

Chemguide – questions

ALKENES: HALOGENATION

1. Chlorine, bromine and iodine all react with alkenes such as ethene in an *addition reaction*.
 - a) Write the equation for the chlorination of ethene, and name the product.
 - b) Explain why this is called an *addition reaction*.
 - c) How does the vigour of the reaction change as you go from chlorine to bromine to iodine?
 - d) Fluorine doesn't undergo an addition reaction with ethene. What happens instead?
 - e) Describe what you would see if you bubbled ethene through a solution of bromine in an organic solvent such as hexane.
2.
 - a) A solution of bromine in water is usually called "bromine water". As well as getting a reaction similar to the one in Q1(a), the major product is 2-bromoethanol. Write the equation for the reaction, showing the structure of the product.
 - b) The reaction with bromine water is commonly used as a test for the carbon-carbon double bond in alkenes. What would you see if you passed propene gas through some bromine water which would give you evidence that propene contained a C=C bond?