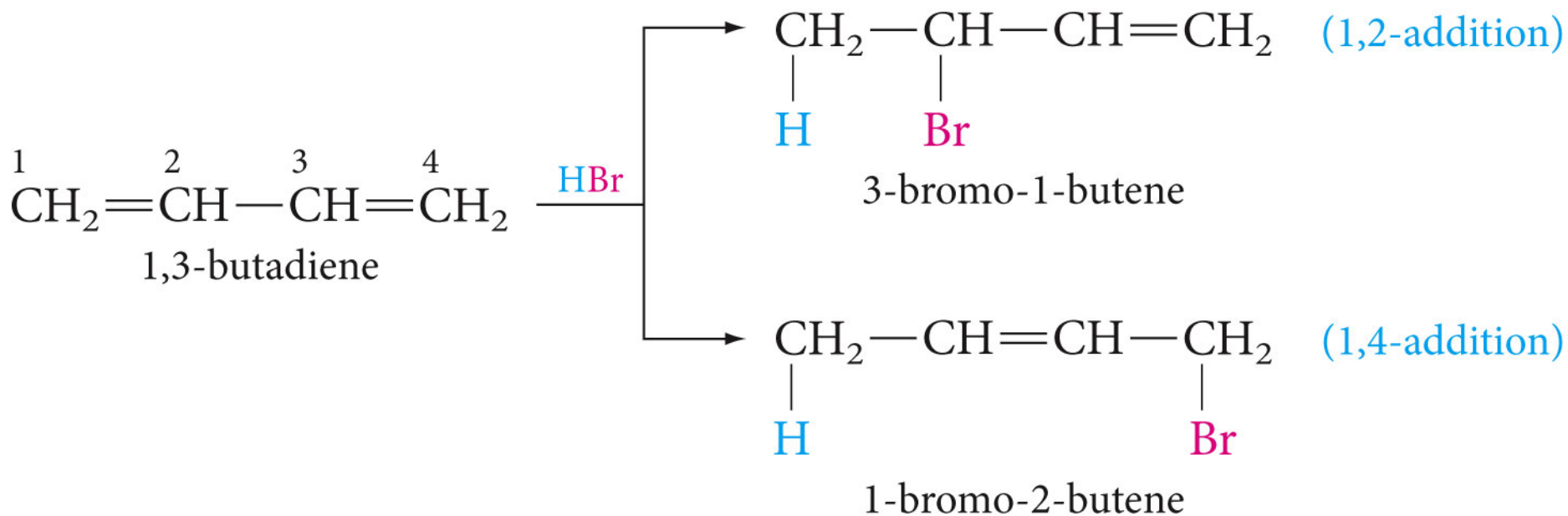
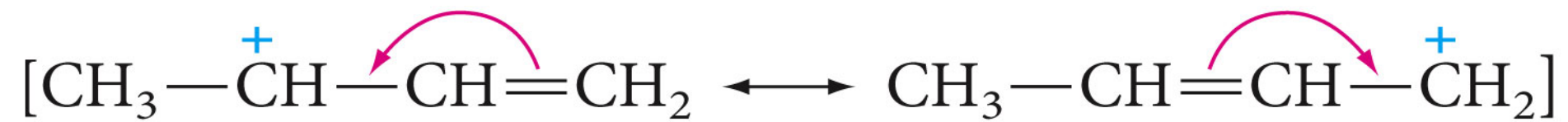
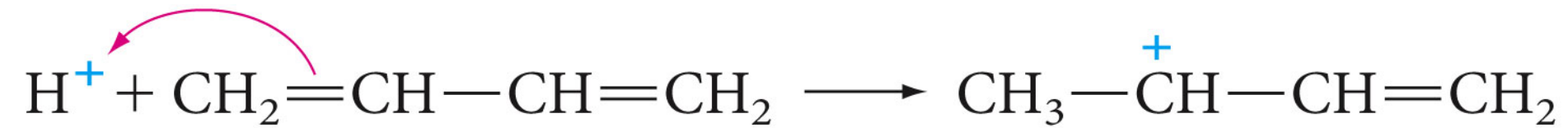
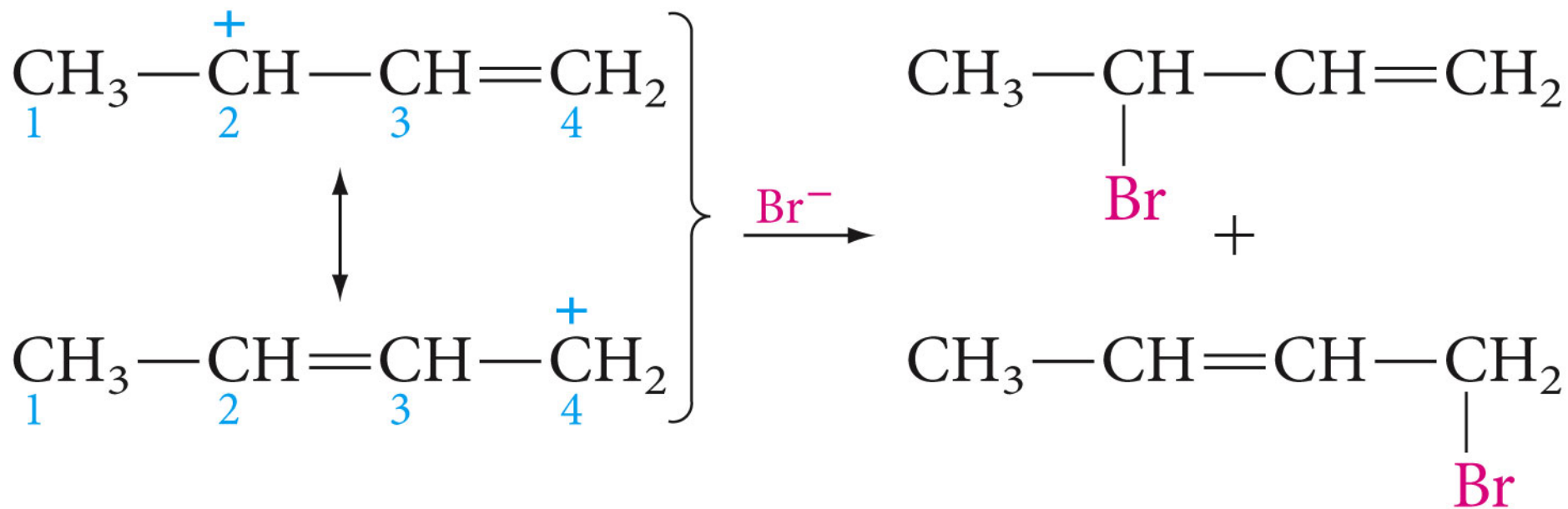
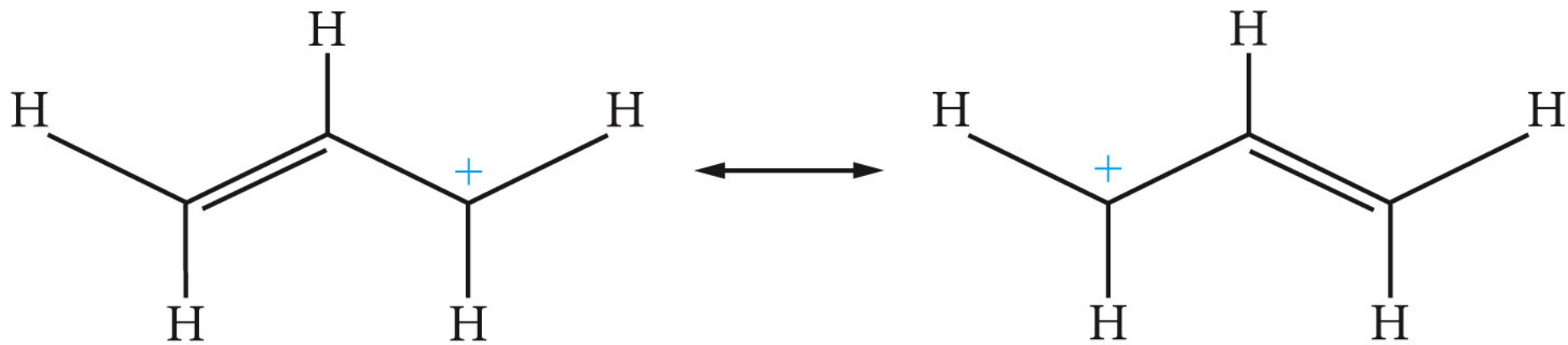


