

## Haloalkane / Alkyl halides Cheat Sheet by bubblysoul via cheatography.com/146556/cs/31769/

Synthesis : Halogenation of Alkanes		
Reagent	Cl <sub>2</sub> / Br <sub>2</sub>	
Condition	heat / UV light	
Mechanism	free radical substitution	
Equation	$CH_4 + CI_2 \rightarrow CH_3CI + HCI$	

Synthesis : Hydrohalogenation of Alkenes	
also known as	Addition of hydrogen halides
Reagent	HCI / HBr / HI
Equation	$CH_3CH_2CH=CH_2+HCI\rightarrow CH_3CH_2CHCI-CH_3$
	(every product must be shown)

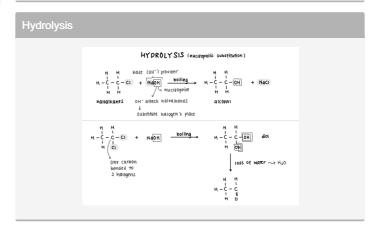
follow Markovnikov's rule : halogen added to doubly bonded carbon atom attached to **the least H atoms** 

Dehydrohalogenation	
Reagent	NaOH / KOH
Condition	ethanol, reflux
Mechanism	Elimination Reaction
Equation	haloalkane + NaOH → alkene
	(every product must be shown)
follow Zaitsev rule : doubly bonded carbon atom in alkenes bonded	
to the most number of alkyl groups is major products	

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Synthesis: Halogenation of Alkenes		
Reagent	Cl <sub>2</sub> / Br <sub>2</sub>	
Condition	CCI <sub>4</sub>	
Equation	CH₃CH=CHCH₃ + Cl₂ → CH₃CHCl-CHClCH₃	

Hydrolysis	
Reagent	aqueous NaOH / KOH
Condition	boiling
Mechanism	Nucleophilic Substitution
Equation	haloalkanes + NaOH → alcohol + NaCl
	for carbons bonded to 2 halogens
Equation	$CH_3CHCl_2 + NaOH \rightarrow CH_3CH(OH)_2$
	$CH_3CH(OH)_2 \rightarrow CH_3CH=O$ (loss of water)





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Not published yet. Last updated 20th April, 2022. Page 1 of 1. Sponsored by CrosswordCheats.com Learn to solve cryptic crosswords! http://crosswordcheats.com