



Diagrams

Alkenes

Reactions

because of their double C = C bonds ◦ They are more reactive than alkanes
 They react with oxygen in combustion reactions
 due to incomplete combustion ◦ burn with smokier flames than alkanes
 A nickel catalyst is used
 example: propene + hydrogen → propane ◦ Hydrogen can be added to produce alkanes

Bromine Water

Alkenes are more reactive than alkanes
 when shaken in the bromine water ◦ Turns bromine water from orange to colourless
 can be used to differentiate between alkenes and alkanes
 C₂H₄ + Br₂ → CH₂BrCH₂Br ◦ to produce dibromoethane ◦ Ethene reacts with bromine

Cracking Hydrocarbons

Longer-chain hydrocarbons broken down into shorter, more useful hydrocarbons
 This is called cracking
 Hydrocarbons are heated and vaporise
 vapour is passed over a hot catalyst
 then thermal decomposition takes place
 The products include alkanes and alkenes

Bonds

Carbon atoms can form double bonds ◦ so not all carbon atoms have to be linked to four other atoms
 Hydrocarbons with double bonds are called unsaturated
 Alkenes have at least one double bond ◦ so are said to be unsaturated
 The general formula is given by C_nH_{2n}