

Photochromism¹ is the phenomenon whereby the absorption spectrum of a single chemical species changes reversibly when it is irradiated by light of a certain wavelength.² This behavior is sometimes induced by heat. Of particular interest are colorless cyclic compounds that, upon irradiation with visible or UV light, are converted to acyclic compounds that absorb visible light.

Many photochromic organic and inorganic materials have technical applications including dosimetric materials, light-control filters, recording films in printing processes,³ and decorative paints. The increased interest in photochromic materials is associated with recent developments in the fields of optical recording media⁴ and molecular electronic devices.⁵ These materials also have potential as very high-density information storage media since the switching reaction occurs at the molecular level.

Examples of spiroindole and spironaphthoxazine photochromic dyes prepared in our laboratories are shown at right.

References: (1) Brown, G.H. *Photochromism*; Wiley-Interscience: New York, 1971. (2) Seto, J. *Infrared Absorbing Dyes*; Matsuoka, M., Ed.; Plenum: New York, 1990; Chapter 7, p 71. (3) Reckziegel, E. *Chem. Ztg.* **1972**, 10, 535. Frass, W. *Chem. Unserer Zeit* **1983**, 17, 33. Delzenne, G.A. *Adv. Photochem.* **1979**, 11, 2. Epplattner, F. *Swiss Chem.* **1985**, 7, 19. (4) Suzuki, Y. et al. *Polym. Bull.* **1987**, 17, 285. Cabrera, I. et al. *Angew. Chem., Int. Ed. Engl.* **1987**, 26, 1178. (5) Carter, F.L., Ed.; *Molecular Devices*; Dekker: New York, 1982. Menke, K.; Roth, S. *Chem. Unserer Zeit* **1986**, 20, 1.

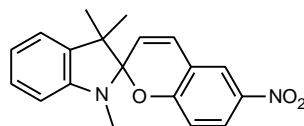
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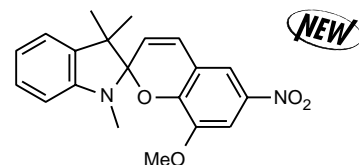
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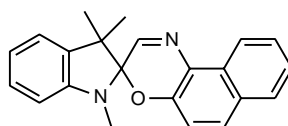
PHOTOCHROMIC DYES



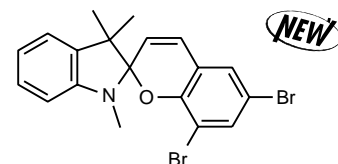
27,361-9 1',3'-Dihydro-1',3',3'-trimethyl-6-nitrospiro[2H-1-benzopyran-2,2'-(2H)-indole], 98%
 250mg; 1g



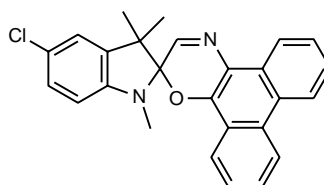
43,392-6 1',3'-Dihydro-8-methoxy-1',3',3'-trimethyl-6-nitrospiro[2H-1-benzopyran-2,2'-(2H)-indole], 97%
 1g; 5g



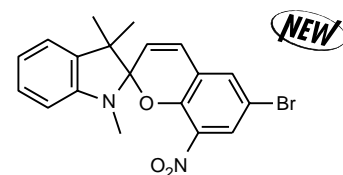
32,254-7 1,3-Dihydro-1,3,3-trimethylspiro[2H-indole-2,3'-[3H]naphth[2,1-b][1,4]oxazine]
 250mg; 1g



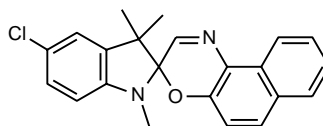
43,435-3 6,8-Dibromo-1',3'-dihydro-1',3',3'-trimethylspiro[2H-1-benzopyran-2,2'-(2H)-indole], 97%
 250mg; 1g



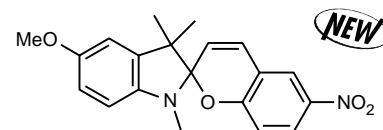
32,257-1 5-Chloro-1,3-dihydro-1,3,3-trimethylspiro[2H-indole-2,3'-[3H]phenanthr[9,10-b][1,4]oxazine]
 250mg; 1g



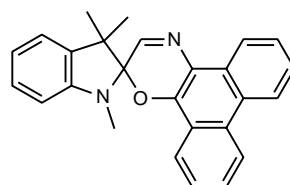
43,483-3 6-Bromo-1',3'-dihydro-1',3',3'-trimethyl-8-nitrospiro[2H-1-benzopyran-2,2'-(2H)-indole], 98%
 250mg; 1g



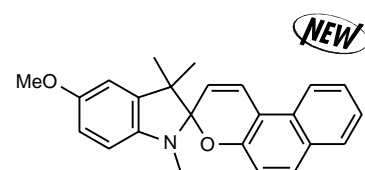
32,255-5 5-Chloro-1,3-dihydro-1,3,3-trimethylspiro[2H-indole-2,3'-[3H]naphth[2,1-b][1,4]oxazine]
 250mg; 1g



44,228-3 1',3'-Dihydro-5'-methoxy-1',3',3'-trimethyl-6-nitrospiro[2H-1-benzopyran-2,2'-(2H)-indole], 95%
 100mg; 500mg



32,256-3 1,3-Dihydro-1,3,3-trimethylspiro[2H-indole-2,3'-[3H]phenanthr[9,10-b][1,4]oxazine]
 250mg; 1g



44,279-8 5-Methoxy-1,3,3-trimethylspiro[indoline-2,3'-[3H]naphtho[2,1-b]pyran]
 250mg; 1g