

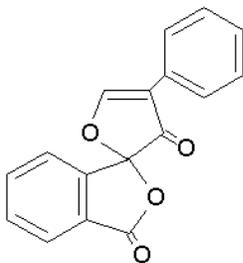
Product Information

Fluorescamine

Product Number **F 9015**
Store at Room Temperature

CAS RN: 38183-12-9

Product Description



Molecular formula: C₁₇H₁₀O₄
Molecular weight: 278.26

Melting Point: 154-155 °C¹

λ_{\max} : 306 nm, 284 nm, 276 nm, 235 nm

Extinction Coefficient: E_{mM} = 3.8, 4.1, 3.9, 25.9 (ether)

Excitation Wavelength: 390 nm^{2,3} (borate buffer, pH 8.5)

Emission Wavelength: 465 nm²; 475 nm³

Fluorescamine, a heterocyclic dione, reacts with primary amines to form a fluorescent product. Free NH₃ yields a non-fluorescent product. The fluorescence of a solution containing protein plus fluorescamine is proportional to the quantity of free amine groups present.² This is the basis of a fluorescent protein assay.^{5,6} This product has been used in labeling casein so that it can be used as a substrate for measuring protease activity.⁴

Fluorescamine is used in many sensitive detection methods, e.g., characterization of poly-L-lysine (pLL)/DNA complexes post-modified with a multivalent hydrophilic polymer⁷, spectrofluorimetric analysis of procaine⁸, detection and quantitation of residual aminopenicillins by HPLC after fluorescamine derivation⁹, determination of lisinopril in human plasma and urine¹⁰ and sulfonamides in honey¹¹ by HPLC with fluorescence detection.

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.

Preparation Instructions

It is soluble in acetone at 50 mg/ml, yielding a clear solution.

Storage/Stability

Store fluorescamine at room temperature. A stock solution of 7.5 mg of fluorescamine in 25 ml of acetone is stable at room temperature, if kept free of moisture. Fluorescamine hydrolyzes quite rapidly in water to give non-fluorescent products. The half-life for the reaction with peptides is 10-100 milliseconds, with hydrolysis taking 1-10 seconds.²

References

1. Merck Index, 12th ed., No. 4193.
2. Spectrophotometry and Spectrofluorimetry: A Practical Approach, Ed., Gore, M., Oxford University Press, Incorporated (New York, NY 2000) p. 63.
3. Centrifugation: A Practical Approach, Ed., Rickwood, D., Oxford Univ. Press (UK 1984).
4. Sogawa, K., and Takahashi, K. J., Use of fluorescamine-labeled casein as a substrate for assay of proteinases., J. Biochem., **83**, 1783-1787 (1978).
5. Bohlen, P., et al., Fluorometric assay of proteins in the nanogram range., Arch. Biochem. Biophys., **155**, 213-20 (1973).
6. Udenfriend, S., et al., Fluorescamine; a reagent for assay of amino acids, peptides, proteins, and primary amines in picomole range., Science, **178**, 871-2 (1972).
7. Read, M.L., et al., Characterisation of the binding interaction between poly(L-lysine) and DNA using the fluorescamine assay in the preparation of non-viral gene delivery vectors., FEBS Lett. **461**, 96-100 (1999).

8. Segura Carretero, A., et al., Fluorimetric determination of procaine in pharmaceutical preparations based on its reaction with fluorescamine., *J. Pharm. Biomed. Anal.*, **21**, 969-74 (1999)
9. Hong, C. and Kondo, F., Detection, quantitation, and identification of residual aminopenicillins by high-performance liquid chromatography after fluorescamine derivation., *J. Food Prot.*, **63**, 1421-5 (2000).
10. Sagirli, O. and Ersoy, L., An HPLC method for the determination of lisinopril in human plasma and urine with fluorescence detection., *J. Chromatogr. B Analyt. Technol. Biomed. Life Sci.*, **809**, 159-65 (2004).
11. Maudens, K.E., et al., Quantitative analysis of twelve sulfonamides in honey after acidic hydrolysis by high-performance liquid chromatography with post-column derivatization and fluorescence detection., *J. Chromatogr. A.*, **1047**, 85-92 (2004).

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