

Organic Reactions

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Alkanes

- Combustion (oxidation)
- Substitution
 - alcohol from haloalkane
 - UV catalyst

Alkenes

- Combustion (oxidation)
- Addition
- Addition polymerisation

Alcohols

- Oxidation / combustion:
 - primary alcohol $\xrightarrow{[O]}$ aldehyde $\xrightarrow{[O]}$ carboxylic acid
 - secondary alcohol $\xrightarrow{[O]}$ ketone
 - Catalysts: H^+/MnO_4^- (aq) or $H^+/Cr_2O_7^{2-}$ (aq)
- Esterification with carboxylic acids (condensation)

Carboxylic acids

- Acid/base reactions:
 - With $-NH_2$: carboxylic acid + amine \longrightarrow ammonium salt $\xrightarrow[\text{dehydration}]{\text{heat}}$ amide + H_2O
 - With H_2O : $RCOOH + H_2O \rightleftharpoons RCOO^- + H_3O^+$
- Esterification with alcohols (condensation):
carboxylic acid + alcohol \longrightarrow ester + H_2O

Esters

- Hydrolysis (reverse of esterification):
ester + water $\xrightarrow{\text{catalyst}}$ carboxylic acid + alcohol
- Polyesters