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Free Radical Substitution

Alkane/Alkyl + Cl₂ + UV light

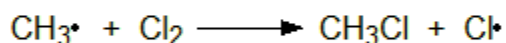
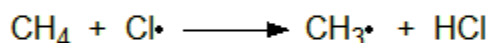
Chain initiation

The chain is initiated (started) by UV light breaking a chlorine molecule into free radicals.



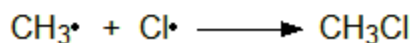
Chain propagation reactions

These are the reactions which keep the chain going.



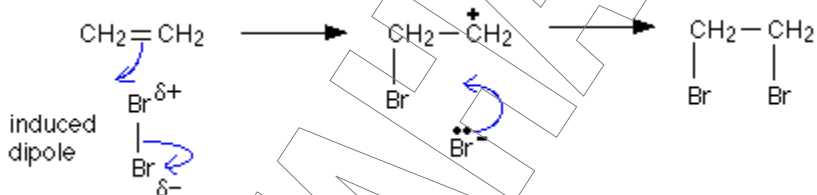
Chain termination reactions

These are reactions which remove free radicals from the system without replacing them by new ones.

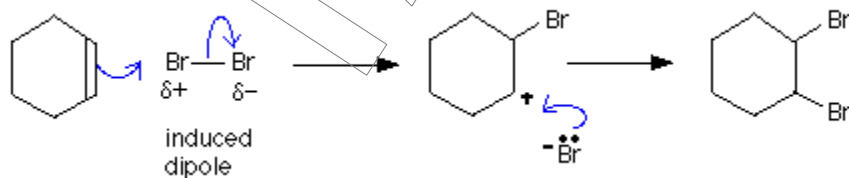


Electrophilic Addition

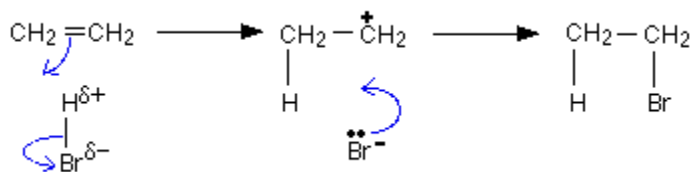
Ethene and Br₂



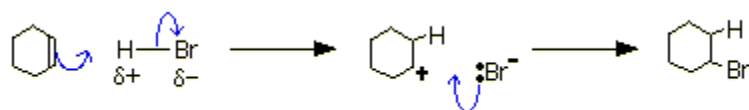
cyclohexene and Br₂



Ethene + HBr

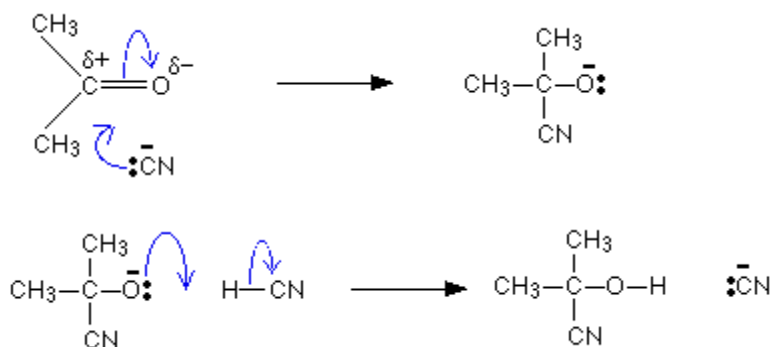
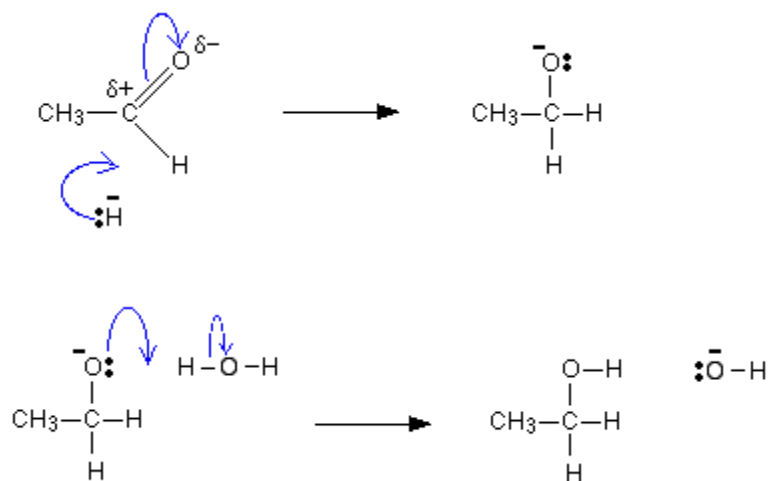


