

Chemguide – questions

ALKANES: REACTIONS WITH HALOGENS

- Briefly (no equations, no descriptions) summarise the differences in the reactions between methane and the following halogens under the various conditions.
 - fluorine under all conditions
 - chlorine or bromine if exposed to a flame
 - chlorine or bromine if exposed to UV light
 - chlorine or bromine in the dark
 - iodine under all conditions
- If you expose a mixture of chlorine and methane to UV light, you get a mixture of organic products.
 - Name and write the formulae for the organic products.
 - What sort of reactions are these?
 - Name the inorganic compound also produced.
 - If you repeated this reaction using bromine rather than chlorine, write the equation for the first of the products to be formed.
 - If you did a reaction involving butane, C_4H_{10} , with chlorine, and only replaced one of the hydrogens by a chlorine atom, write the structural formulae for the possible products.
- Cyclopropane reacts with chlorine or bromine in the dark via an addition reaction. Write the structural formula of the product with bromine, and explain why this reaction happens.