



5) Hydration

Type: Addition/Reduction

6) Halogen addition

Type: Free Radical Addition

1) Sulphonation

Type: Substitution **Mechanism:** Electrophilic

Electrophile: $\text{SO}_3 / \text{HSO}_3^+$

Reflux

2) Alkylation (Friedel-Crafts reaction)

Type: Substitution **Mechanism:** Electrophilic

Electrophile: R^+

Equations: $\text{AlCl}_3 + \text{RCl} \rightarrow \text{R}^+\text{AlCl}_4^-$



Warm if necessary

3) Nitration

Type: Substitution **Mechanism:** Electrophilic

Electrophile: NO_2^+

Warm if necessary

4) Halogenation

Type: Substitution **Mechanism:** Electrophilic

Electrophile: X^+

Equations: $2\text{Fe} + 3\text{X}_2 \rightarrow 2\text{FeX}_3$

