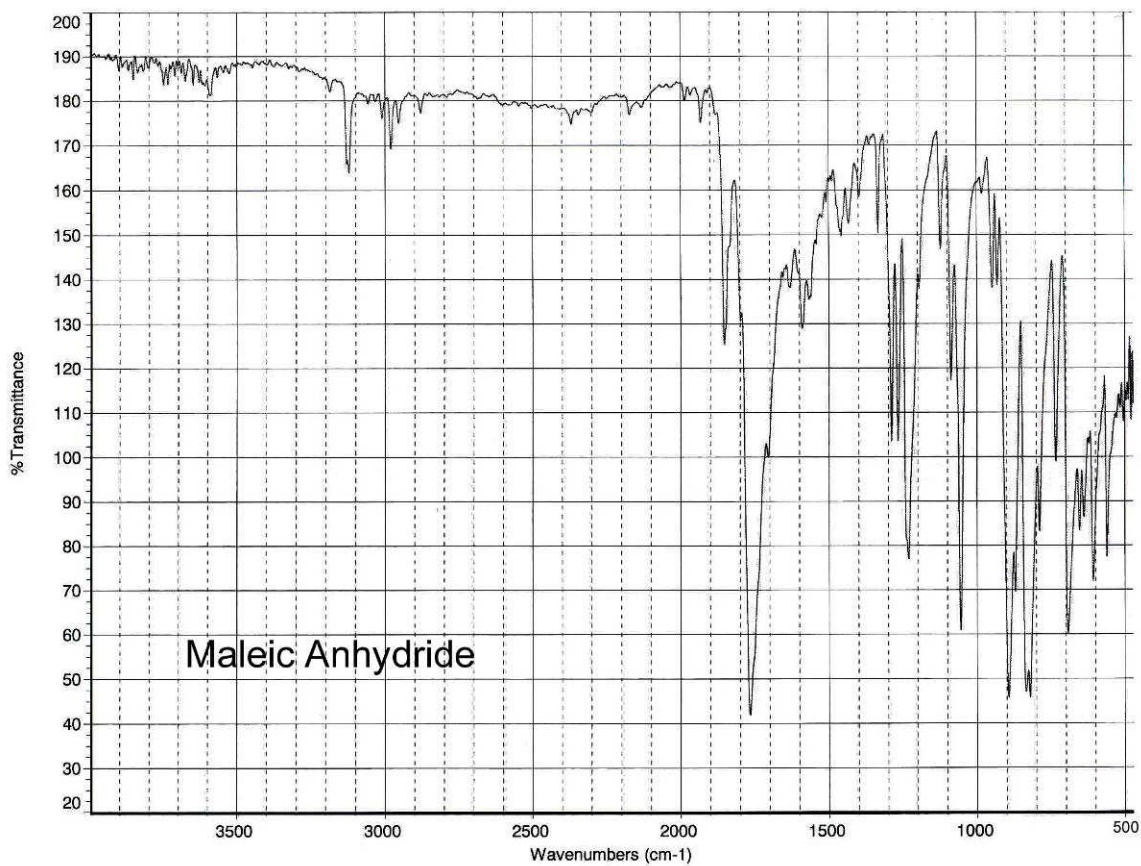
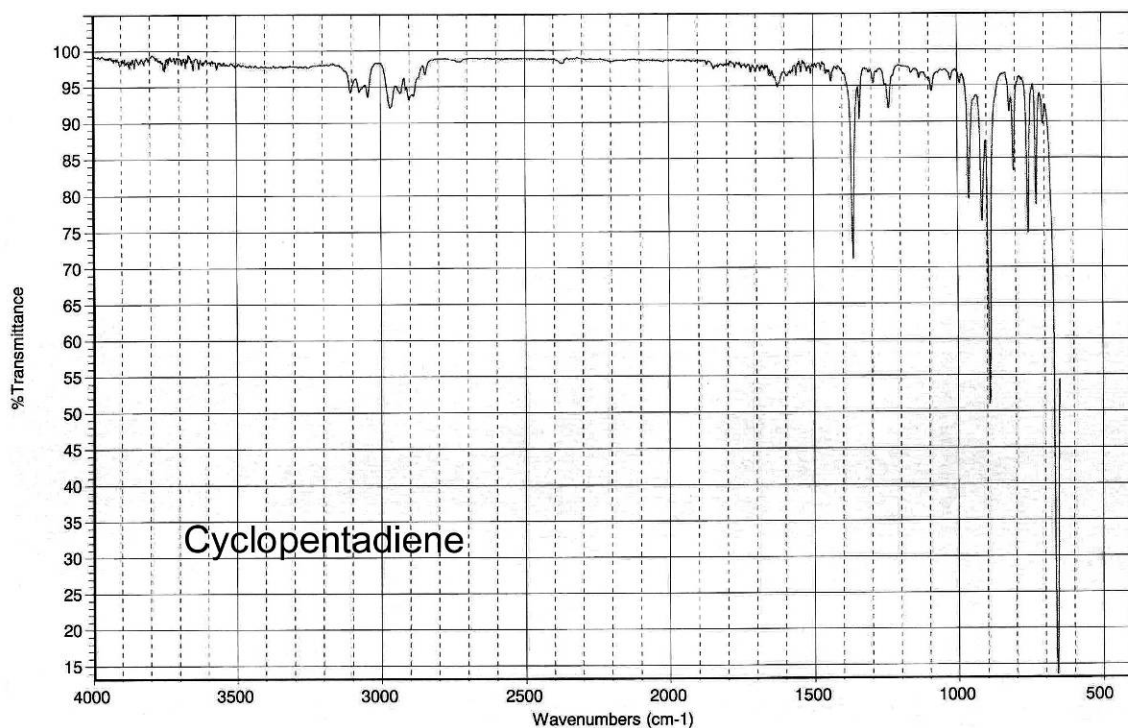
