

Naming	
Alkane	-ane
Alkene	-ene
Alkyne	-yne
Cyclic	cyclo-
Aromatics	-benzene
Alcohol	-ol
Ether	-oxy- or -ether
Aldehyde	-al
Keytone	-one
Carboxylic Acid	-oic acid
Ester	-oate
Amine	-amine or -amino-
Amide	-amide
Thiol	-thiol

Formation Reactions

Forming Alkanes

Hydrogenation of *Alkene* (Addition RX)

$H_2 + \text{Alkene} = \text{Alkane}$

Forming Alkenes

Dehydration of *Alcohol*

$\text{Alcohol (H}_2\text{SO}_4) = \text{Alkene} + \text{H}_2\text{O}$

Substitution RX + Elimination RX

$\text{Alkane} + \text{Halogen} = \text{Alkyl Halide} + (\text{HCL})$

$\text{Alkyl Halide} + \text{OH}^- = \text{Alkene} + (\text{Cl}) + \text{H}_2\text{O}$

Formation Reactions

Forming Alcohols

$\text{Alkene} + \text{H}_2\text{O} = (\text{H}_2\text{SO}_4) \text{Alcohol}$

HYDROGENATION RX

Aldehyde (reducing agent) = 1 alcohol

Keytone (reducing agent) = 2 alcohol

Forming Ethers

CONDENSATION RX

$\text{Alcohol} + \text{Alcohol (H}_2\text{SO}_4) = \text{Ether} + \text{H}_2\text{O}$

Forming Aldehydes

OXIDATION RX

$1 \text{ Alcohol} + [\text{O}] = \text{Aldehyde} + \text{H}_2\text{O}$

Forming Keytones

$2 \text{ Alcohol} + [\text{O}] = \text{Keytone} + \text{H}_2\text{O}$

Forming Carboxylic Acids

$\text{Aldehyde} + [\text{O}] = \text{Carboxylic Acid}$

Forming Esters (esterfication)

$\text{Carboxylic Acid} + \text{Alcohol (H}_2\text{SO}_4) = \text{Ester} + \text{H}_2\text{O}$

Forming Amines

$\text{Alkyl Halide} + \text{Ammonia} = \text{Amine} + \text{HI}$

Forming Amides

$\text{Carboxylic Acid} + \text{Ammonia (H}_2\text{SO}_4) = \text{Amide} + \text{H}_2\text{O}$

Other Reactions

Combustion RX

Complete : $\text{___} + \text{O}_2 = \text{CO}_2 + \text{H}_2\text{O}$

Incomp: $\text{___} + \text{O}_2 = \text{CO}_2 + \text{H}_2\text{O} + \text{CO} + \text{C}$

Alkanes

SUBSTITUTION RX

Alkenes & Alkynes

ADDITION RX

Halogenation... Hydrogenation... Hydrohalogenation... Hydration

Esters

HYDROLYSIS (soaponification)

$\text{Ester} + \text{NaOH} = \text{Sodium Carboxylate} + \text{Alcohol}$

Polarity

Carboxylic Acid

Alcohol

Amines & Amides

Aldehydes, Keytones, Esters

Ethers & Alkyl Halides

Alkenes & Aromatics

Alkanes



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