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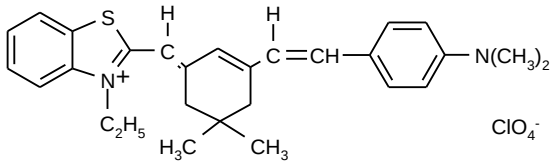
LDS 820/821

Synonym: *LDS 820* – 2-[6-[4-(dimethylamino)phenyl]-1,3,5-hexatrienyl]-3-ethyl-benzothiazolium perchlorate;
LDS 821 - (2-(6-(p-dimethylaminophenyl)-2,4-neopentylene-1,3,5-hexatrienyl)-3-ethylbenzothiazolium perchlorate);
Styryl 9M
Catalog No.: 08200 (LDS 820); 08210 (LDS 821)
CAS No.: 76433-25-5 (08200); Not Available for 08210 **MW**: 460.98 (08200); 529.09 (08210)
Chemical Formula: $C_{23}H_{25}N_2S.ClO_4$ (08200); $C_{28}H_{33}N_2S.ClO_4$ (08210)
Appearance: Dark green crystals (08200); green crystals (08210)
Structure:



Lasing Wavelength Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs λ-max	Fl λ-max	% CE*
All of the data for LDS 820/LDS 821 is interchangeable. LDS 821 is the preferred dye. LDS 820 is no longer available.							
LDS 820 (08200):							
841	810-860	FL[141]	PC/EG,9/1	2.5×10^{-5}			
810	784-844	Nd:YAG(532)[134]	Ethanol				
814	787-847	Nd:YAG(532)[110]	Methanol	1.5×10^{-4}			
818	775-865	Nd:YAG(532)[57]	Methanol	4.1×10^{-4}(osc), 3.9×10^{-5}(amp)			
825	798-866	Nd:YAG(532)[134]	DMSO				
840	800-865	Nd:YAG(532)[5]	PC,3%PC/EtOH	1×10^{-3}(LDS 820)(osc), 16.8mg/l(LDS 867)(amp)			
	775-840	Ar(m-l,514)[136]	PC/EG,15/85	1.9×10^{-3}			
	781-840	Ar(m-l,514)[136]	PC/EG,15/85	1.9×10^{-3}			
	792-880	Ar(m-l,514)[136]	PC/EG,15/85	1.9×10^{-3}			
822	784-900	Ar[127a]	PC/EG,15/85	1.2×10^{-3}			
	790-913	Ar(m-l,514)[136]	PC/EG,15/85	1.9×10^{-3}			
845	780-960	Ar(458-514)[17]	PC/EG,15/85	2×10^{-3}			
LDS 821 (08210):							
834	817-842	FL[69]	Methanol	8.7×10^{-5}	574[m]	750[m]	--
848	824-867	FL[69]	DMSO	5.0×10^{-5}			--
818	785-850	XeCl(308)[110]	Methanol	6×10^{-4}			--
843	807-900	XeCl(308)[204]	DMSO	2.14×10^{-3}(osc), 1.28×10^{-3}(amp)			7
	805-840	Nd:YAG(532,m-l, 1mj,32ps)[172]	Methanol	3.5×10^{-3}(cavity) 4×10^{-4}(amp)			--
812	780-844	Nd:YAG(532)[53]	Methanol	1.9×10^{-4}(osc), 2.5×10^{-5}(amp)			8.2
812	785-855	Nd:YAG(532)[230]	Methanol	189.5mg/l(osc), 72.8mg/l(amp)			--
815	791-839	Nd:YAG(532)[239]	Ethanol	2.5×10^{-4}			