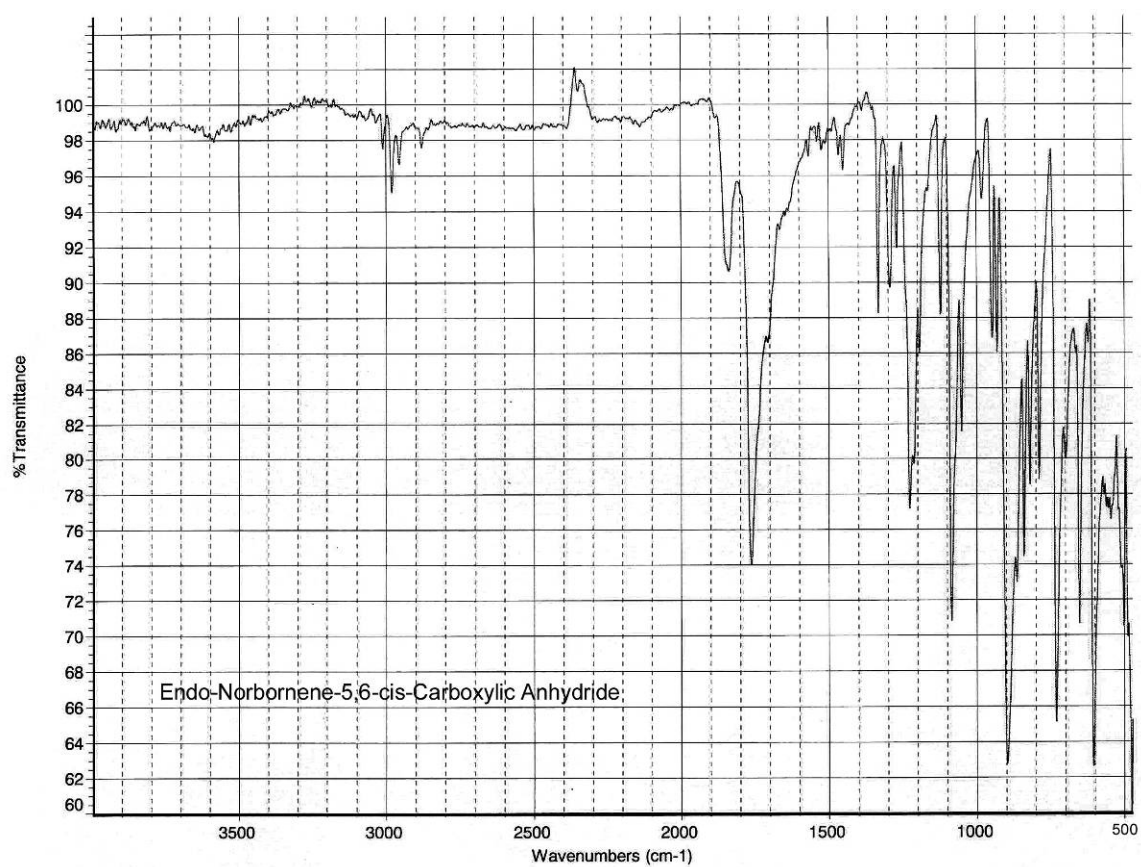


