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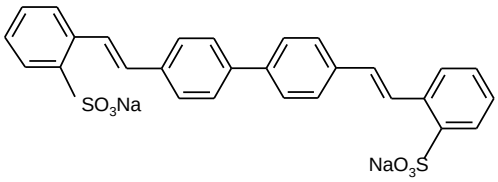
STILBENE 420

Synonym: 2,2”-([1,1’-biphenyl]-4.4’-diyldi-2,1-ethenediyl)bis-benzenesulfonic acid disodium salt; Stilbene 3
Catalog No.: 04200
CAS No.: 27344-41-8
Chemical Name: $C_{28}H_{20}O_6S_2.2Na$ **Molecular Weight:** 562.56
Appearance: Yellow powder
Molar Absorptivity (in methanol): 270nm-400nm, absorption maximum 353nm
Structure:



Lasing Wavelength

Max. (nm)	Range (nm)	Pump Source (nm)	Solvent	Concentration (molar)	Abs λ-max	Fl λ-max
424	410-454	XeCl(308)[114]	EtOH/H_2O,9/1	1.4 x 10^{-3}	349[m]	425[e]
425	405-467	XeCl(308)[118]	Ethanol	1 x 10^{-3} (osc)		402
425	412-435 450(sh)	XeCl(308)[110]	Methanol	1 x 10^{-3}		
425	412-436	Nd:YAG(355, m-l,QS,100ps)[169]	Methanol	3 x 10^{-3}		
425	412-444	Nd:YAG(355)[57]	Methanol	3.9 x 10^{-4}(osc), 1 x 10^{-4} (amp)		
425	415-435	Nd:YAG(355)[109]	Methanol/ethanol,1/1	1.5 x 10^{-3}		
425	420-459	Nd:YAG(355)[53]	Methanol	5.3 x 10^{-4} (osc), 9.1 x 10^{-5} (amp)		
424	415-437	N_2(337)[139]	Methanol	1.7 x 10^{-3}		
425	400-460	N_2(337)[90]	EtOH/H_2O,1/4	2.1 x 10^{-3}		
425	407-468	N_2(337)[114]	EtOH/H_2O,8/2	9 x 10^{-4}		
425	408-453	N_2(337)[41]	Methanol	1.8 x 10^{-3}		
427	400-465	N_2(337)[183]	Methanol	1.8 x 10^{-3}		
431	415-458	N_2(337)[41]	H_2O+NP-10	1.8 x 10^{-3}		
445	421-468	N_2(337)[41]	H_2O	1.8 x 10^{-3}		
432	406-448	Ar(uv)[42]	EG/methanol,9/1	2 x 10^{-3}		
432	420-470	Ar(334-364)[206]	EG	2 x 10^{-3}*		
435	407-466	Ar(334-364)[123,187]	EG			
449	420-470	Ar(uv)[52]	EG	1.5 x 10^{-3}		
449	436-493	Ar(uv)[42]	EG/methanol,9/1	2 x 10^{-3}		
425	400-480	Kr(uv) or Ar(uv)[68]	EG	80% pump absorption		

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

m = methanol; e = ethanol; EtOH/H_2O = Ethanol/water; EG = Ethylene glycol

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Quantum Yields and Lifetimes

Absorbance (nm)	Emission (nm)	Quantum Yield (max = 1.0)	Solvent	Lifetime (ns)	References, Notes
354		0.95	Methanol (in air)		S-1
			Dye concentration $2x10^{-4}$M; Long lived transient species noted.		
		0.82	Water (in air)		S-1
350	424	0.72	Ethanol	0.82	S-2
	407		Ethanol		C-3

REFERENCES:

41. Laser Properties of Bis-Styryl Compounds, H. Telle, U. Brinkmann, and R. Raue, *Optics Commun*., 24(3), 248 (1978)

42. New Efficient and Stable Laser Dyes for CW Operation in the Blue and Violet Spectral Region, J. Kuhl, H. Telle, R. Schieder, and U. Brinkmann, *Optics Commun*., 24(3), 251 (1978)

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

53. Production of Deep Blue Tunable Picosecond Light Pulses by Synchronous Pumping of a Dye Laser, N.J. Eckstein, A.I. Ferguson, T.W. Hänsch, C.A. Minard and C.K. Chan, *Optics Commun*.,27(3), 466 (1978)

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

68. Coherent Inc., 3210 Porter Dr., Palo Alto, CA 94304

90. Jobin Yvon, 16-18 rue du Canal B.P. 118, 91163 Longjumeau Cedex France

109. Tuning Ranges of 355 nm Pumped Dyes from 410-715 nm, D.M. Guthals and J.W. Nibler, *Optics Commun*., 29(3), 322 (1979)

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

114. Optimization of Spectral Coverage in an Eight-Cell Oscillator-Amplifier Dye Laser Pumped at 308nm, F. Bos, *Appl. Optics*, 20, 3553 (1981)

118. The XeCl Excimer Laser: A Powerful and Efficient UV Pumping Source for Tunable Dye Lasers, H. Telle, W. Huffer and D. Basting, *Optics Commun.*, 38(5,6), 402 (1981)

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)

139. Nitrogen Pumping LD390 and a mixture of LD390 and S420, J.P. Young, private commun., 1983

169. A High Power Synchronously Pumped Dye Laser Operating in the Blue and Green Spectral Region, K.A. Ure, D.C. Hanna and D.J. Pointer, *Optics Commun*., 60(4), 229 (1986)

183. Laser Science, Inc., 26 Landsdowne Street, Cambridge, MA 02139

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187. High Power Single Frequency Operation of Dyes Over the Spectrum from 364 nm to 524 nm Pumped by an Ultraviolet Argon Ion Laser, T. Johnston, *Optics Commun*., 69(2), 147 (1988)

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.)

S-1. Flash Photolysis Studies of a Sulphonated Bis-styryl Biphenyl Fluorescent Dye, K.J. Smit and K.P. Ghiggino, Dyes and Pigments 13, 45 (1990), https://doi.org/10.1016/0143-7208(90)80012-E

S-2. Optische Aufheller als Laserfarbstoffe, M. Rinke and H. Gusten, Phys. Chem 90, 439(1986), https://doi.org/10.1002/bbpc.19860900511

C-3. Photoquenching Parameters for Commonly Used Laser Dyes, S. Speiser and N. Shakkour, Appl. Phys. B 38, 191 (1985), https://doi.org/10.1007/BF00697483

For a current list of biology, biological stain, or biochemistry references for Stilbene 420 from PubMed, click on the following link:

Stilbene 420 or Stilbene 3 (not listed in PubMed under these names)