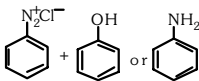
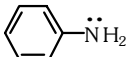
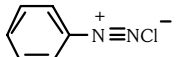
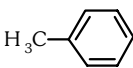
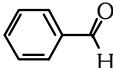
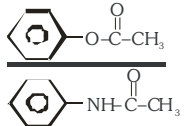


Nutshell review & preview of **ORGANIC NAME REACTIONS**

• Aldol Condensation	$\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{H} \xrightarrow{\text{OH}^-} \text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\overset{\ominus}{\text{C}}-\text{H} \xrightarrow{\text{H}^+} \text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\overset{\text{OH}}{\underset{\text{H}}{\text{C}}}-\text{CH}_3 \xrightarrow{\text{OH}^-, \Delta} \text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\underset{\text{H}}{\text{C}}=\underset{\text{H}}{\text{C}}-\text{CH}_3$
• Claisen Condensation	$\text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OEt} \xrightarrow{\text{EtO}^-} \text{EtO}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\overset{\ominus}{\text{C}}-\text{H} \xrightarrow{\text{H}^+} \text{EtO}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\overset{\text{OEt}}{\underset{\text{OEt}}{\text{C}}}-\text{CH}_3 \rightarrow \text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\underset{\text{H}_2}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OC}_2\text{H}_5$
• Perkin Condensation	$\text{C}_6\text{H}_5-\overset{\text{H}}{\underset{\text{O}}{\parallel}{\text{C}}} + \text{H}_3\text{C}-\overset{\text{H}}{\underset{\text{H}}{\text{C}}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3 \xrightarrow{\text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}^-\text{Na}^+} \text{C}_6\text{H}_5-\underset{\text{H}}{\text{C}}=\underset{\text{H}}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH}$ Cinnamic acid
• Benzoin Condensation	$2 \text{C}_6\text{H}_5-\overset{\text{O}}{\parallel}{\text{C}}-\text{H} \xrightarrow[\text{EtOH}]{\text{KCN}} \text{C}_6\text{H}_5-\overset{\text{O}}{\parallel}{\text{C}}-\underset{\text{OH}}{\text{CH}}-\text{C}_6\text{H}_5 \text{ Benzoin}$
• Haloform Reaction	$\text{H}_3\text{C}-\underset{\text{OH}}{\text{CH}}-\text{R}^1 \xrightarrow{\text{NaOI}} \text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{R}^1 \xrightarrow[\text{I}_2]{\text{NaOH}} \text{CHI}_3 + \text{R}^1-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}^-\text{Na}^+$
• Carbylamine Test	$\text{R}-\underset{\text{H}}{\underset{\text{H}}{\text{N}}} + \text{CCl}_4 \xrightarrow{\text{KOH}} \text{R}-\overset{\oplus}{\text{N}}(\text{H})-\overset{\ominus}{\text{C}}\text{Cl}_3 \xrightarrow{\text{OH}^-} \text{R}-\overset{\oplus}{\text{N}}\equiv\overset{\ominus}{\text{C}} \text{ Isocyanide}$
• Reimer Tiemann Reaction	$\text{C}_6\text{H}_5-\underset{\text{OH}}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}^-\text{K}^+ \xrightarrow[\text{KOH}]{\text{CCl}_4} \text{C}_6\text{H}_5-\underset{\text{OH}}{\text{C}}-\text{H} \xrightarrow[\text{KOH}]{\text{CHCl}_3} \text{C}_6\text{H}_5-\underset{\text{OH}}{\text{C}}=\text{O}$ (Salicylic acid) (Salicylaldehyde)
• Kolbe's Schimdt Reaction	$\text{C}_6\text{H}_5-\text{OH} \xrightarrow[\text{CO}_2/\text{H}^+]{\text{NaOH}, 125^\circ\text{C}} \text{C}_6\text{H}_5-\underset{\text{OH}}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} \text{ (Salicylic acid) major}$
• Hoffmann Bromamide Degradation	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2 \xrightarrow[\text{KOH}]{\text{Br}_2} \text{R}-\text{NH}_2 + \text{K}_2\text{CO}_3$
• Curtius Reaction	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{Cl} \xrightarrow[\Delta, \text{H}_3\text{O}^+]{\text{NaN}_3} \text{R}-\text{NH}_2$
• Schmidt Reaction	$\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HN}_3} \text{R}-\text{N}=\text{C}=\text{O} \xrightarrow{\text{H}_3\text{O}^+} \text{R}-\text{NH}_2$
• Cannizzaro reaction	$\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{H} \xrightarrow[50\%]{\text{NaOH}} \text{H}_3\text{C}-\overset{\ominus}{\text{C}}(\text{H})-\overset{\text{O}}{\parallel}{\text{C}}-\text{H} \xrightarrow{\text{slow RDS}} \text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} + \text{H}-\overset{\text{O}^-}{\underset{\text{H}}{\text{C}}}-\text{H} \rightarrow \text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}^-\text{Na}^+ + \text{CH}_3-\text{OH}$