Infrared Spectra of Reactants and Product of the Diels-Alder Reaction of Cyclopentadiene with Maleic Anhydride to form *Endo*-Norbornene-*cis*-5,6-Carboxylic Anhydride

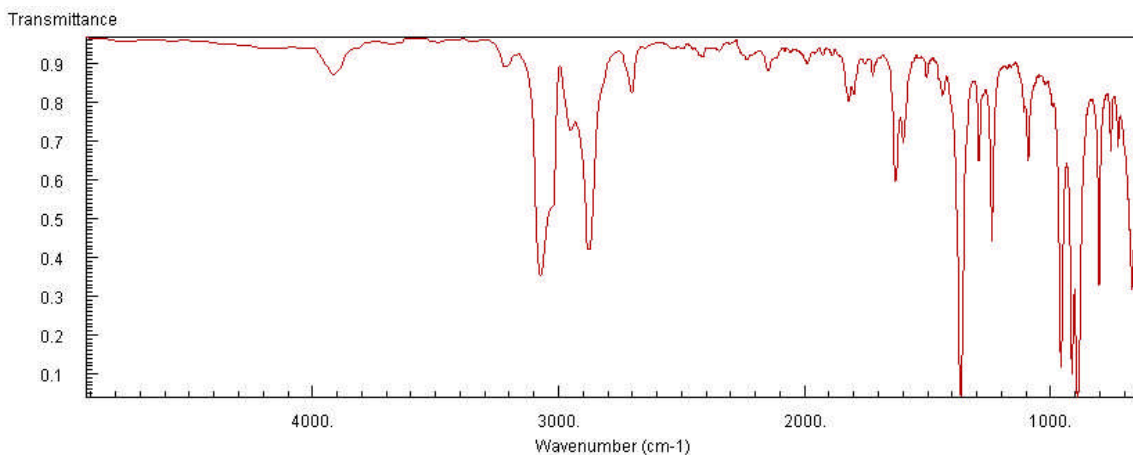




The above spectra were taken on a Thermo IR200 FT-IR spectrophotometer with an ATR sample accessory (HCC Southwest).