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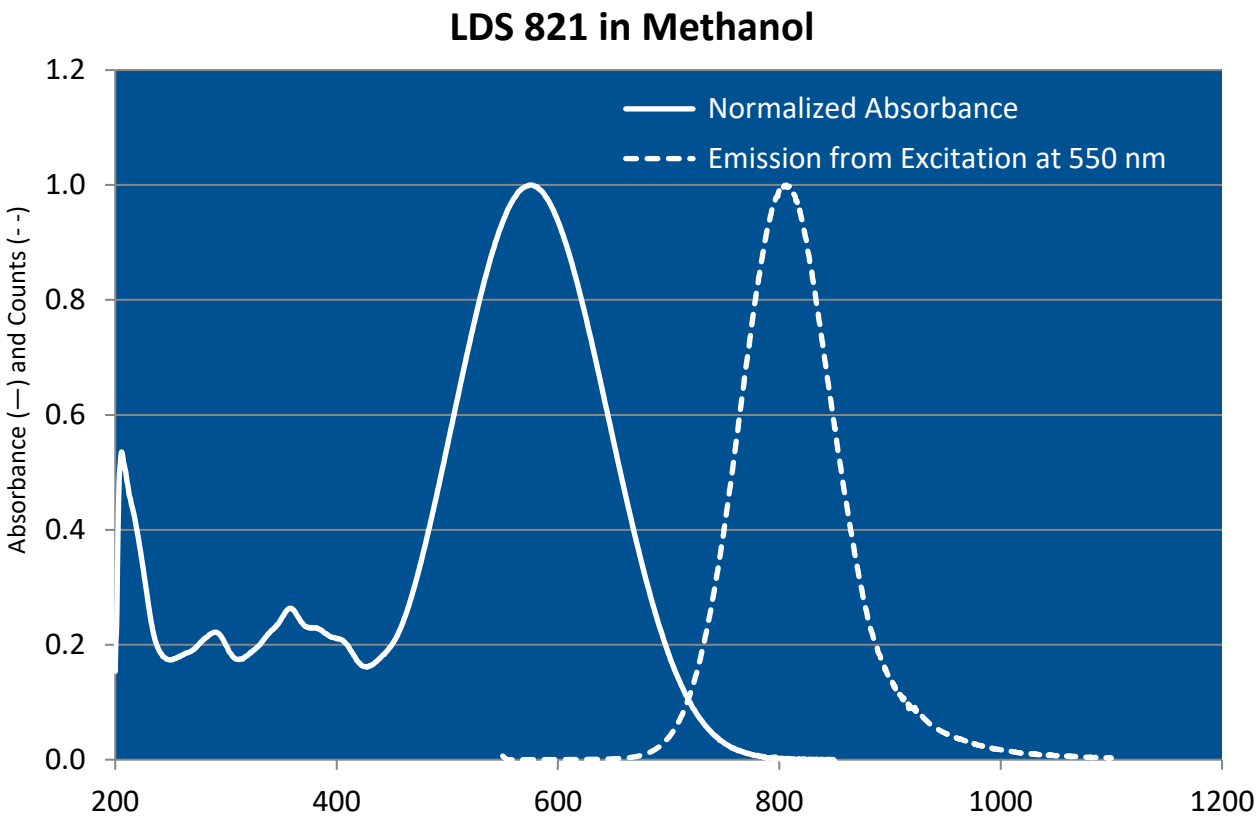
818	785-851	Nd:YAG, (side-p,532)[57]	Methanol	125mg/l(osc), 32.5mg/l(amp)	10
818	785-851	Nd:YAG, (end-p,532)[57]	Methanol	125 mg/l(osc), 17mg/l(amp)	7
821		Nd:YAG(532,m-l)[160]	DMSO/PC/EG	2.3×10^{-3}	11
826	780-874	Nd:YAG(532)[53]	Methanol	71.5mg/l(LDS 821)+ 28.6mg/l(LDS 867)(osc), 10mg/l(LDS 821)+ 9.3mg/l(LDS 867)(amp)	--
839	814-862	Nd:YAG(532)[239]	DMSO	2.5×10^{-4}	
821	802-852	N_2(337)[137]	PC	3×10^{-3}(osc), 3×10^{-3}(amp)	--
815	782-930	Ar(514,m-l)[136]	PC/EG,15/85	1.85×10^{-3}	29
840	790-940	Ar(458-514)[206]	PC/EG,3/7	3.9×10^{-3}*	14
843	780-960	Ar(459-514)[17]	PC/EG,15/85	2×10^{-3}	11.3
880	793-923	Kr(647)[128]	PC/EG,1/4	1.4g/l	--
815	793-845	Cu(511,578)[175]	Methanol	1.3×10^{-3}	14.4

