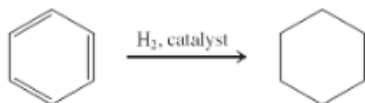


New Reactions

1. Hydrogenation of Benzene ([Section 15-2](#))

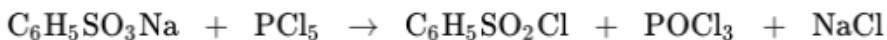
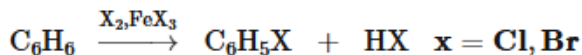


$$\Delta H^\circ = -49.3 \text{ kcal mol}^{-1}$$

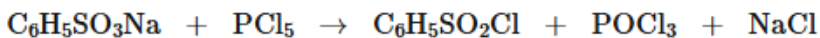
$$\text{Resonance energy: } \approx -30 \text{ kcal mol}^{-1}$$

Electrophilic Aromatic Substitution

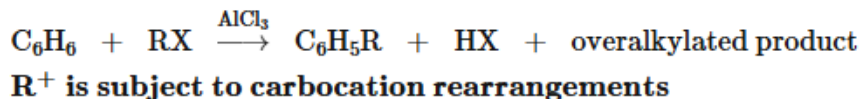
2. Chlorination, Bromination, Nitration, and Sulfonation ([Sections 15-9](#) and [15-10](#))



3. Benzenesulfonyl Chlorides ([Section 15-10](#))



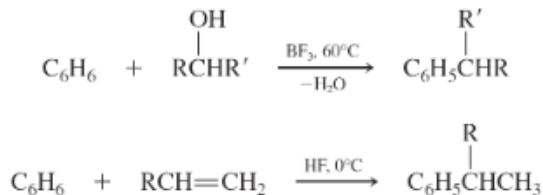
4. Friedel-Crafts Alkylation ([Section 15-11](#))



Intramolecular

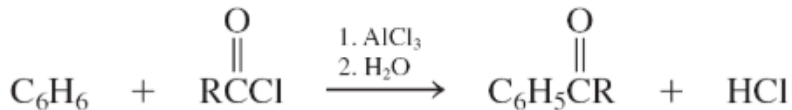


Alcohols and alkenes as substrates



5. Friedel-Crafts Acylation ([Section 15-13](#))

Acyl halides



Requires at least one full equivalent of Lewis acid

Anhydrides