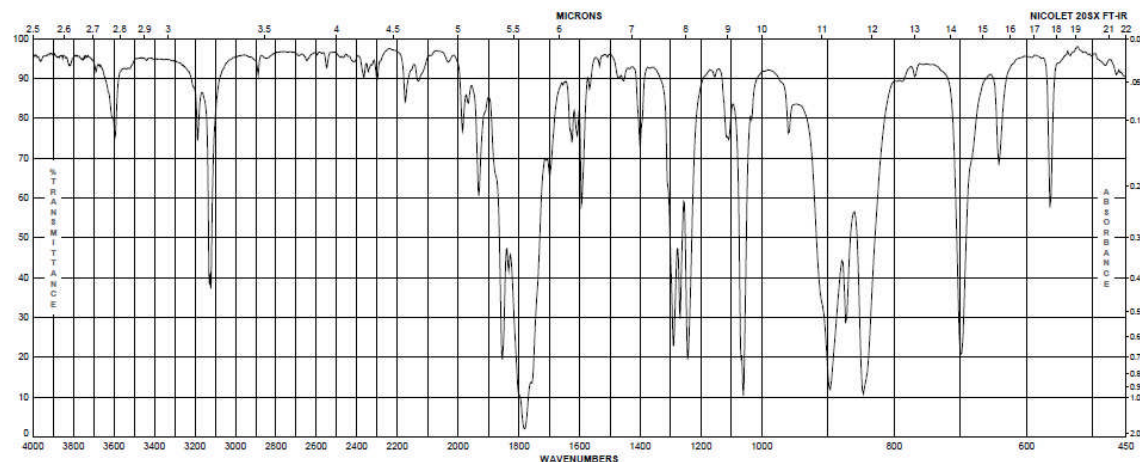
Spectra from Online Sources

1,3-Cyclopentadiene



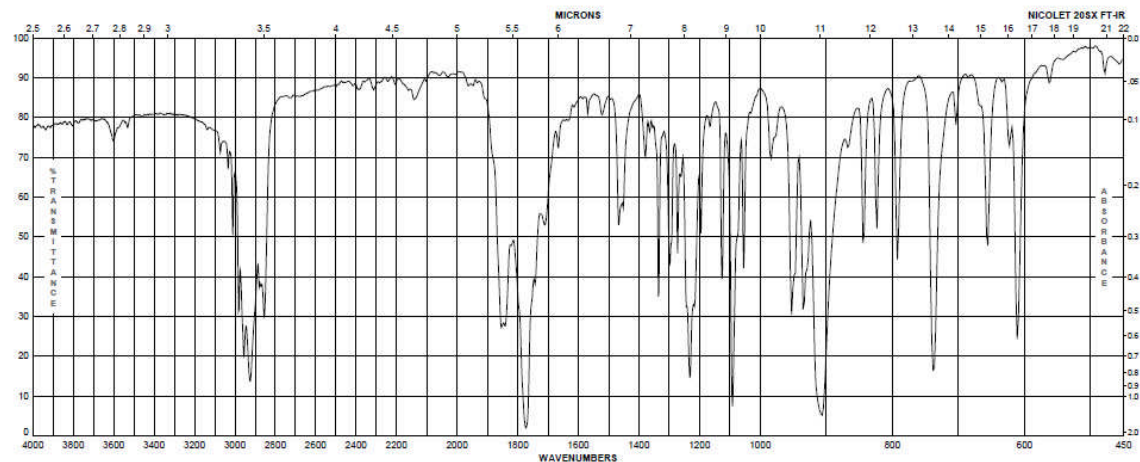
From <http://webbook.nist.gov/cgi/cbook.cgi?ID=C542927&Mask=80>

