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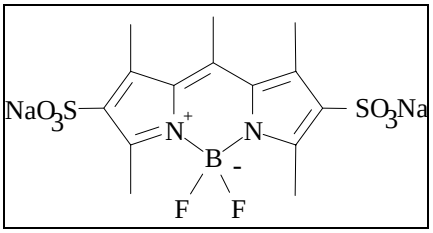
PYRROMETHENE 556



Chemical Name: Disodium-1,3,5,7,8-pentamethylpyrromethene-2,6-disulfonate-difluoroborate complex
MW: 466.19 **Melting Point:** >400°C
CAS Registry Number: 121461-69-6 **Exciton Catalog No.:** 05560
Synonyms: PMPDS-BF_2, PM-556

Spectral Information:
$\lambda_{max,abs}$ = 492nm (Methanol)[195]
ε_{492} = 7.2x10^4 liter mol^{-1} cm^{-1} [195]
$\lambda_{max,fl}$ = 533nm (Methanol)[195]
Φ_f = 0.73 (Water)[195]

Selected Solubility Limits (25°C):

Methanol	0.74gm/liter
EG	8.1g/liter
H_20	6.4g/liter
DMF	2.3g/liter

REPORTED LASER PERFORMANCE DATA

Lasing Wavelength Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Conversion Efficiency	Stability (1/2- life)
548	537-605	FL(Triaxial)[193]	Methanol	2.5x10^{-4}	28.9%^{s}	-
555	(545-585)*	FL(Coaxial)[194]	DMA/MeOH,1/10	2x10^{-4}	31%	“very long”
561	540-580	FL[195,197]	Methanol	7x10^{-5}	-	-
553	530-624	Ar(458-514)[212]	EG	2x10^{-3}	45%	300Wh
546	527-583	Ar(488)[222]	EG	4.3x10^{-3}	37%	-
550	527-584	Ar(514.5)[222]	EG	7.5x10^{-3}	35%	-
547	523-582	Ar(699-1,488)[224]	EG	4.3x10^{-3}	12.2%	-

*(FWHM); s (slope efficiency)
DMA (N,N-Dimethylacetamide); DMF (N,N-Dimethylformamide); EG (Ethylene Glycol); MeOH (Methanol)

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196. Efficient Laser Action from 1,3,5,7,8-Pentamethylpyrromethene-BF_2 Complex and its Disodium 2,6-Disulfonate Derivative, T.G. Pavlopoulos, M. Shah, and J.H. Boyer, *Optics Commun*., 70(5), 425 (1989). [Non-commercial Dye Laser-details in paper]
197. J. Hsia, Candela Laser Corporation, private commun., 1989. [Candela Model LFDL-8 and High Power LFDL]
212. Efficient Laser Action from two cw Laser-Pumped Pyrromethene-BF_2 Complexes, S.G. Guggenheimer, J.H. Boyer, K. Thangaraj, M. Shah, M.-L Soong, and T.G. Pavlopoulos, *Appl. Optics*, 32(21), 3942(1993). [Spectra-Physics Model 375B Dye Laser]
222. M. Benson, Coherent Laser Group, private commun., 1994. Results were obtained using R560 optics. [Coherent Model 899-29]
224. M.M. Mickelson, private commun., 1993. Pumping with 6 watts (488nm) produced 0.72 watts output centered at 547nm.

For a current list of biology, biological stain, or biochemistry references for Pyrromethene 556 from PubMed, click on the following link:

Pyrromethene 556

NOTES:

Pyrromethene 556 is offered by Exciton under U.S. Patent Nos. 4,916,711 and 5,189,029 and other worldwide patents.

Use in Cancer Research: Use of Substituted Pentamethylpyrromethene Boron Difluoride Complexes in Photodynamic Therapy, L.R. Morgan, J.H. Boyer, L.E. Gillen, M.P. Shah, C.M. Lau, A. Natesh, and K. Thangaraj, *Proceedings of the Eightieth Annual Meeting of the AACR*, 30, 1989.