



Teaching resource 16

Types of hydrocarbons: Unsaturated hydrocarbons

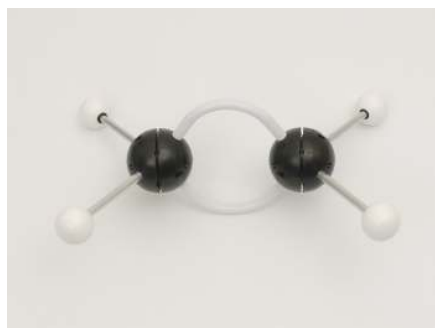
Hydrocarbons are chemical compounds that are formed from only hydrogen atoms and carbon atoms

Unsaturated hydrocarbons have a carbon-carbon **double or triple bond** between the adjacent carbon atoms. Those with a double bond are called known as **alkenes** and those with a triple bond **alkynes**.

The double/ triple bonds make them more reactive than alkanes. They combine with hydrogen to make alkanes and other alkynes to form polymers such as polyethene

The carbon atom in unsaturated structures is **tetrahedral**. The general formula for saturated hydrocarbons is C_nH_{2n}

Construct a model of ethene C_2H_4 using flexible straws to represent the double bond See figure below.



Ethene C_2H_4

Note that the double bond hardly rotates compared to the **free rotation** in saturated hydrocarbons.

Related resources

10. Chemistry: The bromine test for double bonds

Products which can be used for this demonstration:

0045 Orbit Foundation Set
0046 Orbit Basic Structures Class Set | 0026 Orbit Basic Structures Individual Set
0047 Orbit Organic/Inorganic Class Set | 0027 Orbit Organic/Inorganic Individual Set
0049 Orbit Biochemistry Class Set | 0029 Orbit Biochemistry Individual Set
0041 Large Class Set

For class demonstrations use the Unit large demonstration set 1950

Or you can order sufficient individual atoms from the Orbit, Minit or Unit systems for your individual needs.