Maleic Anhydride



From <http://www.sigmaaldrich.com/catalog/product/fluka/63200?lang=en®ion=US>

Endo-Norbornene-cis-5,6-Carboxylic Anhydride



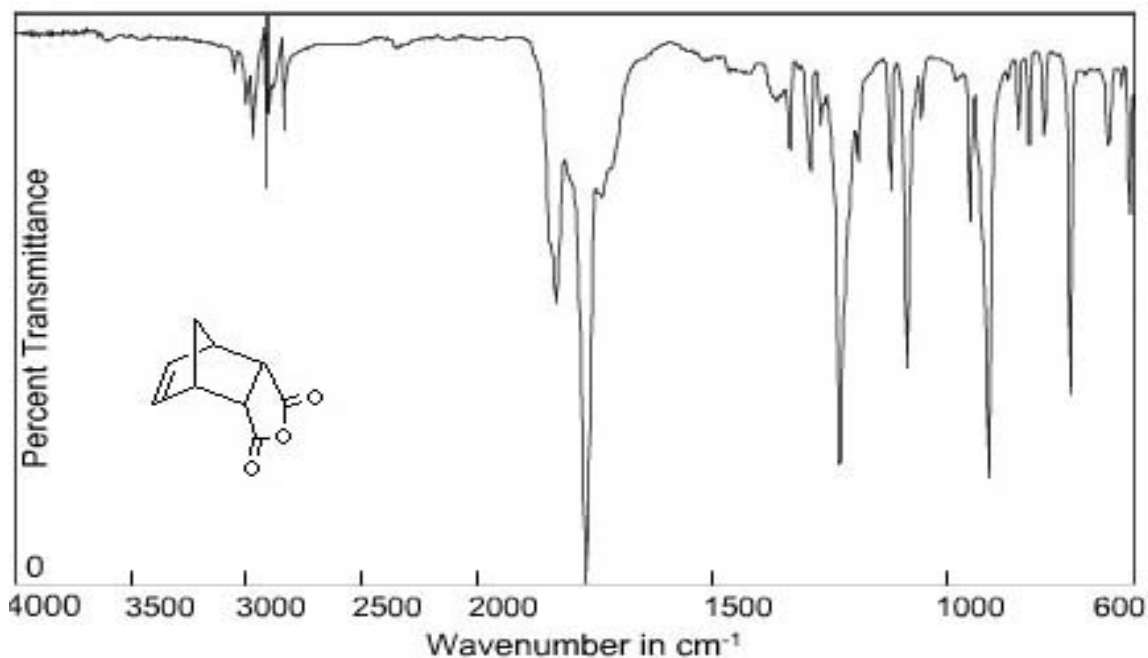
From <http://www.sigmaaldrich.com/catalog/product/aldrich/247634?lang=en®ion=US>

**IR and ^1H -NMR Spectra from Experimental Organic Chemistry, A Miniscale and Microscale Approach, 4th Edition,
by John C. Gilbert and Stephen F. Martin**

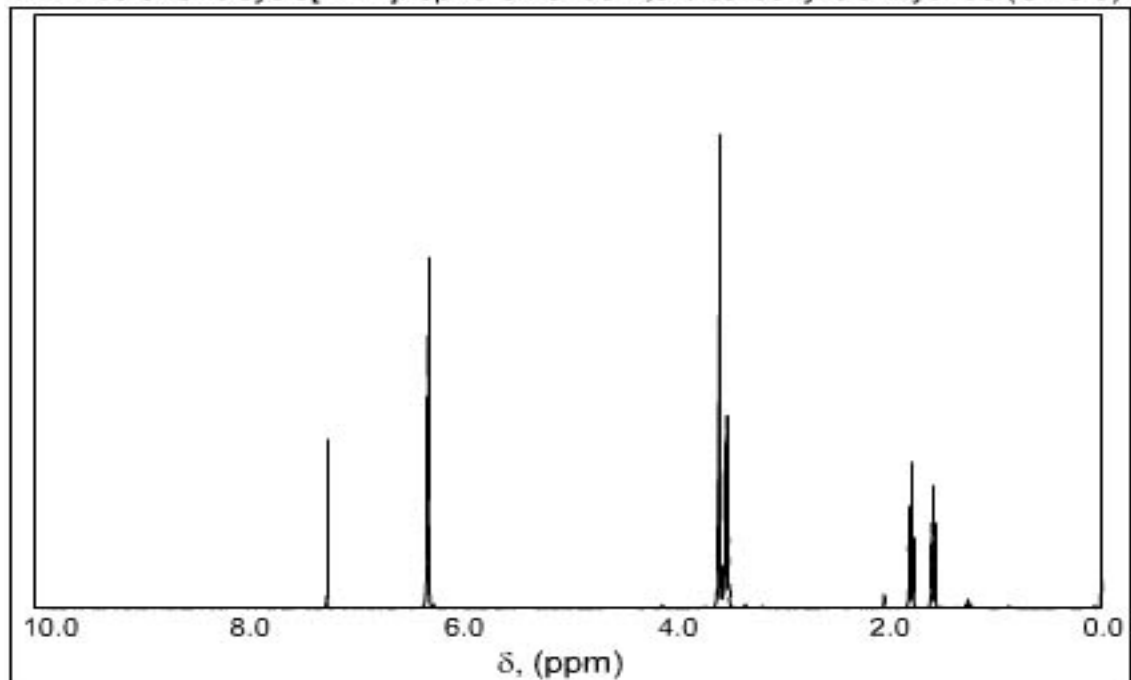
http://thomsonedu.com/chemistry/book_content/049501334X_gilbert/prelabs/index.html