* This represents a maximum value. Concentration should be adjusted to 80-85% absorption of the pump light.
DMSO = dimethylsulfoxide, EG = ethylene glycol, PC = propylene carbonate, m = methanol

NOTES:

CE = Conversion efficiency reported by the manufacturer or literature sources. See reference (numbers indicated under pump source column)
-- = not reported or not available



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REFERENCES:

5. Laser Photonics, Inc., 12351 Research Parkway, Orlando, FL 32826, formerly, Molectron Corporation and Cooper LaserSonics, Inc.

17. Spectra-Physics, 1250 W. Middlefield Road, Mountain View, CA 94039

53. Continuum, 3150 Central Expressway, Santa Clara, CA 95051, formerly, Quantel International

57. Quanta-Ray, Note: Quanta-Ray is now incorporated as a part of Spectra-Physics, 1250 W. Middlefield Road, Mountain View, CA 94039

69. Candela Laser Corporation, 530 Boston Post Road, Wayland, MA 01778-1833

110. Lumonics Inc., 105 Schneider Road, Kanata, (Ottawa), Ontario, Canada K2K 1Y3

127. **a**. Cw Operation of Laser Dyes Styryl-9 and Styryl-11, J. Hoffnagle, L. Ph. Roesch, N. Schlumpf and A. Weis, *Optics Commun*., 42, 267 (1982); **b**. K. Kato, see Reference 5 in 127 **a** ; **c**. K. Kato, unpublished results

128. F. Schellenberg, private commun., 1982; Dye Laser with HITC Optics and IR-140 Output Coupler Pumped by 3.8W Krypton-ion Laser

134. D. Heiman, private commun., 1983

136. High Efficiency Picosecond Pulse Generation in the 675-930nm Region from a Dye Laser Synchronously Pumped by an Argon-Ion Laser, P. Bado, C. Dupuy, K.R. Wilson, R. Boggy, J. Bowen and S. Westra, *Optic Commun*., 46(3,4), 241 (1983)

137. Nitrogen Pumped LDS-821, P.Klein, private commun., 1983 (Molectron UV 14 N_2 Laser/DL 14 Dye Laser - 3.5 mj/pulse-7% efficiency)

141. Flashlamp-Pumped Styryl 9 Dye Laser, Cheng-Huei Lin and B. Marshall, *Appl. Optics*, 23(14), 2228 (1984)

160. G. Olbright, private commun., 1988; Generation of Tunable Near-Infrared Amplified Femtosecond Laser Pulses and Time-Correlated White-Light Continuum, G.R. Olbright and G.R. Hadley, *J. Opt. Soc. Am. B*, 6(7), 1363 (1989)

172. Tunable Near-Infrared Picosecond Pulses from a Short-Cavity Dye Laser, K. Bohnert, T.F. Boggess, K. Mansour, D. Maxson and A.L. Smirl, *IEEE J. Quantum Electron*., QE-22(12), 2195 (1986)

175. CVL-Pumped Dye Laser For Spectroscopic Application, M. Broyer, J. Chevaleyre, G. Delacretaz and L. Wöste, *App. Phys. B*, 35, 31 (1984)

204. Questek, Inc., 44 Manning Road, Billerica, MA 01821 (Tuning Curves for Model 5200B Dye Laser, PDL-3)

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.)

230. Generation of 1.30- to 1.55μm Tunable Radiation from First Stokes Raman Shifting in Hydrogen, K.W. Aniolek, D.L. Miller, N.P. Cernansky, and K.G. Owens, Appl. Spec. 51(6), 820(1997**)**

239. P. Jauernik, private commun., Sirah Laser- und Plasmatechnik, 2003.

For a current list of biology, biological stain, or biochemistry references for LDS 821 from PubMed, click on the following link:
LDS 820/821 or Styryl 9M (zero references in PubMed as of May 2006)