

IV. A bromine ion and a carbocation are then formed.

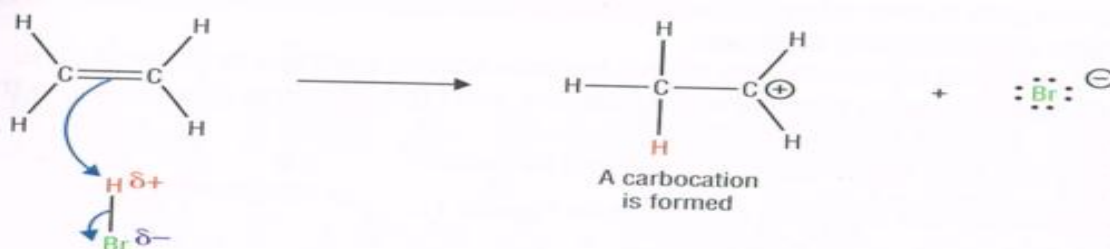


Figure 4 Electrophilic reaction for ethene and hydrogen bromide

- The positively charged carbocation is unstable and quickly reacts with the bromide ion to form the organic product.



Figure 6 Carbocation reacts with bromide ion

Electrophile: An atom that attacks an area of high electron density where it accepts a pair of electrons.

Alkenes

- The C=C double bond of an alkene has two parts to it:
 - The sigma bond which is formed between the two carbon atoms due to the overlap of orbitals. Where each carbon atom contributes one electron from its electron pair. This allows the atoms to rotate and can happen by the overlap of S and or P orbitals within the same atom.
 - The pi bond is formed above and below the plane of carbon atoms by sideways overlap of p orbitals. The electron density is concentrated within the two regions.

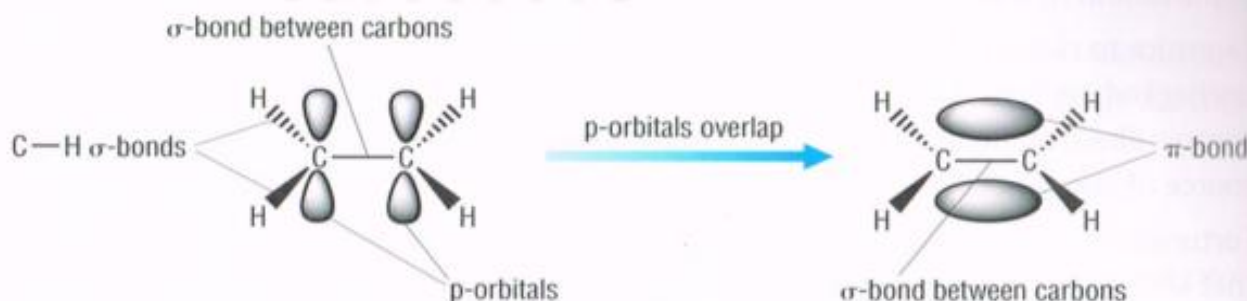


Figure 2 Formation of the C=C double bond

The π -bond fixes the carbon atoms in position, at either end of the double bond. This prevents any rotation of the bond.

In alkenes, each carbon involved in the double bond:

- uses three of its electrons in the formation of three σ -bonds; and
- uses one of its electrons in the formation of a π -bond.