http://thomsonedu.com/chemistry/book_content/049501334X_gilbert/prelabs/spectra_9_2.html

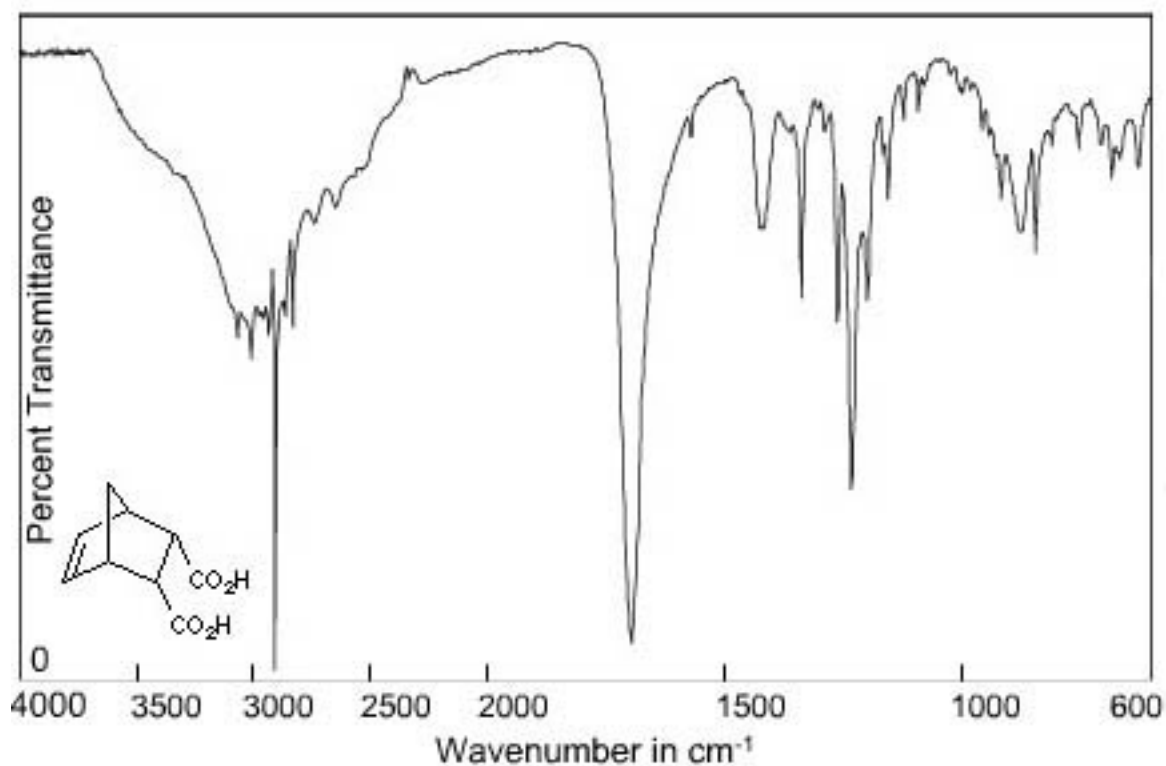
IR spectrum of bicyclo[2.2.1] hept-5-en-endo-2,3-dicarboxylicanhydride (IR card)



