

Strategy for Enolate Reactions

1. Find the acidic hydrogen(s): α to a carbonyl, nitro, cyano, etc.
2. Estimate its pKa
 - a. typically 10 – 15 for active methylenes
 - b. typically 20 – 25 for ketones, esters, and amides
3. Very strong bases (LDA, NaNH_2 , etc.) and low temps result in the kinetic enolate being formed quantitatively and irreversibly (i. e., no starting material remains).
4. Weaker bases (OH, OR, etc.) result in the thermodynamic enolate being formed in equilibrium with its starting material.
5. Find the electrophile ($\text{RCHO} > \text{RCOR} > \text{RCO}_2\text{R}$ and RX ; also Br_2 , Cl_2)
6. With RCHO and RCOR the enolate will add; with RCO_2R and RX the enolate will substitute.