# Addition to Conjugated Systems

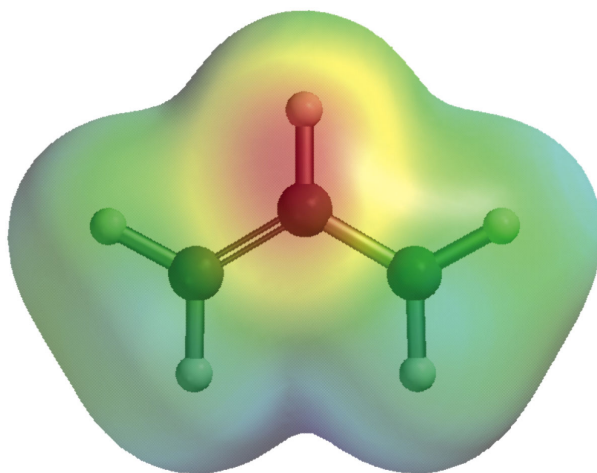


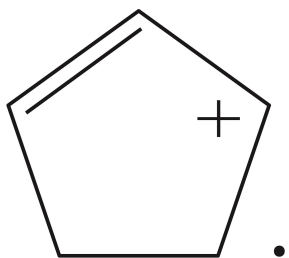




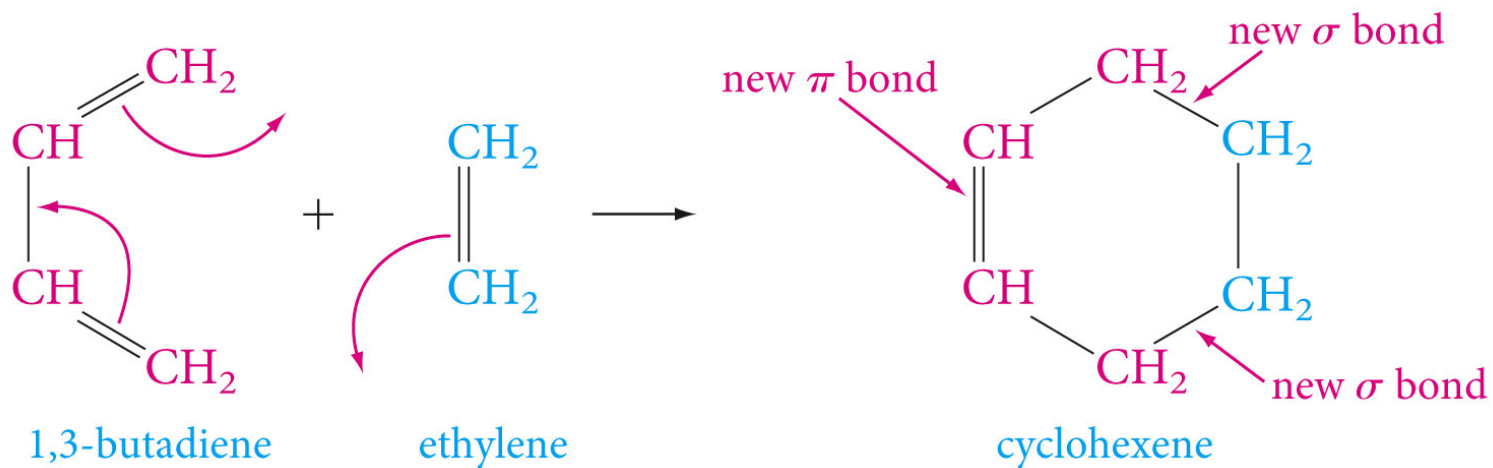


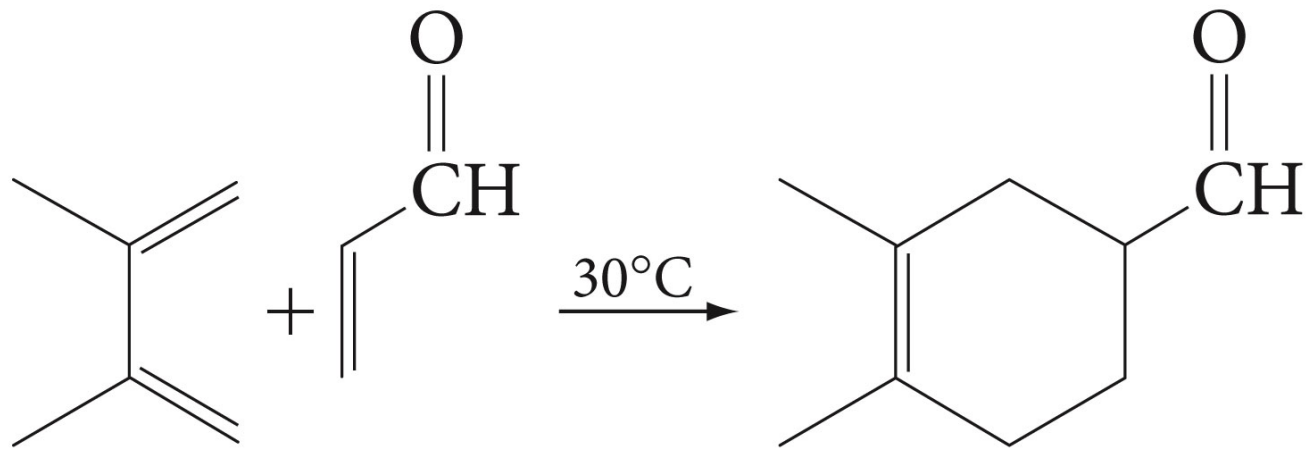
the allyl carbocation

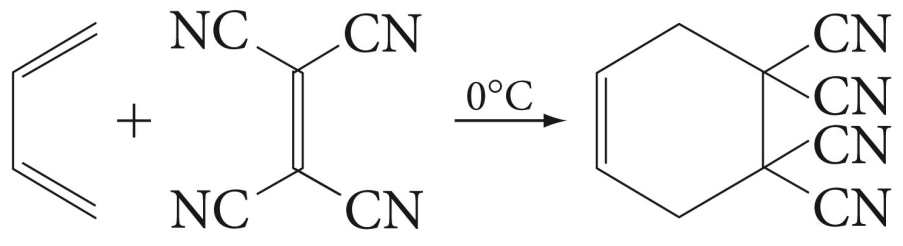