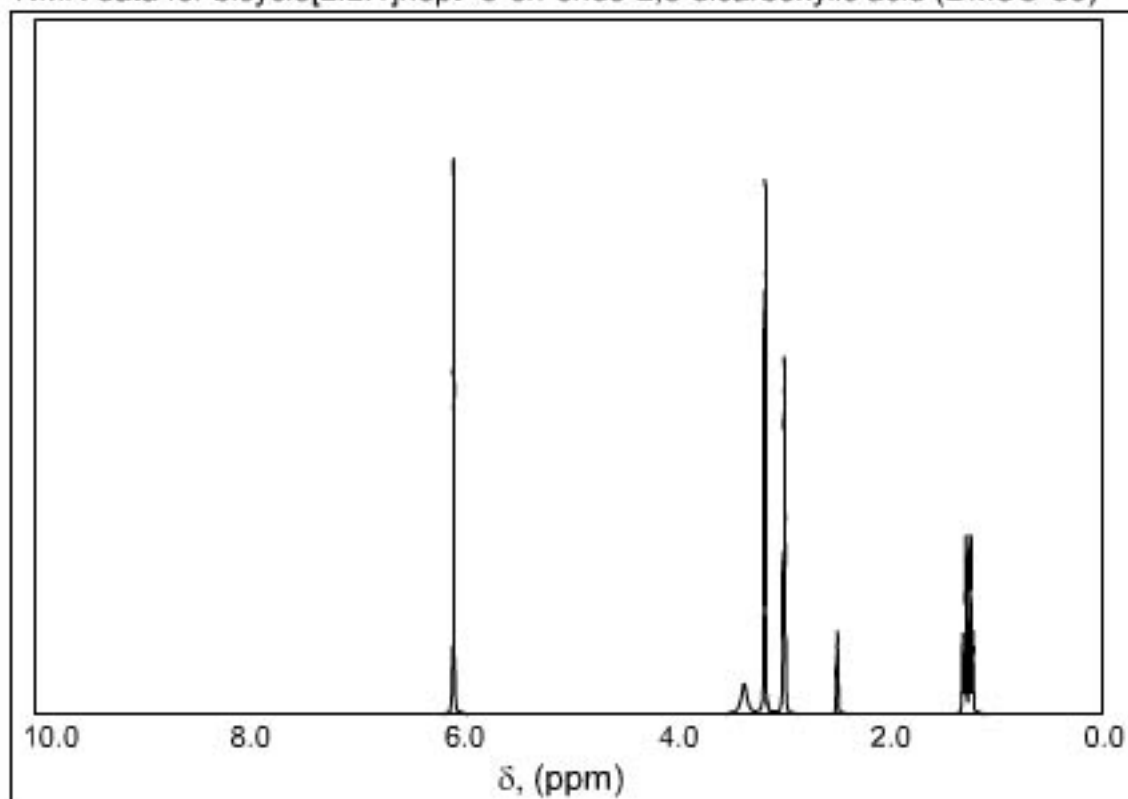
NMR data for bicyclo[2.2.1]hept-5-en-endo-2,3-dicarboxylic anhydride (CDCl_3)



IR spectrum of bicyclo[2.2.1]hept-5-en-endo-2,3-dicarboxylic acid (IR card)



NMR data for bicyclo[2.2.1]hept-5-en-endo-2,3-dicarboxylic acid (DMSO- d_6)



