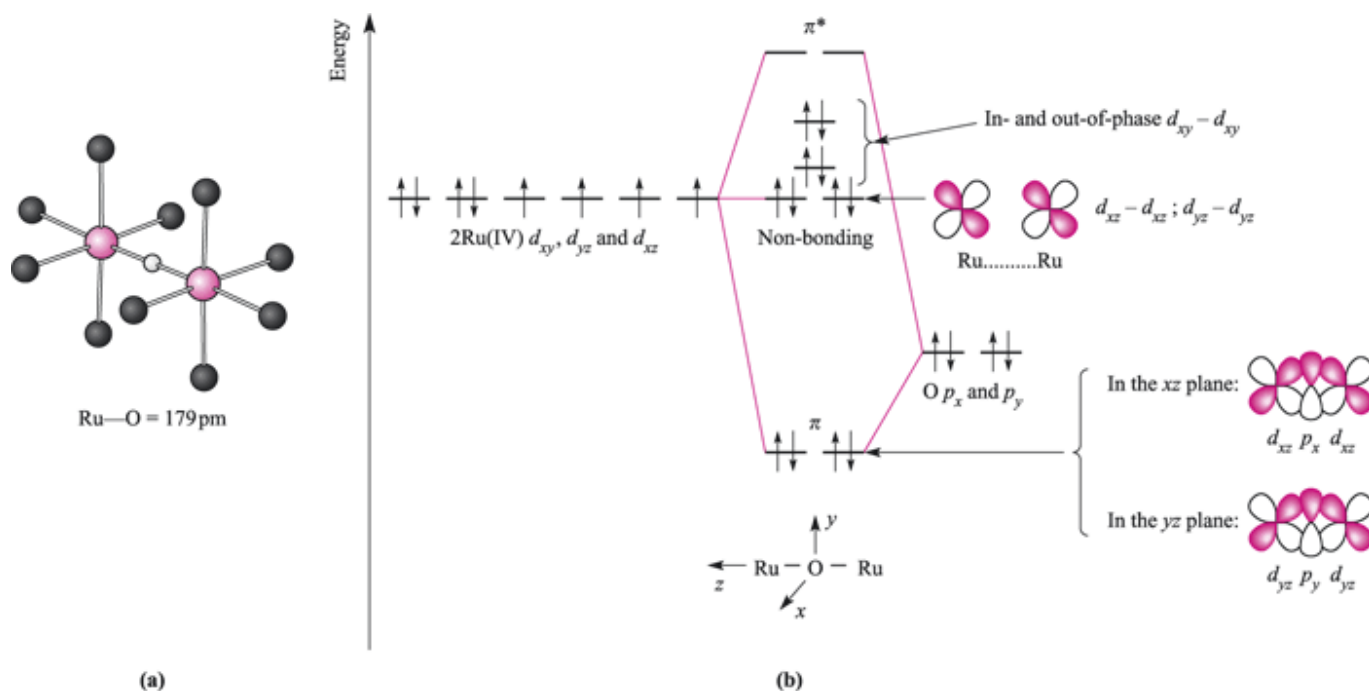
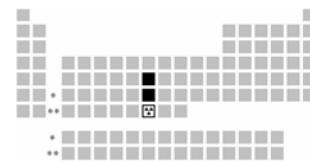
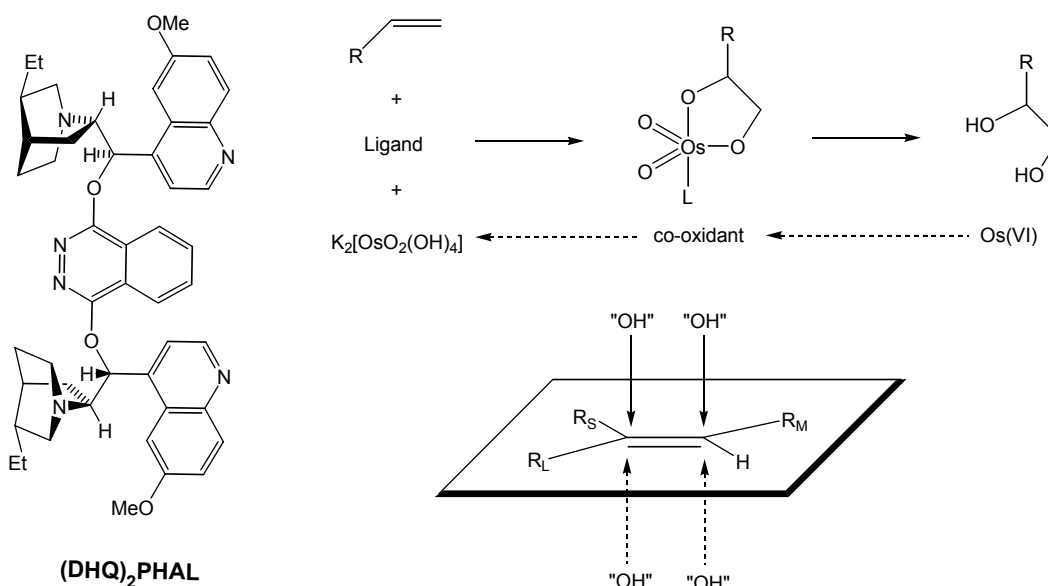


# Group 8: Ruthenium and Osmium (& Hassium)



**Figure 8.1** (a) the structure of  $[\text{Ru}_2(\mu\text{-O})\text{Cl}_{10}]^{4-}$ ; (b) a partial MO diagram for the interaction between the Ru  $d_{xy}$ ,  $d_{xz}$  and  $d_{yz}$  orbitals of the  $\text{Ru}^{\text{IV}}$  centers with the  $p_x$  and  $p_y$  orbitals of the O atom to give two bonding, two antibonding and four non-bonding orbitals.



**Scheme 8.1** Sharpless asymmetric dihydroxylation. Depending on the chirality of the ligand (just one enantiomer is shown) different "faces" of the alkene are preferred.