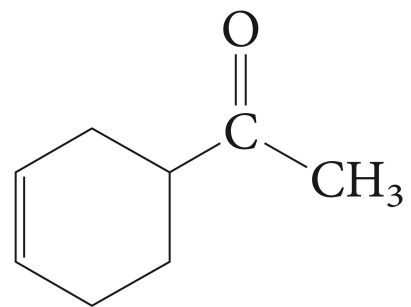
# Cycloaddition to Conjugated Dienes: **Diels-Alder Reaction**

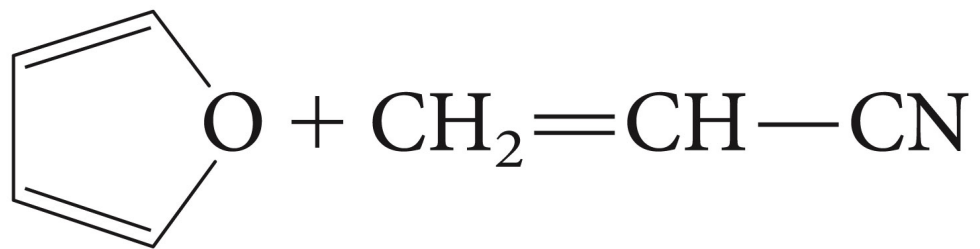




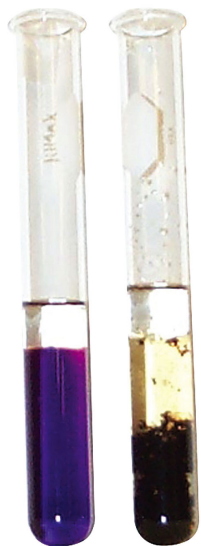
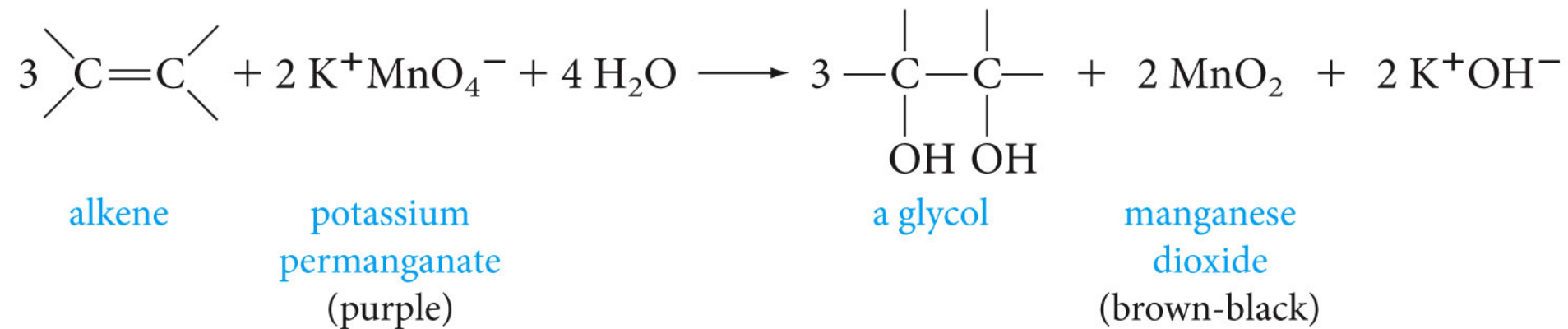




