

COUMARIN 456

Synonym: 7-Hydroxy-4-methylcoumarin; Coumarin 4

Catalog No.: 20170

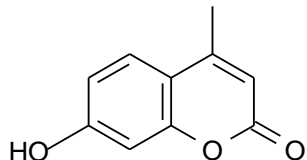
CAS No.: 90-33-5

MW: 176.17

Chemical Formula: C₁₀H₈O₃

Appearance: White crystalline solid

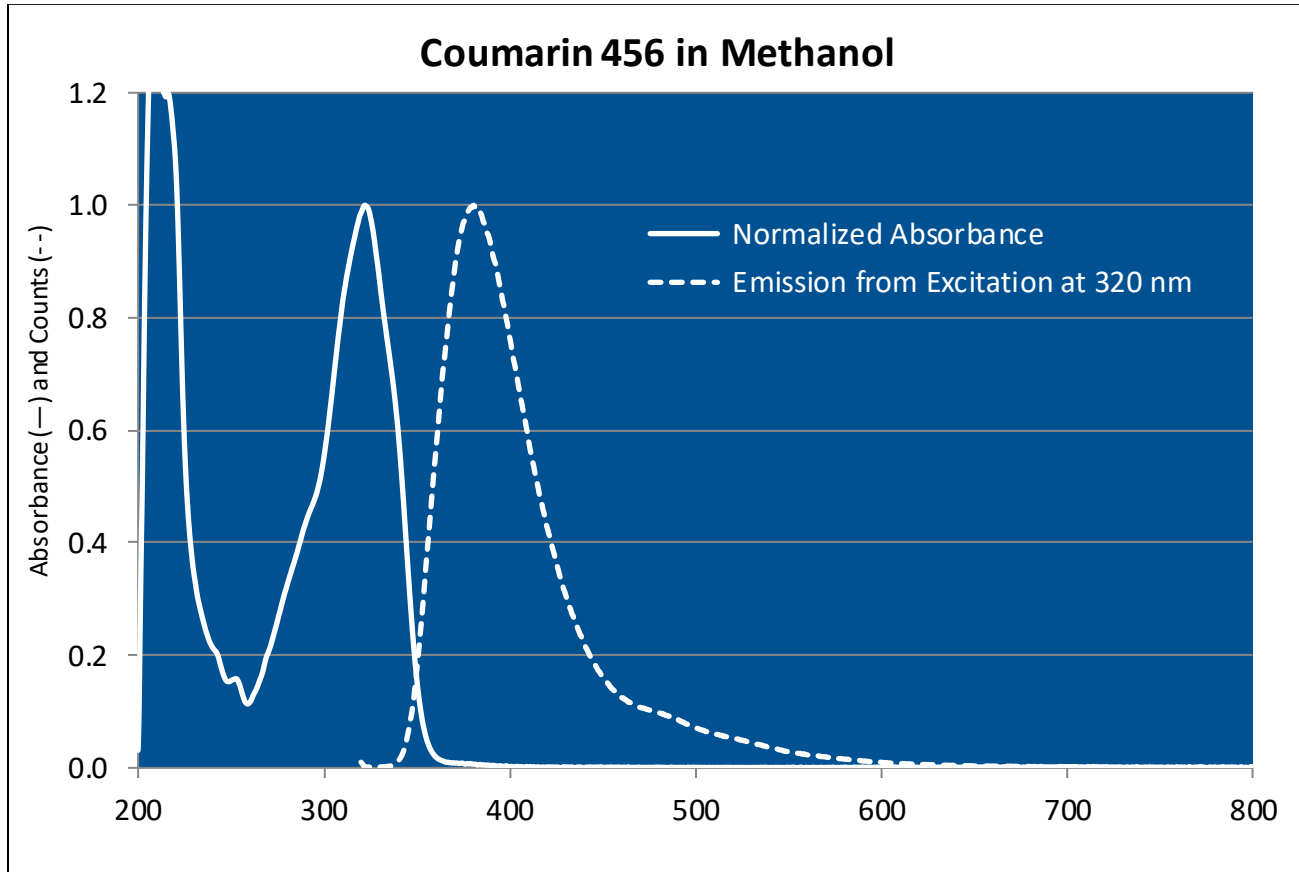
Structure:



Lasing Wavelength

Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs λ-max	Fl λ-max
454	----	FL ^{8,251}	Ethanol	2.89 x 10 ⁻³	372(b) ^e	445 ^e
	370-580	N ₂ (337) ^{248,249,250}	Various			
460	460-560	Ar(cw) ¹⁴	EG	2.89 x 10 ⁻³		

b = basic; e = ethanol; EG = ethylene glycol



The information presented above is believed to be accurate but is not a specification. The customer is fully responsible for determining the suitability of this product for use in their application. Exciton, Inc. does not represent that the information is sufficient or complete for any specific application.

Quantum Yields and Lifetimes

Absorbance (nm)	Emission (nm)	Quantum Yield (max = 1.0)	Solvent	Lifetime (ns)	References, Notes
372		0.98	Ethanol*		C-5

*Solvent: ethanol with trace of sodium hydroxide

REFERENCES:

8. Near-Ultraviolet Lasing Dyes, Part 1: Search for New Dyes and Summation of Results, P.R. Hammond, A.N. Fletcher, R.A. Henry, R.L. Atkins and D.W. Moore; and Near-Ultraviolet Lasing Dyes, Part 2: Effects of Coaxial Flashlamp Excitation, A.N. Fletcher, *NWC TP 5768* (1975); Laser Dye Stability, Part 3: Bicyclic Dyes in Ethanol, A.N. Fletcher, *Appl. Phys.*, 14, 295 (1977); Laser Dye Stability, Part 5: Effect of Chemical Substituents of Bicyclic Dyes Upon Photodegradation Parameters, A.N. Fletcher and D.E. Bliss, *Appl. Phys.*, 16, 289 (1978)
14. CW Laser Emission Spanning the Visible Spectrum, J.M. Yarborough, *Appl. Phys. Lett.*, 24(12), 629 (1974). a. With Rhodamine 6G
248. Comparative Gain Measurements for Twelve Organic Laser Dye Solutions, A. Dienes, *Appl. Phys. Z.*, 135 (1975)
249. Near uv to Yellow Tunable Laser Emission from an Organic Dye, C.V. Shank, A. Dienes, A.M. Trozzolo, and J.A. Myer, *Appl. Phys. Lett.* 16(10), 405 (1970)
250. Characteristics of the 4-Methylumbelliferone Laser Dye, A. Dienes, C.V. Shank, and R.L. Kohn, *IEEE J. Quant. Electr.* QE-9, 833 (1973)
251. Blue Laser Emission from a Flashlamp-Excited Organic Dye Solution, B.B. Snavely, O.G. Peterson, and R.F. Reithel, *Appl. Phys. Lett.* 11(9), 275 (1967)
- C-5. Laser Dye Stability. Part 5, Effect of Chemical Substituents of Bicyclic Dyes Upon Photodegradation Parameters, A.N. Fletcher and D.E. Bliss, *Appl. Phys.* 16, 289 (1978), <https://doi.org/10.1007/BF00885124>

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