

1) Sulphonation

Type: Substitution **Mechanism:** Electrophilic

Electrophile: SO₃ / HSO₃⁺

Reflux

2) Alkylation (Friedel-Crafts reaction)

Type: Substitution **Mechanism:** Electrophilic

Electrophile: R⁺

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



Warm if necessary

3) Nitration

Type: Substitution **Mechanism:** Electrophilic

Electrophile: NO₂⁻

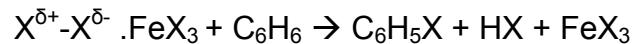
Warm if necessary

4) Halogenation

Type: Substitution **Mechanism:** Electrophilic

Electrophile: X⁺

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



5) Hydration

Type: Addition/Reduction

6) Halogen addition

Type: Free Radical Addition