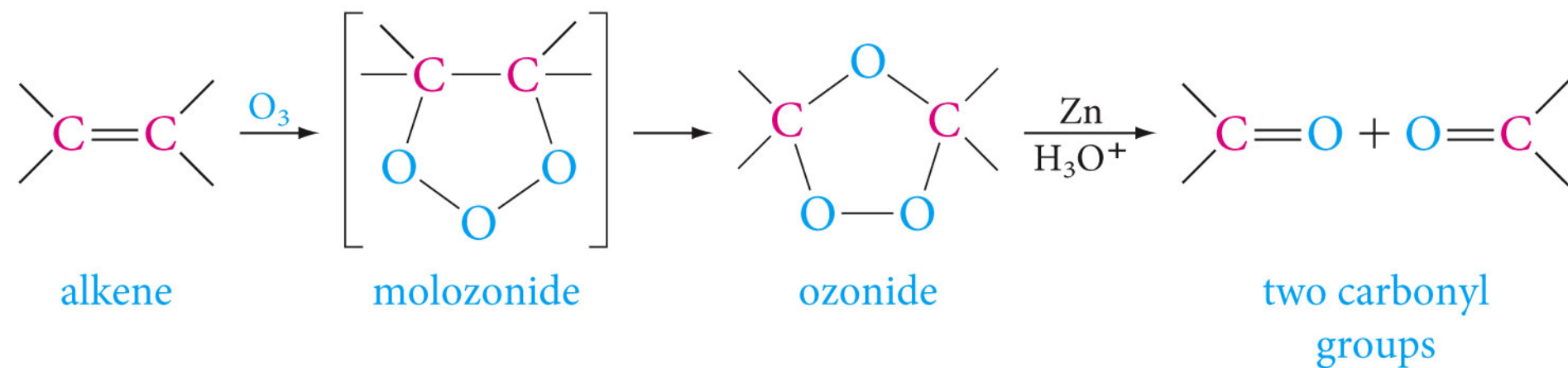


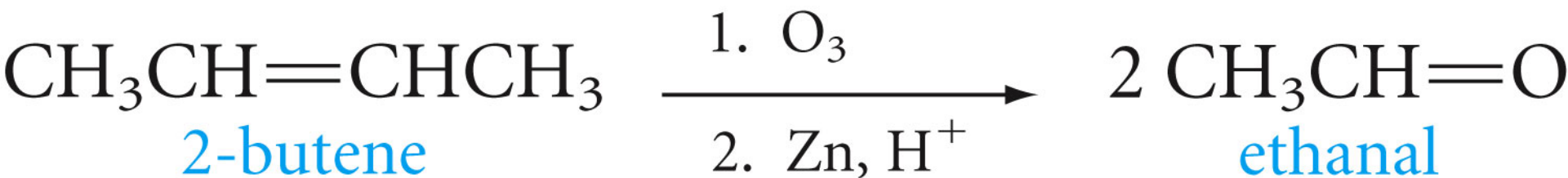
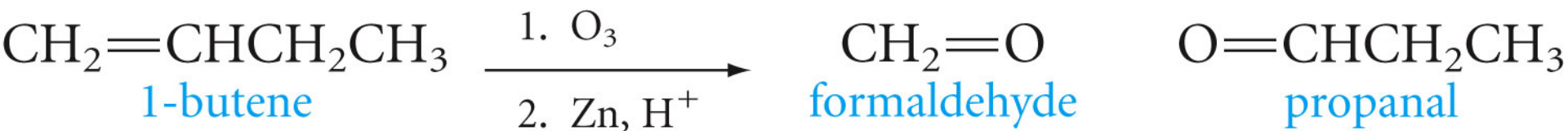


