 1985), pp. 7-660.
5. Chem. Non-aqueous Solvents, Vol. 5B, Lagowski, J. J., ed., Academic Press (New York, NY: 1978), pp. 1-52.
6. Henne, A. L., et al., The Alkaline Condensation of Fluorinated Esters with Esters and Ketones. J. Am. Chem. Soc., **69**, 1820 (1947).
7. Berney, C. V., Spectroscopy of CF_3CO_2 compounds. V. Vibrational spectra and structure of solid trifluoroacetic acid. J. Am. Chem. Soc., **95**, 708 (1973).
8. Mahoney, W. C., and Hermodson, M. A., Separation of Large Denatured Peptides by Reverse Phase High Performance Liquid Chromatography. Trifluoroacetic Acid as a Peptide Solvent. J. Biol. Chem., **255(23)**, 11199-11203 (1980).
9. Yuan, P. M., Microsequence Analysis of Peptides and Proteins. I. Preparation of Samples by Reverse-Phase Liquid Chromatography. Anal. Biochem., **120(2)**, 289-301 (1982).

CMH/RXR 1/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.