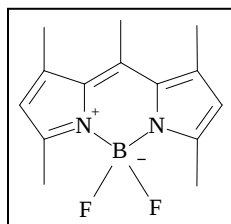


PYRROMETHENE 546



Chemical Name: 1,3,5,7,8-pentamethylpyrromethene-difluoroborate complex; BODIPY® 493/503
MW: 262.11
CAS Registry Number: 121207-31-6
Synonyms: PMP-BF₂, PM-546
Melting Point: 259-261°C
Exciton Catalog No.: 05460

Spectral Information:

$\lambda_{\text{max,abs}} = 493\text{nm}$ (Methanol)¹⁹⁵
 $\epsilon_{493} = 7.9 \times 10^4 \text{ liter mol}^{-1} \text{ cm}^{-1}$ ¹⁹⁵
 $\lambda_{\text{max,fl}} = 519\text{nm}$ (Methanol)¹⁹⁵
 $\Phi_f = 0.99$ (Methanol)¹⁹⁵

Selected Solubility Limits (25°C):		$\lambda_{\text{abs max}}$:
p-dioxane	4.4g/liter	492
Methanol	120mg/liter	
Ethanol	74mg/liter	
EG	<30mg/liter	
DMF	2.0g/liter	495.5
NMP	6.7g/liter	
EPH	990mg/liter	499
n-Propanol		495.8
Propylene Carbonate	1.5g/liter	493

REPORTED LASER PERFORMANCE DATA

Lasing Wavelength Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Conversion Efficiency	Stability (1/2- life)
542	523-580	FL(Triaxial) ^{193,195}	Methanol	2.5×10^{-4}	28.7% ^s	-
546		FL(Triaxial) ²²⁷	Acrylic Copolymer	1.6×10^{-4}	25.7% ^s	-
542	(532-565)*	FL(Coaxial) ¹⁹⁴	DMA/MeOH, 1/10	1.5×10^{-4}	33%	ca. 50kJ/l
546(bb)		FL ¹⁹⁶	Ethanol	1.5×10^{-4}	-	-
550	535-580	N ₂ (337) ¹⁸³	p-Dioxane	32mg/20ml	22%	-
526	522-550	Ar(488) ²³²	NMP/EPH, 1/9	2.5×10^{-3}	5.5%	500watt hrs

* (FWHM); bb (broad band); s (slope efficiency)

DMA (N,N-dimethylacetamide); DMF (N,N-Dimethylformamide); EG (Ethylene Glycol); EPH (2-Phenoxyethanol); MeOH (Methanol); NMP (N-Methyl-2-Pyrrolidinone)

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227. Progress in Solid State Dye Laser Development, R.E. Hermes, *Proceedings of the Int. Conf. on Lasers '90*, STS Press, (1991)
232. a. David Borst, private commun., 1998. Using 6 Watt pump power at 488nm (Argon-ion) with Coumarin 540 optics, Pyrromethene 546 produced 326mW at 526nm, about 3 times the output of Coumarin 540, while at different wavelengths, about 1/2 the output of Rhodamine 590. Concentration 0.65 grams/liter; lifetime ~500 Watt Hours. b. Oliver Broden (Coherent Scientific, SA) private commun., 1994. Used combination of Coumarin 540 and Rhodamine 560 optics in a Coherent 819-29 laser system with dye concentration of $3.2 \times 10^{-3}\text{M}$.

For a current list of biology, biological stain, or biochemistry references for Pyrromethene 546 from PubMed, click on the following link:

[Pyrromethene 546](#)

NOTES:

Pyrromethene 546 is offered by Exciton under U.S. Patent Nos. 4,916,711 and 5,189,029 and other worldwide patents. Use of EPH and/or PPH as a laser dye solvent is subject to U.S. Patent No. 4,896,329 (Exciton).