Organic Chemistry Cheat Sheet

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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)

H2 + Alkene = Alkane

Forming Alkenes

Dehydration of *Alcohol*

Alcohol (H2SO4) = Alkene + H2O

Substitution RX + Elimination RX

Alkane + Halogen = Alkyl Halide + (HCL)

Alkyl Halide + OH- = Alkene + (Cl) + H2O

Formation Reactions

Forming Alcohols

Alkene + H2O =(H2SO) Alcohol

HYDROGENATION RX

Aldehyde (reducing agent) = 1 alcohol

Keytone (reducing agent) = 2 alcohol

Forming Ethers

CONDENSATION RX

Alcohol + Alcohol (H2SO4) = Ether + H2O

Forming Aldehydes

OXIDATION RX

1 Alcohol + [O] = Aldehyde + H2O

Forming Keytones

2 Alcohol + [O] = Keytone + H2O

Forming Carboxylic Acids

Aldehyde + [O] = Carboxylic Acid

Forming Esters (esterfication)

Carboxylic Acid + Alcohol (H2SO4) = Ester + H2O

Forming Amines

Alkyl Halide + Ammonia = Amine + HI

Forming Amides

Carboxylic Acid + Ammonia (H2SO4) = Amide + H2O

Other Reactions

Combustion RX

Complete : __ + O2 = CO2 + H2O

Incomp: __ + O2 = CO2 + H2O + CO + C

Alkanes

SUBSTITUTION RX

Alkenes & Alkynes

ADDITION RX

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

Esters

HYDROLYSIS (soaponification)

Ester + NaOH = Sodium Carboxylate + Alcohol

Polarity

Carboxylic Acid

Alcohol

Amines & Amides

Aldehydes, Keytones, Esters

Ethers & Alkyl Halides

Alkenes & Aromatics

Alkanes

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