What are Alkenes?

Worksheet

Alkenes have the general formula CH and contain one or more C=C double bonds. The presence of the double bond creates regions of higher electron density, making alkenes nucleophilic and prone to addition reactions.

Questions

1. General formula for alkenes?

A) CH
B) CH
C) CH
D) CH

2. Which statement about the C=C bond is true?

A) It consists of two single bonds
B) It consists of one and one bond
C) It is weaker than a CC bond
D) It never undergoes addition reactions

3. Ethene + Br ?

A) Bromoethene
B) 1,2-dibromoethane
C) Ethane + Br
D) No reaction

4. Alkenes are used to make

A) gasoline
B) plastics (polymers)
C) alkanes
D) esters

5. What is the molecular formula of propene?

6. An alkene contains 5 carbons and one double bond. How many hydrogens?

7. Ethene (CH) undergoes addition with HBr. What is the product?

8. Define: What is the general formula for alkenes?

9. Define: Why are alkenes more reactive than alkanes?

10. Define: What is an addition reaction?

Answer Key

1. B) CH - Alkenes with one double bond follow CH.

2. B) It consists of one and one bond - A double bond = one bond (head-on overlap) + one bond (side-on overlap).

3. B) 1,2-dibromoethane - Br adds across the double bond: CH + Br CHBr.

4. B) plastics (polymers) - Alkenes are monomers; polymerization of alkenes produces plastics like polyethylene.

5. Propene has 3 carbons (n=3) and one C=C double bond. CH = CH

6. n = 5 H = 2(5) = 10 Formula: CH (pentene)

7. CH + HBr CHBr (bromoethane) The H adds to one carbon, Br to the other.

8. CH for alkenes with one double bond.

9. The C=C double bond has high electron density, making it prone to nucleophilic attack and addition reactions.

10. A reaction where the C=C bond breaks and two new bonds form, adding atoms to the molecule.