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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)

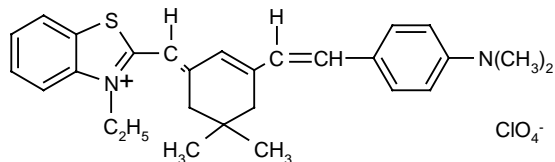
**CAS No.:** 76433-25-5 (08200); Not Available for 08210

**MW:** 460.98 (08200); 529.09 (08210)

**Chemical Formula:** C<sub>23</sub>H<sub>25</sub>N<sub>2</sub>S·ClO<sub>4</sub> (08200); C<sub>28</sub>H<sub>33</sub>N<sub>2</sub>S·ClO<sub>4</sub> (08210)

**Appearance:** Dark green crystals (08200); green crystals (08210)

**Structure:**



### Lasing Wavelength

Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs $\lambda$ -max	FI $\lambda$ -max	% CE*
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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 <sup>141</sup>	PC/EG,9/1	2.5 x 10 <sup>-5</sup>			
810	784-844	Nd:YAG(532) <sup>134</sup>	Ethanol				
814	787-847	Nd:YAG(532) <sup>110</sup>	Methanol	1.5 x 10 <sup>-4</sup>			
818	775-865	Nd:YAG(532) <sup>57</sup>	Methanol	4.1 x 10 <sup>-4</sup> (osc), 3.9 x 10 <sup>-5</sup> (amp)			
825	798-866	Nd:YAG(532) <sup>134</sup>	DMSO				
840	800-865	Nd:YAG(532) <sup>5</sup>	PC,3%PC/EtOH	1 x 10 <sup>-3</sup> (LDS 820)(osc), 16.8mg/l(LDS 867)(amp)			
	775-840	Ar(m-l,514) <sup>136</sup>	PC/EG,15/85	1.9 x 10 <sup>-3</sup>			
	781-840	Ar(m-l,514) <sup>136</sup>	PC/EG,15/85	1.9 x 10 <sup>-3</sup>			
	792-880	Ar(m-l,514) <sup>136</sup>	PC/EG,15/85	1.9 x 10 <sup>-3</sup>			
822	784-900	Ar <sup>127a</sup>	PC/EG,15/85	1.2 x 10 <sup>-3</sup>			
	790-913	Ar(m-l,514) <sup>136</sup>	PC/EG,15/85	1.9 x 10 <sup>-3</sup>			
845	780-960	Ar(458-514) <sup>17</sup>	PC/EG,15/85	2 x 10 <sup>-3</sup>			

#### LDS 821 (08210):

834	817-842	FL <sup>69</sup>	Methanol	8.7 x 10 <sup>-5</sup>	574 <sup>m</sup>	750 <sup>m</sup>	--
848	824-867	FL <sup>69</sup>	DMSO	5.0 x 10 <sup>-5</sup>			--
818	785-850	XeCl(308) <sup>110</sup>	Methanol	6 x 10 <sup>-4</sup>			--
843	807-900	XeCl(308) <sup>204</sup>	DMSO	2.14 x 10 <sup>-3</sup> (osc), 1.28 x 10 <sup>-3</sup> (amp)			7
	805-840	Nd:YAG(532,m-l, 1mj,32ps) <sup>172</sup>	Methanol	3.5 x 10 <sup>-3</sup> (cavity) 4 x 10 <sup>-4</sup> (amp)			--
812	780-844	Nd:YAG(532) <sup>53</sup>	Methanol	1.9 x 10 <sup>-4</sup> (osc), 2.5 x 10 <sup>-5</sup> (amp)			8.2
812	785-855	Nd:YAG(532) <sup>230</sup>	Methanol	189.5mg/l(osc), 72.8mg/l(amp)			--
815	791-839	Nd:YAG(532) <sup>239</sup>	Ethanol	2.5 x 10 <sup>-4</sup>			



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Max. Lasing Wavelength (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs $\lambda$ -max	FI $\lambda$ -max	% CE*
818	785-851	Nd:YAG, (side-p,532) <sup>57</sup>	Methanol	125mg/l(osc), 32.5mg/l(amp)			10
818	785-851	Nd:YAG, (end-p,532) <sup>57</sup>	Methanol	125 mg/l(osc), 17mg/l(amp)			7
821		Nd:YAG(532,m-l) <sup>160</sup>	DMSO/PC/EG	$2.3 \times 10^{-3}$			11
826	780-874	Nd:YAG(532) <sup>53</sup>	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) <sup>239</sup>	DMSO	$2.5 \times 10^{-4}$			
821	802-852	N <sub>2</sub> (337) <sup>137</sup>	PC	$3 \times 10^{-3}$ (osc), $3 \times 10^{-3}$ (amp)			--
815	782-930	Ar(514,m-l) <sup>136</sup>	PC/EG,15/85	$1.85 \times 10^{-3}$			29
840	790-940	Ar(458-514) <sup>206</sup>	PC/EG,3/7	$3.9 \times 10^{-3}$ *			14
843	780-960	Ar(459-514) <sup>17</sup>	PC/EG,15/85	$2 \times 10^{-3}$			11.3
880	793-923	Kr(647) <sup>128</sup>	PC/EG,1/4	1.4g/l			--
815	793-845	Cu(511,578) <sup>175</sup>	Methanol	$1.3 \times 10^{-3}$			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 glycol, 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

### REFERENCES:

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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
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## **LDS 820/821**

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.)
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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)