## Oxidation with permanganate; a Chemical Test

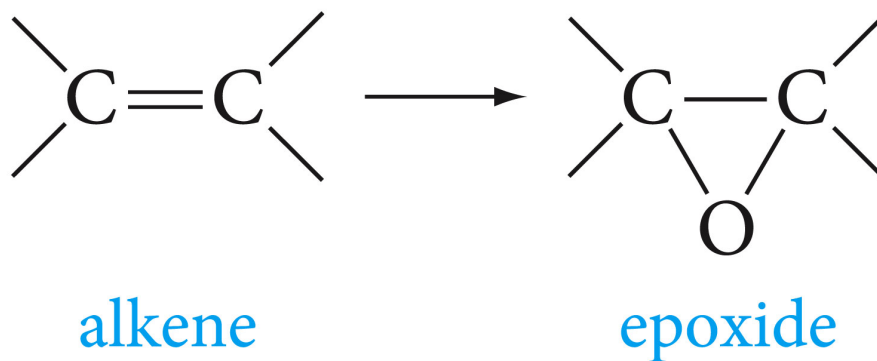


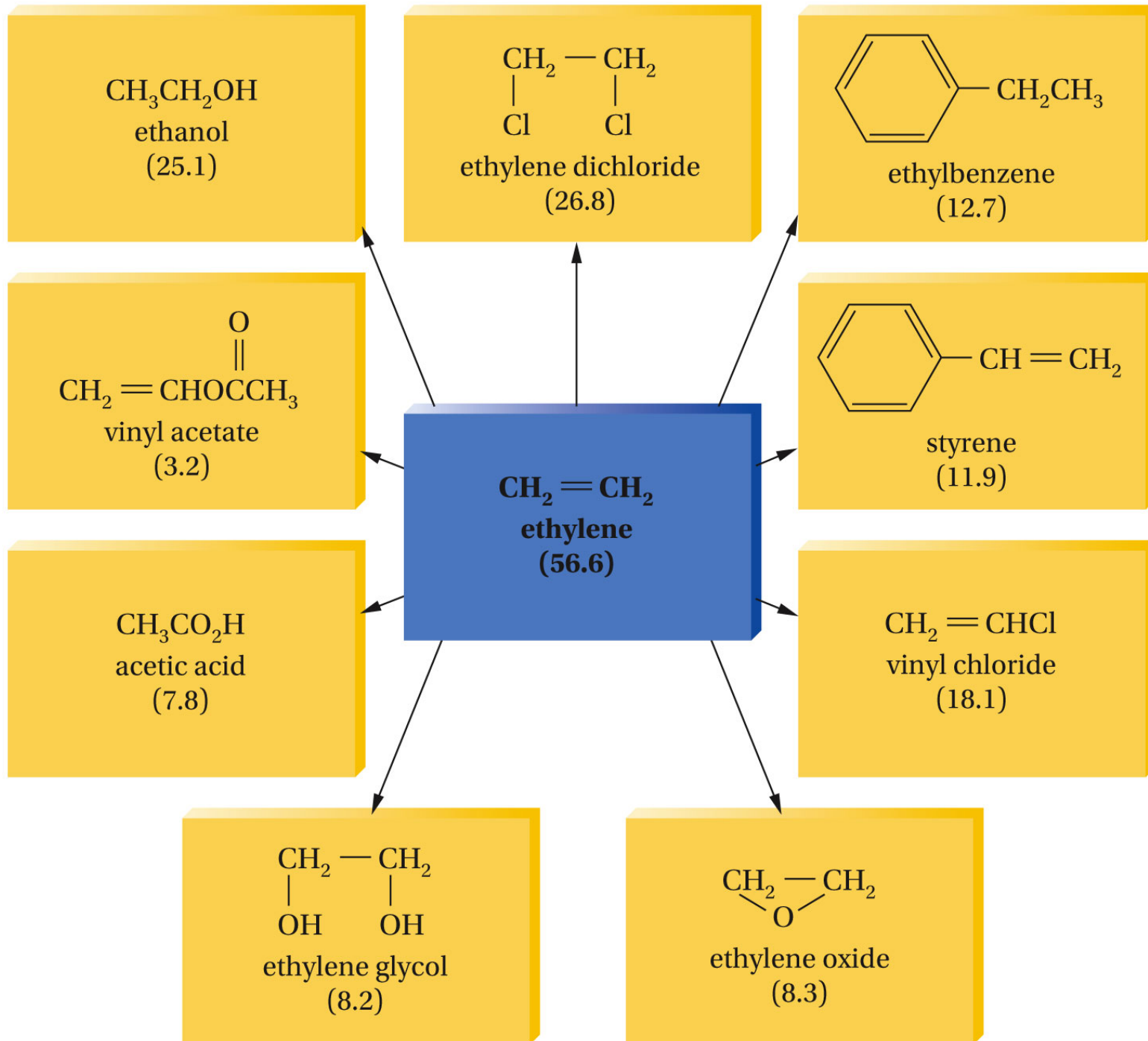
# Ozonolysis of Alkenes

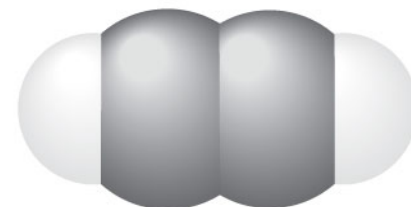
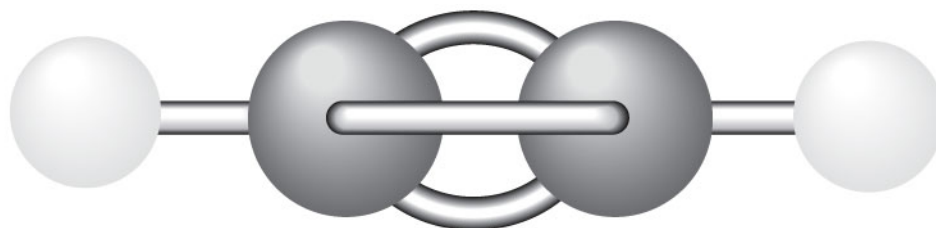
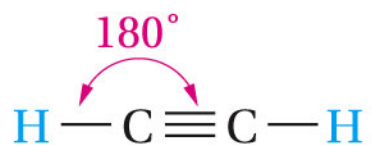




