

COUMARIN 540

Synonym: 3-(2-benzothiazolyl)-7-(diethylamino)-2H-1-benzopyran-2-one; Coumarin 6

Catalog No.: 05400

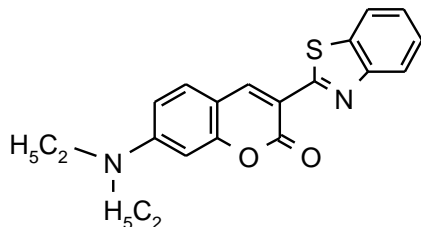
CAS No.: 38215-36-0

MW: 350.44

Chemical Formula: C₂₀H₁₈N₂O₂S

Appearance: Orange crystals

Structure:



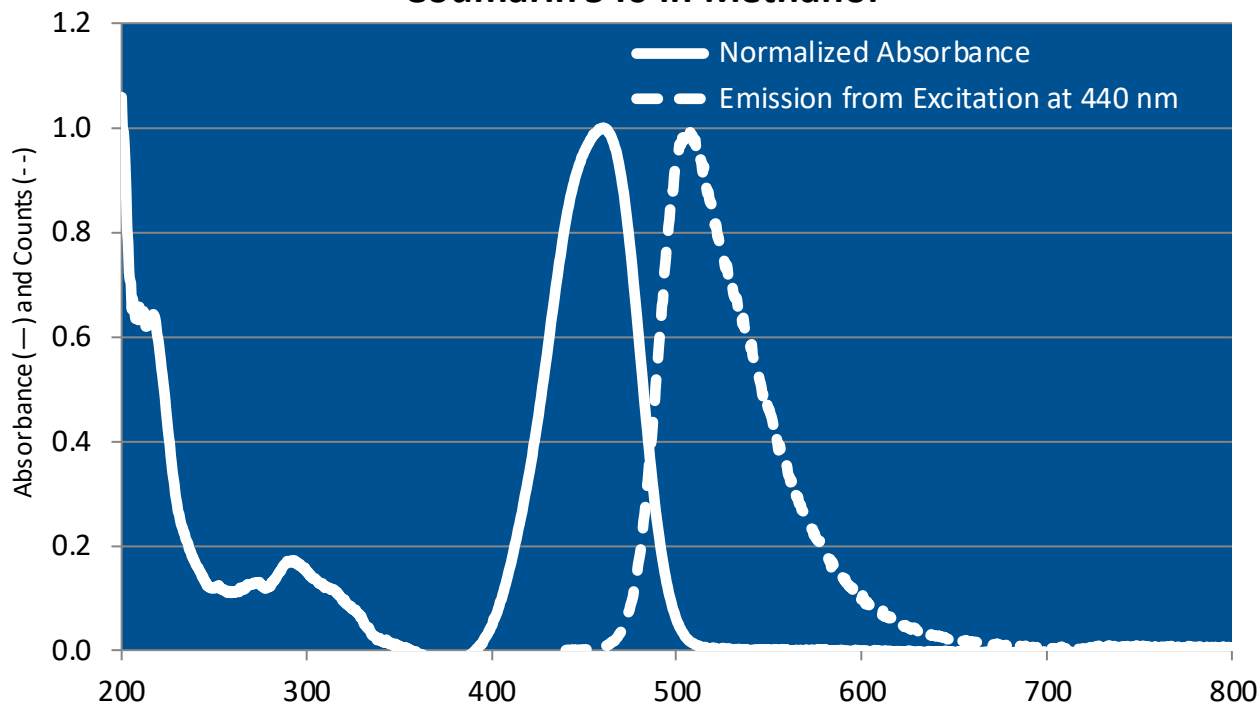
Lasing Wavelength

Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs λ-max	Fl λ-max
531	510-556	FL ³	Methanol	1 x 10 ⁻⁴	460 ^e	505 ^e
538	516-562	FL ¹¹	Methanol	2 x 10 ⁻⁴		
542	514-564	FL ⁶⁹	Methanol	6 x 10 ⁻⁵		
528		XeCl(308) ¹¹²	Ethanol	saturated		
544	525-575	Nd:YAG(355, m-l, QS, 100ps) ¹⁶⁹	Methanol	9.9 x 10 ⁻³		
535	508-546	Ar(488) ¹²³	G/BzOH/MeOH, 5/1/3+COT			
538	521-551	Ar(458, 514) ¹⁷	EG	1.25 x 10 ⁻³		
540	515-566	Ar(cw) ¹⁴	EG			
540	515-585	Ar(488) ¹³	20%aq. DPA+LO, COT			
544	515-585	Ar(488) ⁶⁸	BzOH/G, 11/2			
546	515-588	Ar(488) ²⁰⁶	EG/BzOH, 6/2	7.14 x 10 ^{-3*}		
560	510-570-	Ar(488) ⁵¹	EG/BzOH	1.8 x 10 ⁻³		
	507-529	N ₂ -He(428) ⁴⁹	Ethanol	1 x 10 ⁻²		

* This represents a maximum value. Concentration should be adjusted to 80-85% absorption of the pump light.

BzOH=benzyl alcohol, COT=cyclooctatetraene, DPA=N,N-dipropylacetamide, e=ethanol, EG=ethylene glycol, G=glycerol, LO=Ammonyx LO, MeOH=methanol

Coumarin 540 in Methanol



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
437	475	0.6	Cyclohexane	---	C-2b
454	501	0.63	Acetonitrile	3.2	C-2b
469	508	0.59	50% ethanol	3.3	C-2b
	505		Ethanol	2.7	C-3
458		0.89	Ethanol		C-5

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123. Powerful Single-Frequency Ring Dye Laser Spanning the Visible Spectrum, T.F. Johnston, Jr., R.H. Brady and W. Proffitt, *Appl. Optics*, 21(13), 2307 (1982)
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206. Coherent Inc., 3210 Porter Dr., Palo Alto, CA 94304; (599 Composite Tuning Curves, 1992; The concentration shown represents a maximum value. The final concentration should be adjusted to obtain 80-85% absorption of the pump light)
- C-2b. 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 B:** Air-saturated samples at room temperature.
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- 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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