

COUMARIN 522/522B*

Catalog No.: 05220 (Coumarin 522); 05221 (Coumarin 522B)

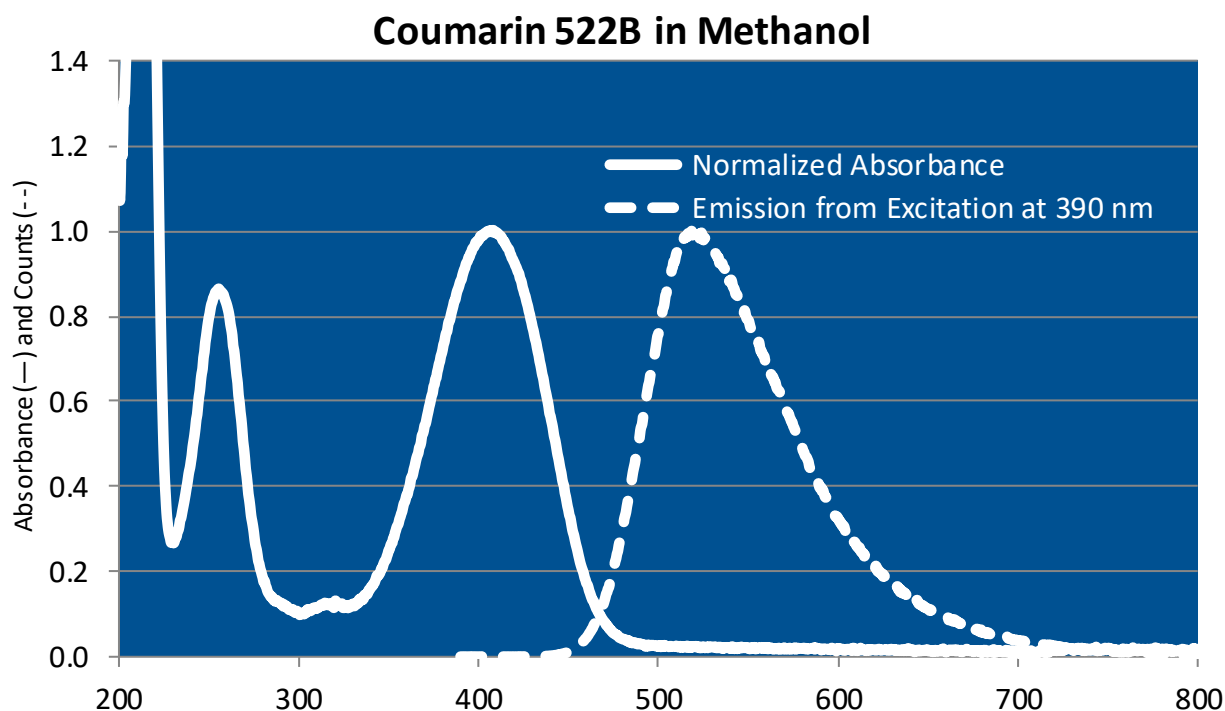
CAS No.: 53518-19-7 (05220); Not Available (05221)

MW: 283 (05220); 325 (05221)

Appearance: Yellow crystalline needles (05220); Yellow crystals (05221)

Lasing Wavelength Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs λ -max	FI λ -max
<i>Coumarin 522 (05220):</i>						
520	498-556	FL ³	Ethanol	2×10^{-4}	412 ^e	515 ^e
522	-----	FL ²¹	Ethanol	-----	440 ^{c82}	
522	500-572	FL ³	Ethanol	-----		487 ^y
526	501-568	FL ³	Methanol + LO	2×10^{-4}		506 ⁿ
533	515-570	FL ¹²	0.3L DMF/1.85L MeOH/1.85L H ₂ O	2.1×10^{-4}		
<i>528^{e/w}</i>						
525	505-550	Nd:YAG(355) ¹⁰⁹	Ethanol	5×10^{-3}		
<i>Coumarin 522B (05221):</i>						
530	499-574	Nd:YAG(355) ²³³	-----	-----	408 ^e	510 ^e
527	505-570	XeCl(308) ²³⁴	Methanol	$>1.4 \times 10^{-2}$		

LO=Ammonyx LO, DMF=dimethylformamide, e=ethanol, c=cyclohexane, y=ethyl acetate, n=acetonitrile, e/w=ethanol/water



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
382	439	0.98	Cyclohexane	4.2	C-2a
	440	0.93	Cyclohexane	4.2	C-4
	487	0.72	Ethyl Acetate	---	C-4
405	510	0.87	Acetonitrile	5.6	C-2a
	506	0.68	Acetonitrile	5.6	C-4
408	515	0.8	Ethanol	5.1	C-2a
	515	0.65	Ethanol	5.1	C-4
410		0.78	Ethanol		C-5
421	528	0.55	50% ethanol	4.5	C-2a
	528	0.43	Ethanol/Water (50:50)	4.5	C-4
420	530	0.3	Glycerol	---	C-2a

***Coumarin 522B** is the replacement dye for Coumarin 522 (**no longer available**). The molar concentration data from Coumarin 522 can be used directly for Coumarin 522B. Please note the difference in molecular weights for the two dyes when calculating the correct weight of dye to be used.

REFERENCES:

3. Phase-R Corporation, Box G-2 Old Bay Rd., New Durham, NH 03855
12. Chromatix, 560 Oak Meade Parkway, Sunnyvale, CA 94086
21. Laser Performance and Stability of Fluorinated Coumarin Dyes, E.J. Schimitschek, J.A. Trias, P.R. Hammond and R.L. Atkins, *Optics Commun.*, 11(4), 352 (1974)
109. Tuning Ranges of 355 nm Pumped Dyes from 410-715 nm, D.M. Guthals and J.W. Nibler, *Optics Commun.*, 29(3), 322 (1979)
233. Jason D. Hofstein, private commun., 1994. Quantel Laser System, half-life when pumping with 140-145mj is 45-50 days.
234. Exciton and Associates, unpublished data, 1987-1989. C.J. Seliskar and D.A. Landis; conversion efficiency 14%.
- C-2a. Solvent Effects on Emission Yield and Lifetime for Coumarin Laser Dyes, Requirements for a Rotatory Decay Mechanism, Guilford Jones II, W.R. Jackson, C-Y. Choi and W.R. Bergmark, *J. Phys. Chem.* 89(2), 294-300 (1985); <https://doi.org/10.1021/j100248a024> **Note A:** Argon purged samples at room temperature. Coumarin dye correlated in associated number in reference.
- C-4. Medium Effects on Fluorescence Quantum Yields and Lifetimes for Coumarin Laser Dyes, G. Jones II, W.R. Jackson and A.M. Halpern, *Chemical Physics Letters* 72(2), 391 (1982), [https://doi.org/10.1016/0009-2614\(80\)80314-9](https://doi.org/10.1016/0009-2614(80)80314-9)
- 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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For a current list of biology, biological stain, or biochemistry references for Coumarin 522/522B from PubMed, click on the following link:

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