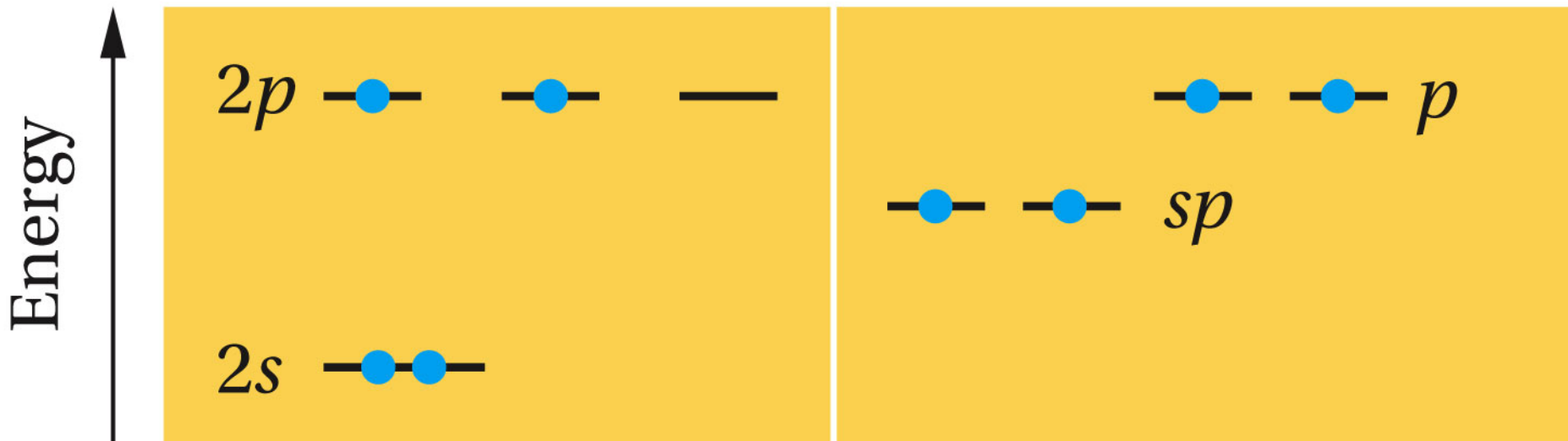
## Other Alkene Oxidations





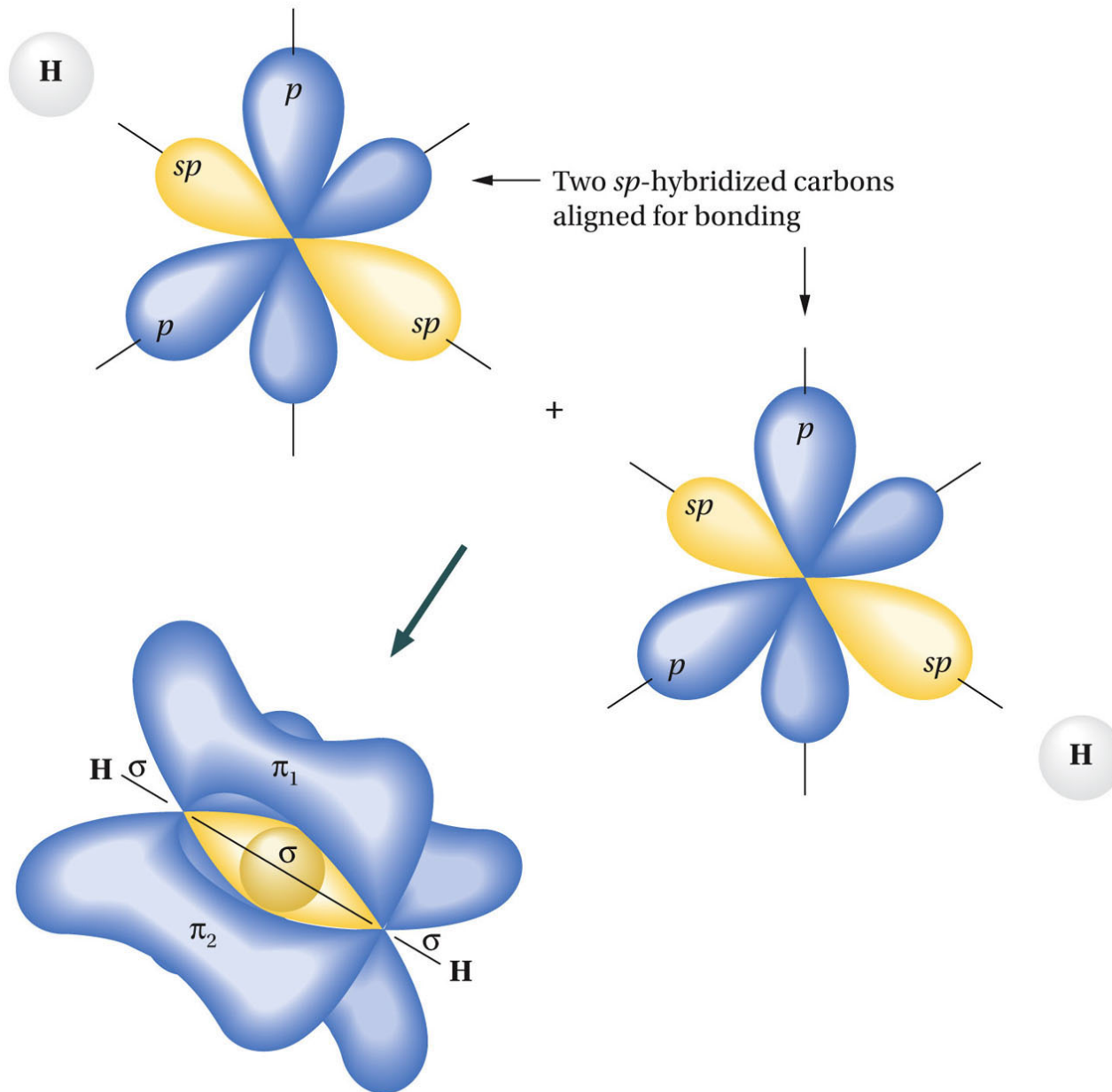




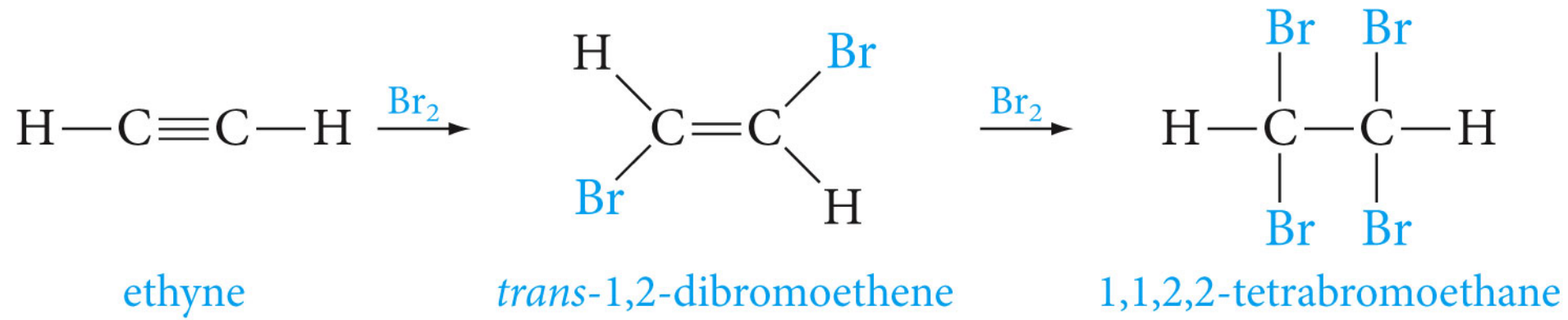


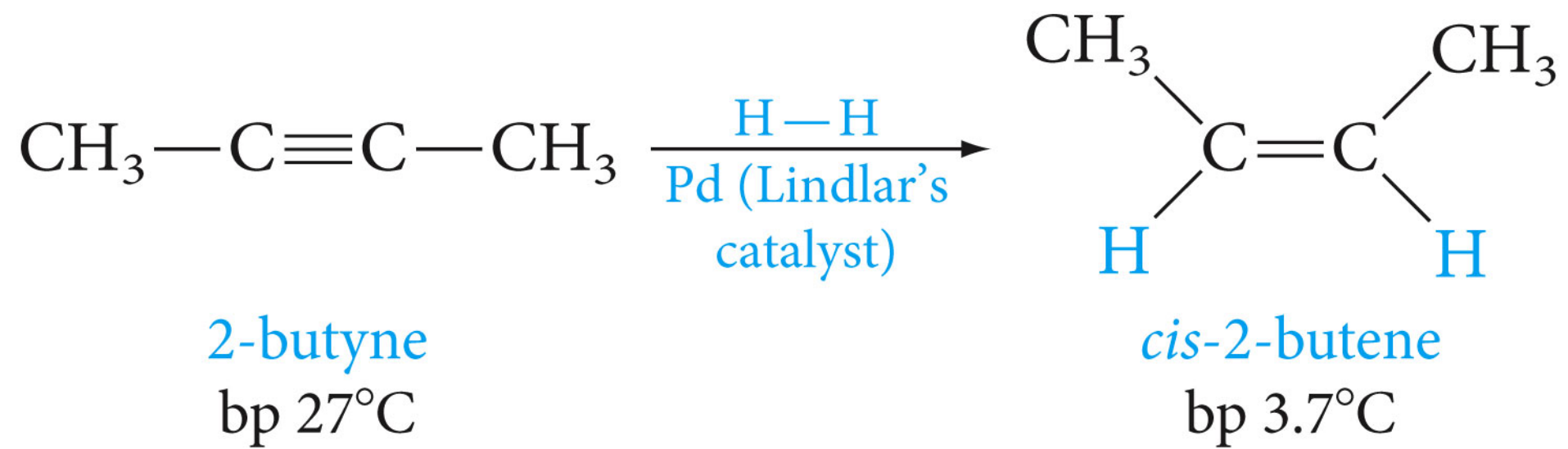
Atomic orbitals  
