

# Chemical Properties

- 1. Electrophilic substitution reactions.

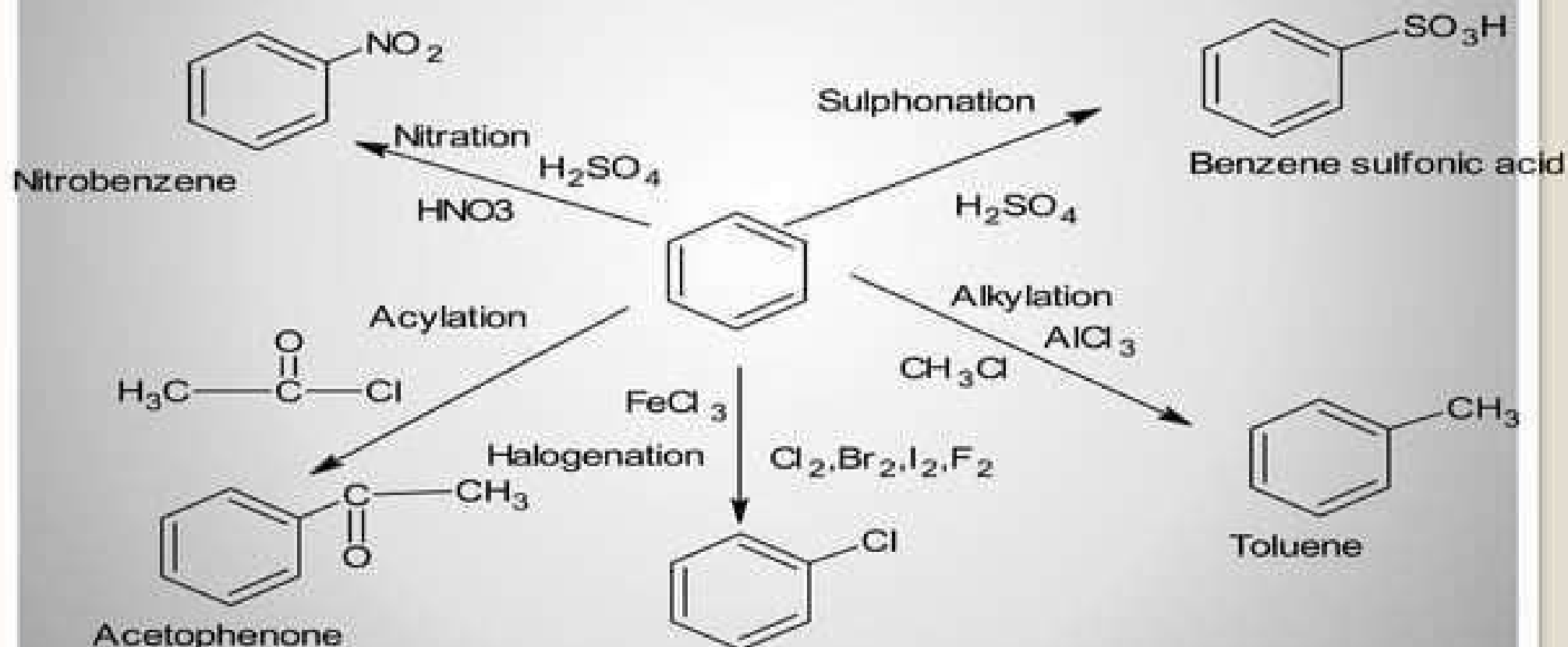


Fig. Electrophilic substitution reaction of Benzene.

## General Mechanism:

- Benzene undergoes electrophilic substitution reactions. It is attacked by the electrophiles, giving substitution products.



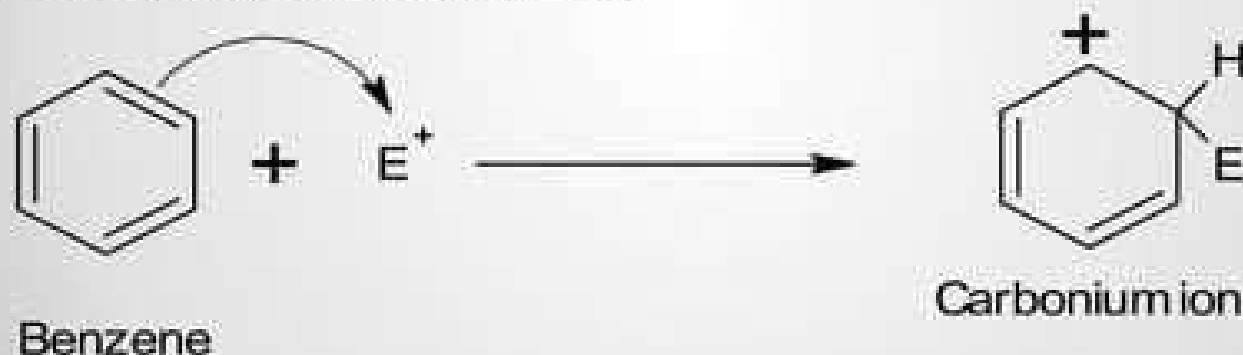
- Where  $E^+$  is any electrophile and  $Nu^-$  nucleophile.

## General Mechanism:

- 1. Formation of Electrophile.



- 2. The electrophile attacks the aromatic ring to form a carbonium ion.



- The intermediate ion is resonance-stabilized. It is a hybrid of all positions. i.e. ortho, meta and para positions

## General Mechanism:

- Step 3: Loss of proton gives the substitution product.

