



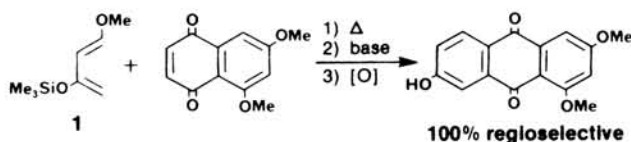
Diels-Alder Chemistry

Novel Applications

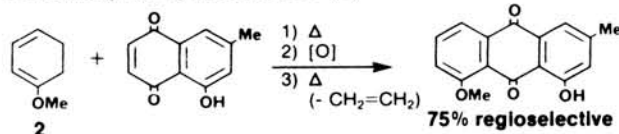
The Diels-Alder reaction has become the most widely utilized method for the one-step, stereospecific construction of six-membered ring systems.¹ New uses for both classical and recently developed Diels-Alder reagents are constantly being devised; a sampling of recent literature illustrates the increasing diversity of this valuable synthetic method.

Dienes

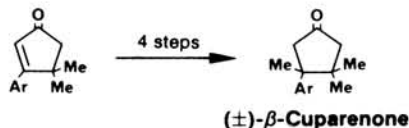
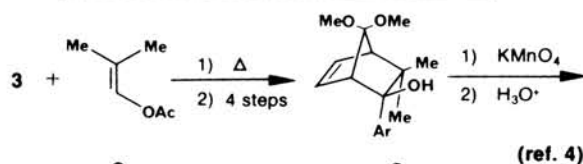
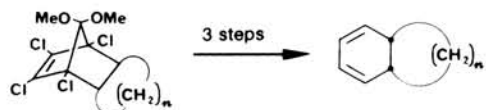
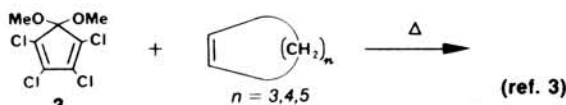
1-Methoxy-3-(trimethylsilyloxy)butadiene (1, "Danishefsky's diene")²



1-Methoxy-1,3-cyclohexadiene (2)³



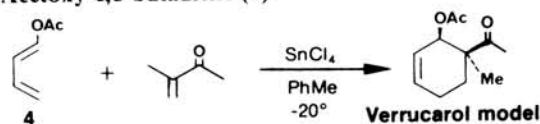
5,5-Dimethoxy-1,2,3,4-tetrachlorocyclopentadiene (3)



Ar = *p*-tolyl

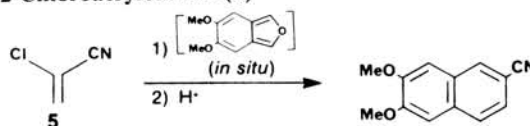
(±)-β-Cuparenone

1-Acetoxy-1,3-butadiene (4)⁵

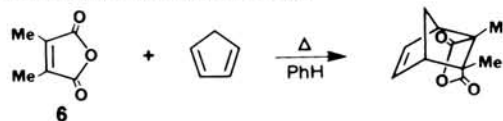


Dienophiles

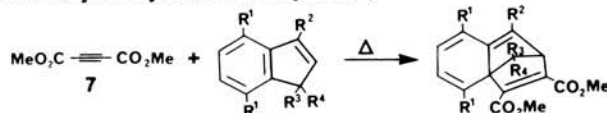
2-Chloroacrylonitrile (5)⁶



2,3-Dimethylmaleic anhydride (6)⁷



Dimethyl acetylenedicarboxylate (7)⁸



References:

- 1) For recent reviews of certain aspects, see J. Sauer and R. Sustmann, *Angew. Chem., Int. Ed. Engl.*, **19**, 779 (1980); T. Wagner-Jauregg, *Synthesis*, 769 (1980).
- 2) K. Krohn, *Tetrahedron Lett.*, **21**, 3557 (1980).
- 3) W.G. Dauben and M.S. Kellogg, *J. Am. Chem. Soc.*, **102**, 4456 (1980).
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- 5) G.A. Kraus and B. Roth, *J. Org. Chem.*, **45**, 4825 (1980).
- 6) R. Rodrigo, et al., *Tetrahedron Lett.*, **21**, 3663 (1980).
- 7) W. Kreiser, et al., *Chem. Ber.*, **112**, 397 (1979).
- 8) D.W. Jones, *J. Chem. Soc., Perkin Trans. 1*, 673 (1979).

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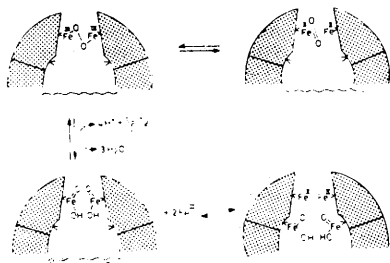
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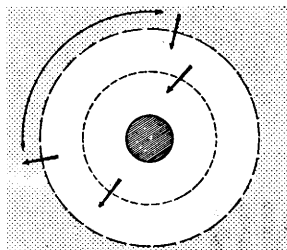
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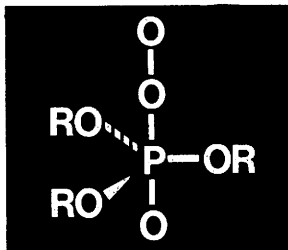
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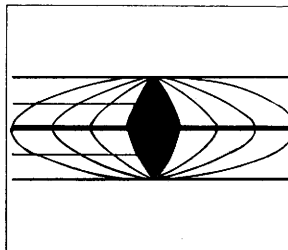
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