

Cheatography

Benzenes Cheat Sheet by bubblysoul via cheatography.com/146556/cs/31742/

Halogenation (substitution)

Reagent	Cl ₂ / Br ₂
Catalyst	AlCl ₃ / FeCl ₃
	catalyst produce electrophile
Equation	C ₆ H ₆ + Cl ₂ → C ₆ H ₅ Cl + HCl

Mechanism free radical substitution

Formation of halonium ion

Halogenation (addition)

Reagent	Cl ₂ / Br ₂
Condition	UV light
Equation	C ₆ H ₆ + 3Cl ₂ → C ₆ H ₆ Cl ₆
Mechanism	free radical addition reaction

Friedel-Craft Acylation

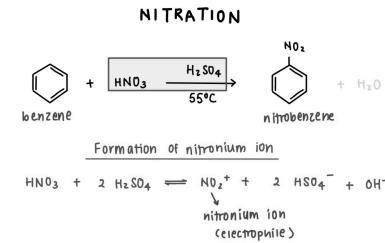
Reagent	RCOCl (acyl chloride)
Condition	heat / 80°C
Catalyst	AlCl ₃ / FeCl ₃
	catalyst produce electrophile
Mechanism	electrophilic substitution
Equation	C ₆ H ₆ + RCOCl → RCOC ₆ H ₅ + HCl

Halogenation of alkylbenzene (UV light)

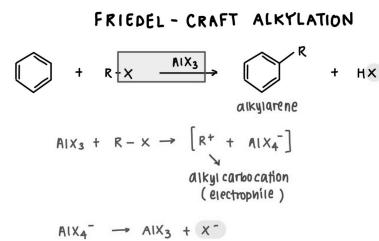
Reagent	Cl ₂ / Br ₂
Condition	UV light
Mechanism	free radical substitution
Equation	(CH ₃)C ₆ H ₅ + X ₂ → (CH ₂ X)C ₆ H ₅ + HX

reaction occur in alkyl part

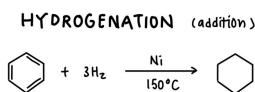
Nitration



Friedel-Craft Alkylation



Hydrogenation



Nitration

Reagent	HNO ₃
Condition	55°C
Catalyst	concentrated H ₂ SO ₄
	catalyst produce electrophile
Mechanism	electrophilic substitution
Equation	C ₆ H ₆ + HNO ₃ → C ₆ H ₅ NO ₂
Observation	yellowish oil with almond smell

Formation of nitronium ion



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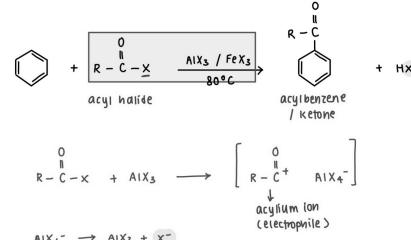
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Friedel-Craft Alkylation

Reagent	RX
Condition	room temperature
Catalyst	AlX ₃ / FeX ₃ <i>catalyst produce electrophile</i>
Mechanism	electrophilic substitution
Equation	C ₆ H ₆ + RX → C ₆ H ₅ R + HX
	X : halogen (Cl ₂ / Br ₂)

Friedel-Craft Acylation

FRIEDEL - CRAFT ACYLATION



Hydrogenation

Reagent	H ₂ gas
Condition	Pt, room temperature
	Ni, 150°C

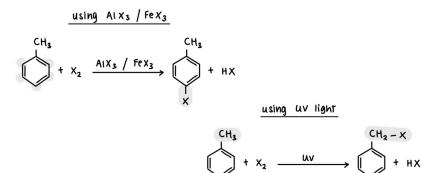
Halogenation of alkylbenzene (catalyst)

Reagent	Cl ₂ / Br ₂
Catalyst	AlX ₃ / FeX ₃
Mechanism	electrophilic substitution
Equation	(CH ₃)C ₆ H ₅ + X ₂ → (CH ₃)C ₆ H ₄ X + HX

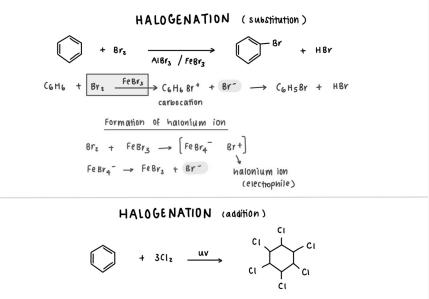
reaction occur in benzene ring

Halogenation of alkylbenzene

HALOGENATION OF ALKYLBENZENE



Halogenation



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