

# Photochromic 材料

(入江ら、*Bull. Chem. Soc. Jpn.*, **77**, 195 (2004))

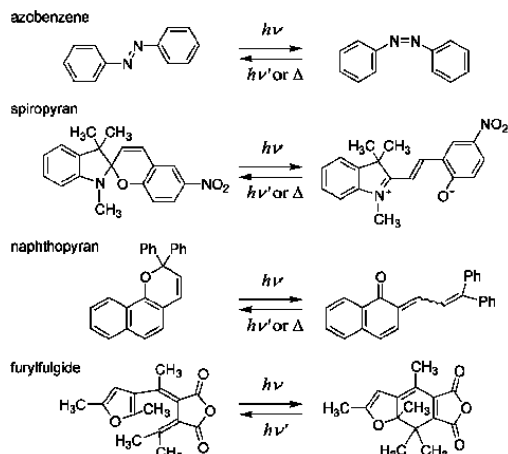


Fig. 1. Typical photochromic compounds.

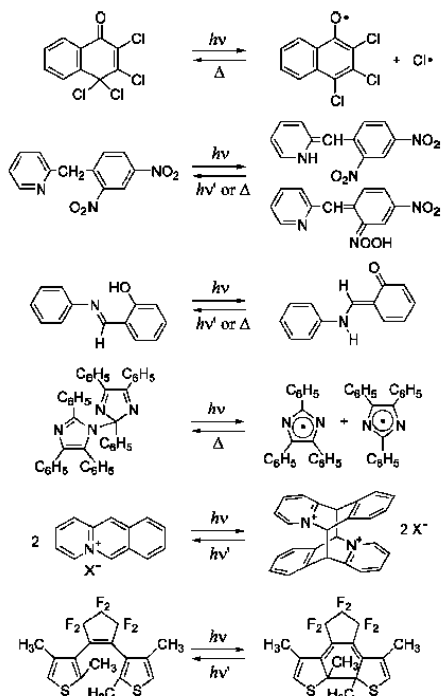


Fig. 3. Typical examples of crystalline photochromic compounds.

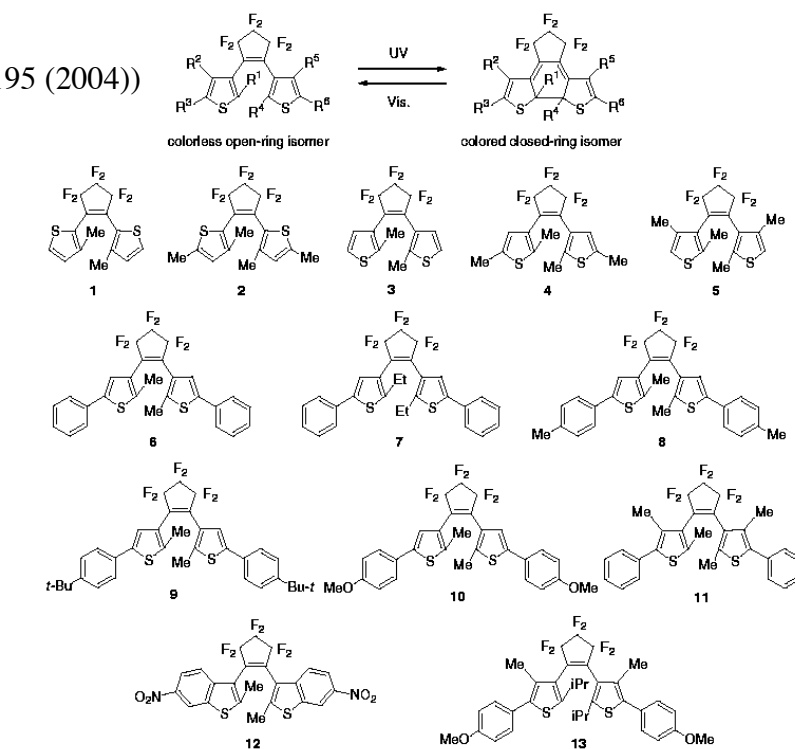


Fig. 4. Diarylethene derivatives showing single-crystalline photochromism.

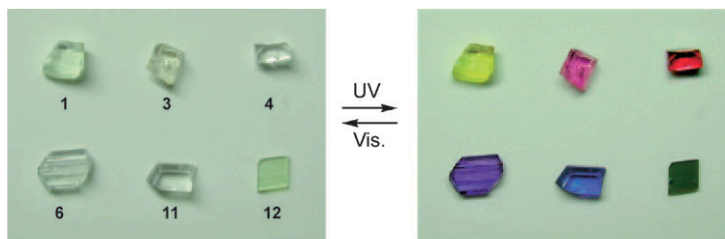


Fig. 5. Photographs of photochromic diarylethene crystals. Reprinted with permission from The Japan Academy.

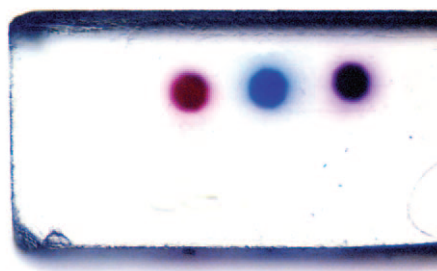
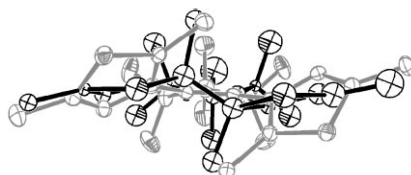


Fig. 26. Photograph of partially colored crystal 4/10. (left): irradiated with 370-nm light. (middle): irradiated with 405-nm light. (right): irradiated with both 370- and 405-nm light.

cyclopentene 部分がフッ素化されているのは繰り返し耐久性の向上のためである。

## 反応性と構造の相関



開環体と閉環体の構造の重ね書き

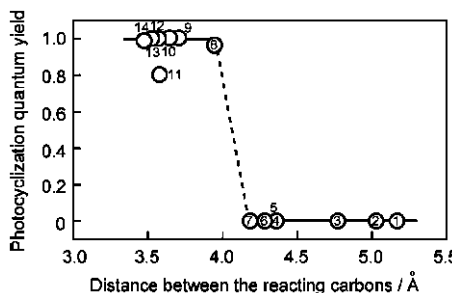


Fig. 18. Relationship between the photocyclization quantum yield and the distance between the reacting carbons. 1: 1,2-bis(2,4,5-trimethyl-3-thienyl)perfluorocyclopentene, 2: 1,2-bis(2,4-dimethyl-5-methoxyphenyl-3-thienyl)perfluorocyclopentene, 3: 1,2-bis(2-methyl-6-formylbenzothiofen-3-yl)perfluorocyclopentene, 4: 1,2-bis(2-isopropyl-4-methyl-5-phenyl-3-thienyl)perfluorocyclopentene, 5: 1,2-bis(2-methylbenzothiofen-3-yl)perfluorocyclopentene, 6: 1-(2-methylbenzothiofen-3-yl)-2-(2,6-dimethylbenzothiofen-3-yl)perfluorocyclopentene, 7: 1,2-bis(2,6-dimethylbenzothiofen-3-yl)perfluorocyclopentene, 8: compound 11, 9: compound 7, 10: compound 8, 11: compound 4, 12: compound 9, 13: compound 8, 14: compound 10.