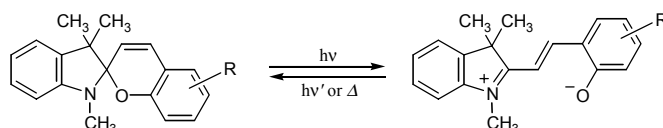
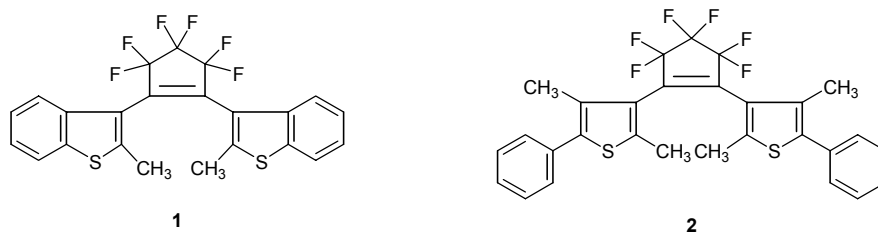


## Photochromic Compounds

Photochromism is the phenomena that of reversible transformation between two forms that have different absorption spectra by photo-irradiation. The history of photochromism dates back to the era of the Alexander the Great. Inspired by Fischer and co-workers who first reported photochromism in spiropyran analogues in 1952, intense studies on photochromic compounds have continued up to the present. The mechanism for photochromism of spiropyran analogues is shown below.



Today, research for the application of photochromism is being achieved in a variety of fields including light modulation materials, optical recording materials, optical switches, and photochromic ink. Some of them are being put into practical use. Furthermore, an energetic attempt to introduce photochromic compounds into functional materials for photochemical control is being studied. Especially, diarylethenes **1** and **2** developed by Irie and co-workers are stable at high temperature and have been shown high repeated durability. In addition, various functional molecules can easily be introduced to the aromatic ring of **1** and **2**. The solution of **1** changes to red upon irradiation of UV light, but rapidly converts back to colorless by visible light. In this reversible reaction, **1** has been shown a repeated durability over 10,000 times. The crystal of **2** changes to blue upon irradiation of UV light, and returns to colorless by visible light. These changes are rapidly finished within ten pico second. Moreover, the photocyclization quantum yields is limitlessly near to one. Therefore **2** shows extremely effective photochromic reaction. **1** and **2** are ideal optical device material and are expected as one of the material supporting the photonics age in the 21th century.



Diarylethenes	B1536	B2287
	B2629	B1534

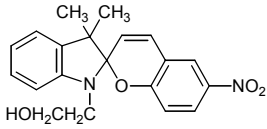
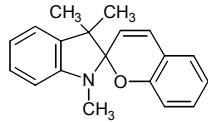
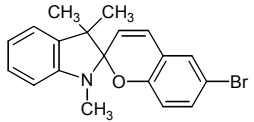
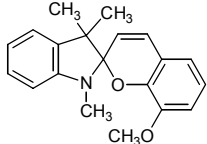
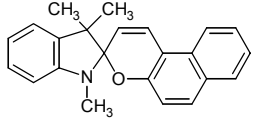
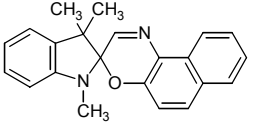
**Keywords** : diarylethenes, spiropyrans, viologens, photochromism

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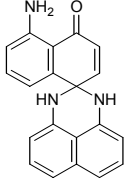
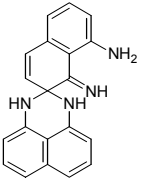
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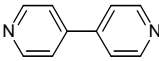
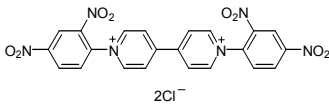
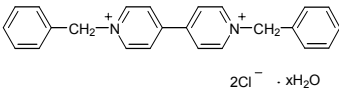
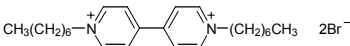
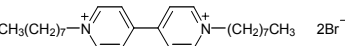
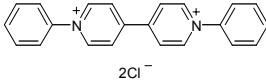
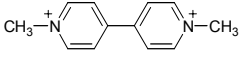
B1536	<i>cis</i> -1,2-Dicyano-1,2-bis(2,4,5-trimethyl-3-thienyl)ethene	5g	1g
B2287	1,2-Bis[2-methylbenzo[ <i>b</i> ]thiophen-3-yl]-3,3,4,4,5,5-hexafluoro-1-cyclopentene		100mg
B2629	1,2-Bis(2,4-dimethyl-5-phenyl-3-thienyl)-3,3,4,4,5,5-hexafluoro-1-cyclopentene		100mg
B1534	2,3-Bis(2,4,5-trimethyl-3-thienyl)maleic Anhydride	100mg	1g
B1535	2,3-Bis(2,4,5-trimethyl-3-thienyl)maleimide	100mg	1g

<b>Spiroprans</b>	H1042 	T0344 	T0370 
	T0416 	T0423 	T1259 

H1042	1-(2-Hydroxyethyl)-3,3-dimethylindolino-6'-nitrobenzopyrylospiran	1g	5g
T0344	1,3,3-Trimethylindolinobenzopyrylospiran	1g	5g
T0370	1,3,3-Trimethylindolino-6'-bromobenzopyrylospiran		1g
T0416	1,3,3-Trimethylindolino-8'-methoxybenzopyrylospiran	1g	25g
T0423	1,3,3-Trimethylindolino-β-naphthopyrylospiran	1g	5g
T1259	1,3,3-Trimethylindolinonaphthospirooxazine		1g
T0366	1,3,3-Trimethylindolino-6'-nitrobenzopyrylospiran	1g	25g

<b>Spiroperimidines</b>	D3618 	D3619 
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D3618	2,3-Dihydro-2-spiro-4'-[8'-aminonaphthalen-1'(4' <i>H</i> )-one]perimidine (contains <i>o</i> -form) (=PNO- <i>p</i> )	100mg
D3619	2,3-Dihydro-2-spiro-7'-[8'-imino-7',8'-dihydronaphthalen-1'-amine]perimidine (=PNI)	100mg

<b>Related Compounds (Viologenes)</b>	<b>B0469</b> 	<b>B1518</b> 	
	<b>D2137</b> 	<b>D1593</b> 	<b>D1854</b> 
	<b>D2165</b> 	<b>D0713</b> <b>D3685</b> 	

B0469	4,4'-Bipyridyl	25g	500g
B1518	1,1'-Bis(2,4-dinitrophenyl)-4,4'-bipyridinium Dichloride	5g	25g
D2137	1,1'-Dibenzyl-4,4'-bipyridinium Dichloride	1g	5g
D1593	1,1'-Di- <i>n</i> -heptyl-4,4'-bipyridinium Dibromide		5g
D1854	1,1'-Di- <i>n</i> -octyl-4,4'-bipyridinium Dibromide		5g
D2165	1,1'-Diphenyl-4,4'-bipyridinium Dichloride		1g
D0713	1,1'-Dimethyl-4,4'-bipyridinium Dichloride Hydrate	1g	10g
D3685	1,1'-Dimethyl-4,4'-bipyridinium Dichloride	1g	5g

#### • Others

A0565	Azobenzene	25g	500g
D3197	3,3-Diphenyl-3 <i>H</i> -naphtho[2,1- <i>b</i> ]pyran		5g
N0346	2,5-Norbornadiene (stabilized with BHT)	25ml	500ml
T1489	Thioindigo		25g

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