Bayer villiger oxidation	$\text{H}_3\text{C}-\text{C}(=\text{O})-\text{C}_6\text{H}_5 \xrightarrow[\text{(ii) H}^+]{\text{(i) F}_3\text{C}-\text{C}(=\text{O})-\text{OO}-\text{H} \text{ (peracid)}} \text{H}_3\text{C}-\text{C}(=\text{O})-\text{O}-\text{C}_6\text{H}_5$
Cumene	$\text{C}_6\text{H}_5-\text{CH}(\text{CH}_3)_2 \xrightarrow[130^\circ\text{C}]{\text{O}_2} \text{C}_6\text{H}_5-\text{C}(\text{CH}_3)_2-\text{O-O-H} \xrightarrow{\text{HCl}} \text{C}_6\text{H}_5-\text{OH} + \text{CH}_3-\text{C}(=\text{O})-\text{CH}_3$ Cumene hydroperoxide
Pinacol-Pincolone rearrangement	$\text{C}_6\text{H}_5-\text{C}(\text{OH})(\text{Cl})-\text{C}(\text{OH})(\text{Cl})-\text{C}_6\text{H}_5 \xrightarrow[\text{-H}_2\text{O}]{\text{H}^+} \text{C}_6\text{H}_5-\text{C}(\text{OH})(\text{Cl})-\text{C}^+(\text{Ph})_2 \xrightarrow{-\text{H}^+} \text{C}_6\text{H}_5-\text{C}(=\text{O})-\text{C}(\text{Ph})_2$
Birch Reduction	$\text{C}_6\text{H}_6 \xrightarrow[\text{liq. NH}_3]{\text{Na}} \text{C}_6\text{H}_8$ $\text{R}-\text{C}\equiv\text{C}-\text{R}' \xrightarrow[\text{liq. NH}_3]{\text{Na}} \text{trans-alkene} \quad ; \quad \text{R}-\text{C}\equiv\text{C}-\text{H} \xrightarrow[\text{liq. NH}_3]{\text{Na}} \text{R}-\text{C}\equiv\text{C}^-\text{Na}^+ \text{ (Acid-base reaction)}$
Gabriel Synthesis	$\text{Phthalimide} \xrightarrow{\text{NH}_3} \text{N-phenylphthalimide} \xrightarrow{\text{KOH}} \text{K}^+\text{N-phenylphthalimide} \xrightarrow{\text{CH}_3\text{I}} \text{N-methyl-N-phenylphthalimide} \xrightarrow{\text{H}_3\text{O}^+} \text{PhNH}_2 + \text{Phthalic acid}$

NAME REACTIONS

Name	Reactant	Reagent	Product
Clemmensen Reduction	Aldehyde & Ketone	Zn-Hg/conc. HCl	Alkane
Coupling Reaction		NaOH (phenol) HCl (Aniline)	Azo Dye (Detection of OH or NH ₂ gr)
Diazotization		NaNO ₂ + HCl 0° – 5°C	
Etard reaction		CrO ₂ Cl ₂ /CS ₂	 (Benzaldehyde)
Fittig Reaction	Halo benzene	Na/Dry ether	Diphenyl
Friedel Craft alkylation	 + R–X	Anhydrous AlCl ₃	Alkyl Benzene
Friedel Craft acylation	 + R–C(=O)–Cl or (RCO) ₂ O	Anhydrous AlCl ₃	Acyl Benzene
Gattermann aldehyde synthesis	C ₆ H ₆	HCN + HCl / ZnCl ₂ / H ₃ O ⁺	Benzaldehyde
Gattermann-Koch reaction	C ₆ H ₆ (CO + HCl)	anhy AlCl ₃	Benzaldehyde
Hell-Volhard-Zelinsky reaction	carboxylic acid having α-hydrogen atom	Br ₂ / red P	α- halogenated carboxylic acid
Hoffmann mustard oil reaction	primary aliphatic amine + CS ₂	HgCl ₂ /Δ	CH ₃ CH ₂ –N=C=S + HgS (black)
Hunsdiecker reaction	Ag salt of carboxylic acid	Br ₂ /CCl ₄ , 80°C	alkyl or aryl bromide
Kolbe electrolytic reaction	alkali metal salt of carboxylic acid	electrolysis	alkane, alkene and alkyne
Mendius reaction	alkyl or aryl cyanide	Na/C ₂ H ₅ OH	primary amine
Rosenmund reduction	acid chloride	H ₂ , Pd/BaSO ₄ boiling xylene	aldehyde
Sabatier-Senderens reaction	Unsaturated hydrocarbon	Raney Ni/H ₂ , 200—300°C	Alkane
Sandmeyer reaction	C ₆ H ₅ N ₂ ⁺ Cl [–]	CuCl/HCl or CuBr/HBr or CuCN/KCN, heat	Halo or cyanobenzene
Gattermann Reaction	C ₆ H ₅ N ₂ ⁺ Cl [–]	Cu/HX(HBr/HCl)	Halobenzene
Schotten-Baumann reaction	(phenol or aniline or alcohol)	NaOH + C ₆ H ₅ COCl	benzoylated product 
Stephen reaction	alkyl cyanide	(i) SnCl ₂ /HCl (ii) H ₂ O	Aldehyde
Williamson synthesis	alkyl halide	sodium alkoxide or sodium phenoxide	Ether
Wurtz-Fittig reaction	alkyl halide + aryl halide	Na/dry ether	alkyl benzene