Cyclohexene + HBr



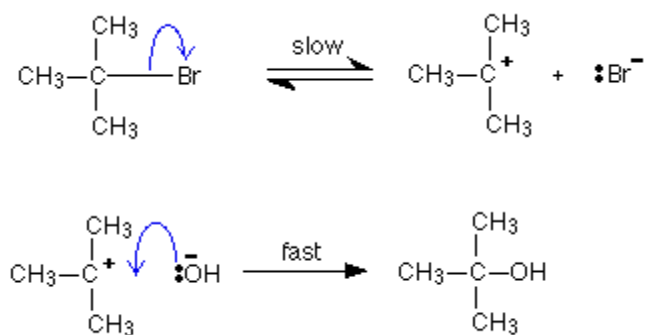
Nucleophilic Addition

Aldehydes/Ketones + HCN

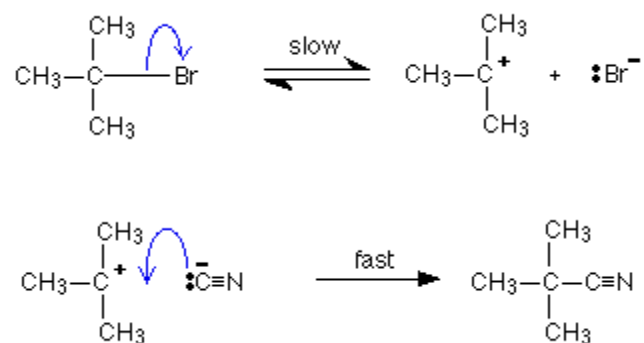
Reduction of Aldehydes/Ketones with Reducing Agent LiAlH_4 or NaBH_4 