of carbon

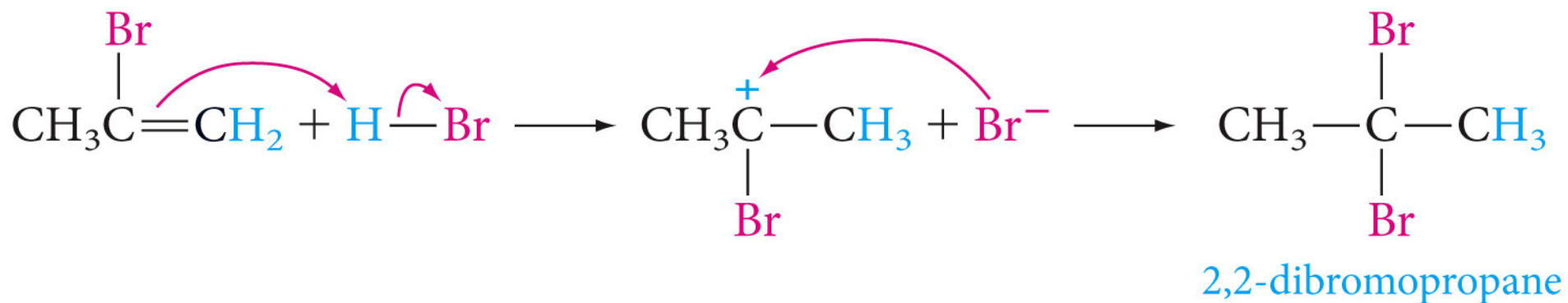
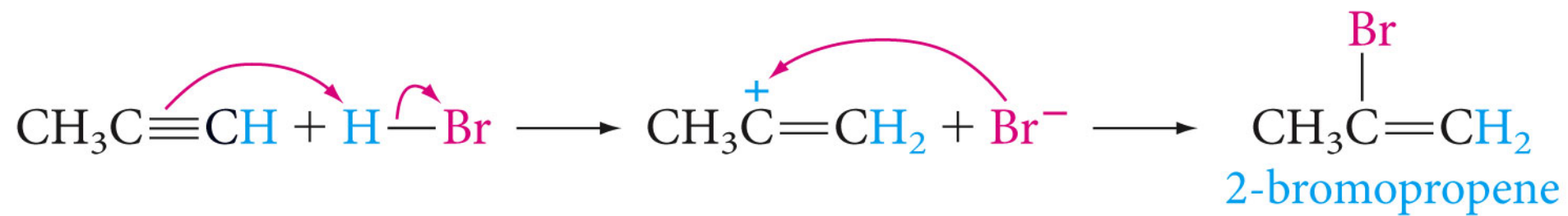
The  $2s$  and one  $2p$  orbital are combined to form two hybrid  $sp$  orbitals, leaving one electron in each of two  $p$  orbitals.

