



AQA



Attack the electron dense C=C bond

Polar molecules with a δ^+ region

Positively charged ions

Electrophiles are electron pair acceptors

A carbocation is an organic ion which contains a carbon atom which is positively charged

Addition Reactions

This makes alkenes relatively reactive

High electron density in the C=C bond

Electrophilic addition reaction

Orange bromine water decolourises when mixed with an alkene

Bromine water used to test for unsaturation

Unsaturated hydrocarbons since they have at least one C=C double covalent bond

Structure

3.4 ALKENES

Mechanisms

Reactions with Br_2

Produces a dihalogenoalkane

The Br_2 molecule is polarised by the double bond

Double bond repels electrons in the Br-Br bond

Reactions with H_2SO_4

The major product is produced via the most stable carbocation intermediate

Minor product is produced from the other carbocation intermediate

Reactions with HBr

If the alkene is unsymmetrical there are two possible products

Produces a halogenoalkane

Cold concentrated sulfuric acid acts as a catalyst

Produces an alcohol

Primary carbocation	Secondary carbocation	Tertiary carbocation
$\begin{array}{c} H \\ \\ R-C-H \\ + \end{array}$	$\begin{array}{c} R' \\ \\ R-C-H \\ + \end{array}$	$\begin{array}{c} R' \\ \\ R-C-R'' \\ + \end{array}$
<p>INCREASING STABILITY \rightarrow</p>		

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