Nucleophilic Substitution (Sn1) : Two Step

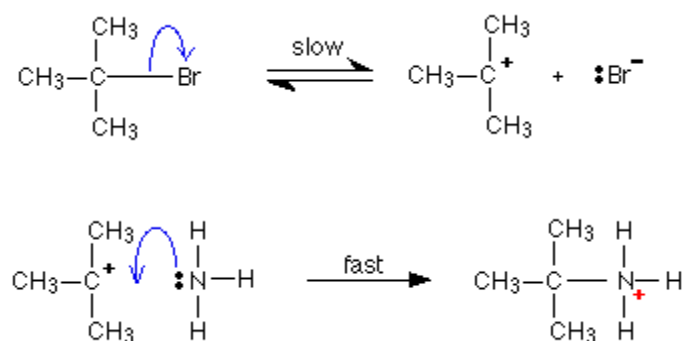
Tertiary Halogenalkane + OH⁻



Tertiary Halogenalkane + CN⁻

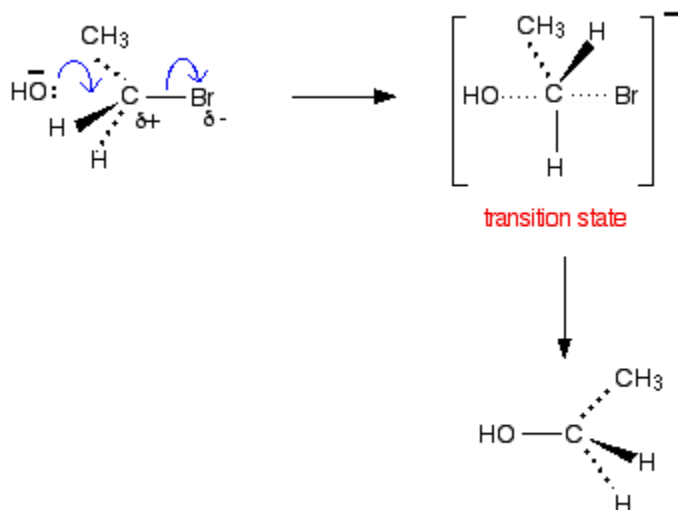


Tertiary Halogenalkane + NH₃

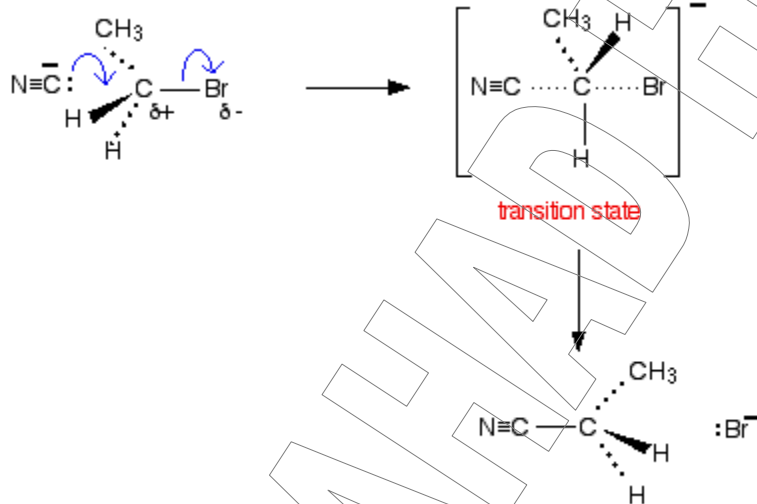


Nucleophilic substitution (S_N2) : One Step

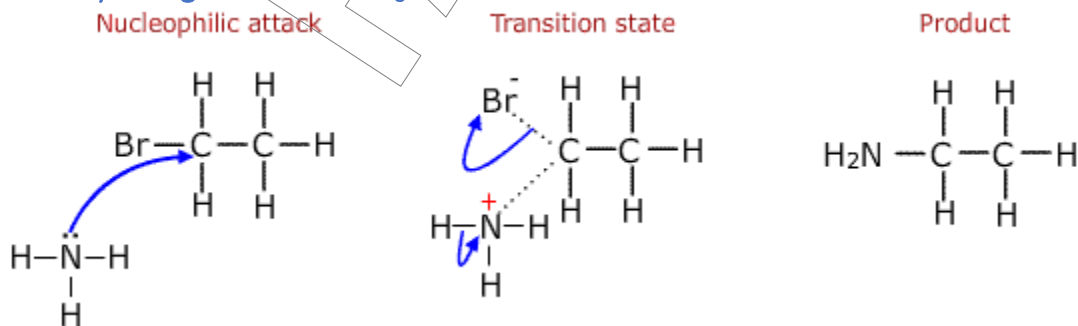
Primary Halogenalkane + OH⁻



Primary Halogenalkane + CN⁻

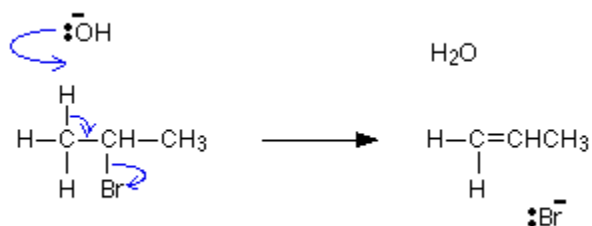


Primary Halogenalkane + NH₃



Elimination

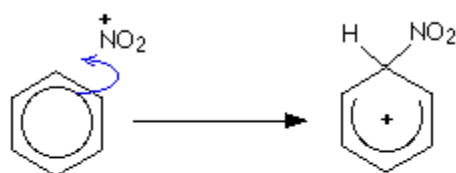
Halogenoalkanes (KOH/NaOH ethanolic + Heat)



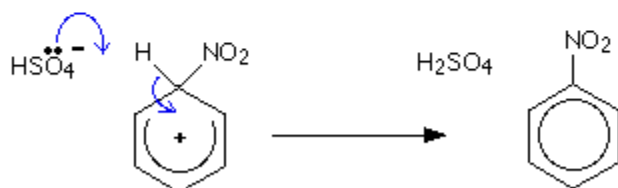
Electrophilic Substitution

Nitration of Benzene

Stage one

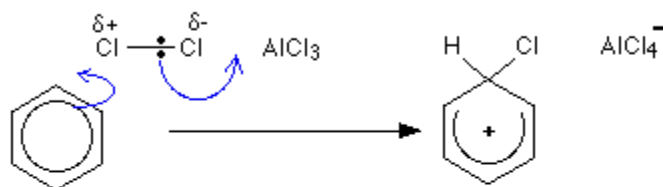


Stage two

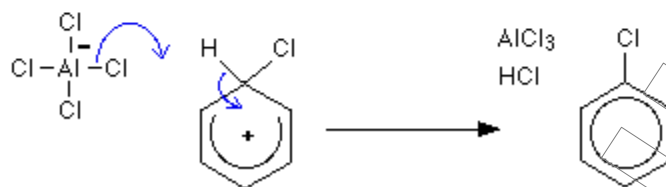


Halogenation of Benzene

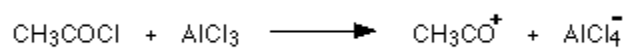
Stage one



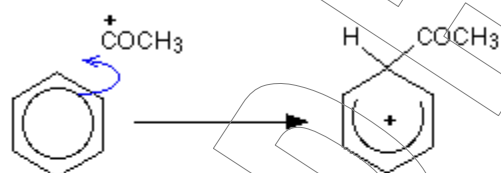
Stage two



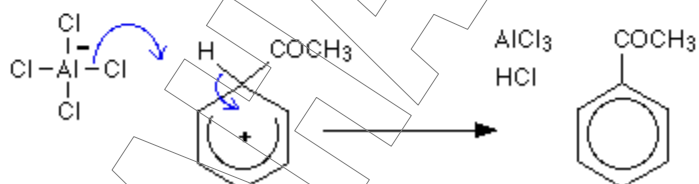
Friedel Crafts Acylation (NOT IMPORTANT)



Stage one



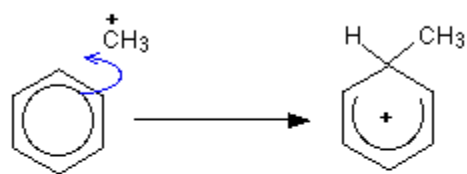
Stage two



Friedel Crafts Alkylation (NOT IMPORTANT)



Stage one



Stage two