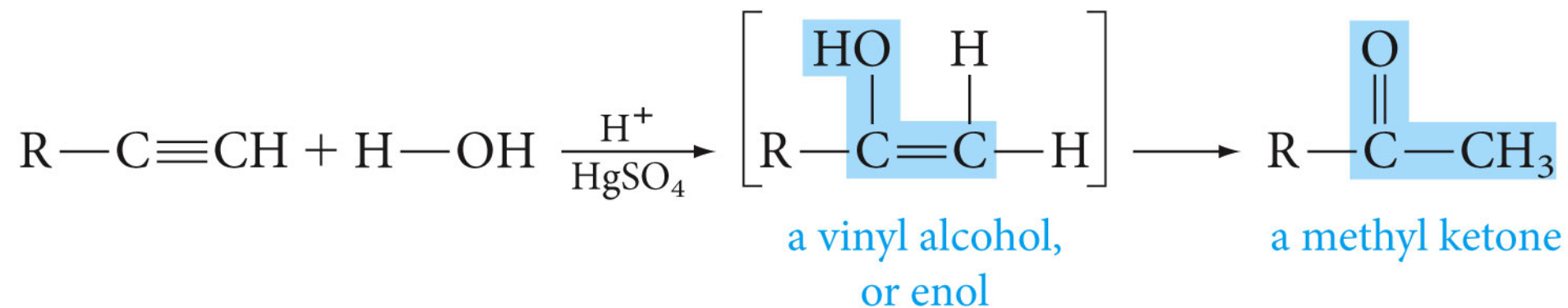
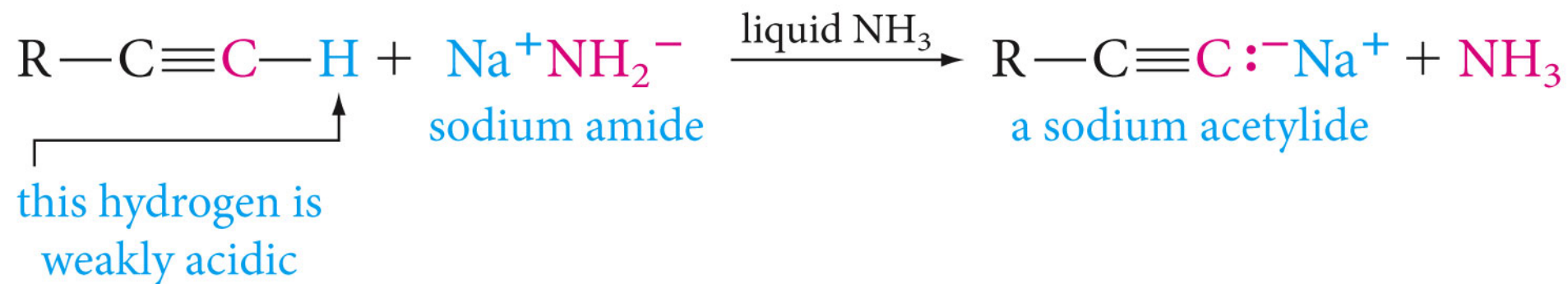


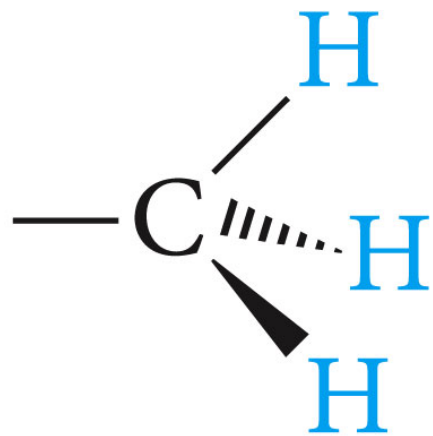
The resulting carbon–carbon triple bond, with a hydrogen atom attached to each remaining  $sp$  bond. (The orbitals involved in the C–H bonds are omitted for clarity.)







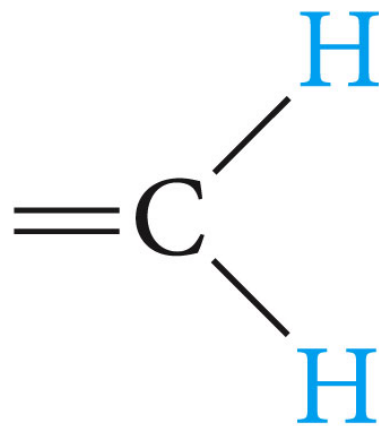




$sp^3$

25%  $s$ ,

75%  $p$



$sp^2$

$33\frac{1}{3}\%$   $s$ ,

$66\frac{2}{3}\%$   $p$



$sp$

50%  $s$ ,

50%  $p$

increasing acidity