Carboxylic Acid Hydrogens Not Shown

Orientations of Reactants to Form Endo and Exo Isomers

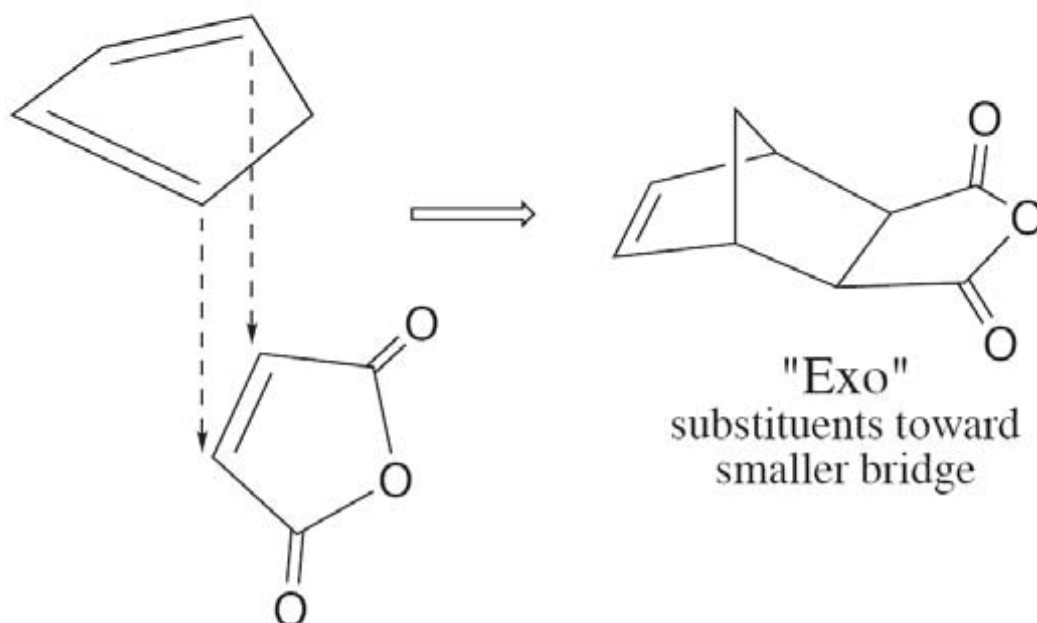
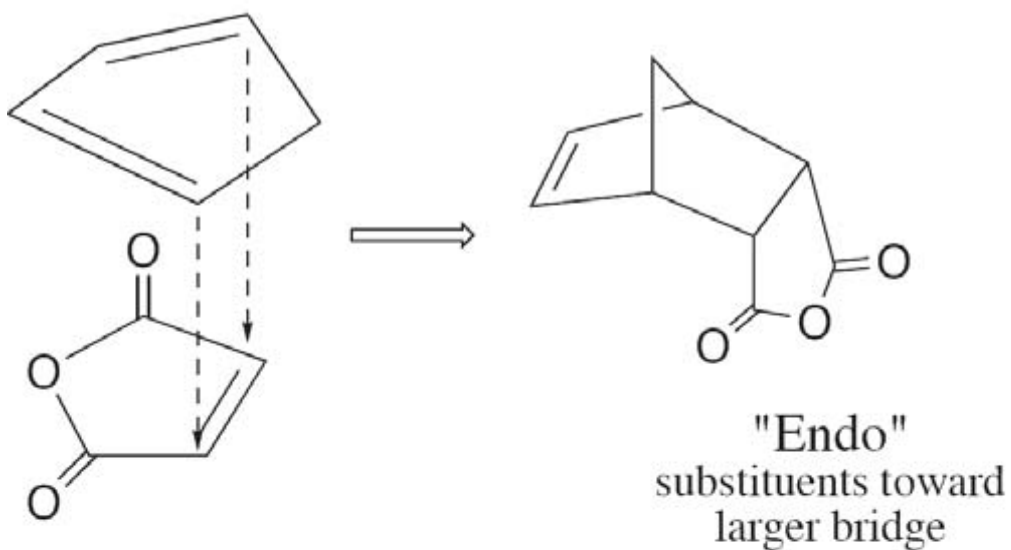


Illustration from

Diels-Alder Reaction:

Preparation of *cis*-Norbornene-5,6-*endo*-dicarboxylic Anhydride

(University of Colorado, Boulder, Dept of Chem and Biochem.)

<http://www.enc.edu/~timothy.t.wooster/courses/CH322/Lab/3-21%20The%20Diels%20Alder%20reaction.pdf>