



FREE RADICAL SUBSTITUTION

Ethane reacts with chlorine in the presence of uv light to form a mixture of halogenoalkanes.

- 1 Write an equation for the initiation step.
- 2 What is the uv light for?
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- 3 Two of the products in this reaction are chloroethane and 1,1-dichloroethane.
 - a Write a balanced equation for the reaction of chlorine with ethane to form chloroethane.

 - b Write a balanced equation for the reaction of chlorine with ethane to form 1,1-dichloroethane.
- 4 One of the products from this reaction is chloroethane. Write a pair of propagation steps to form chloroethane from ethane.

- 5 One of the products from this reaction is 1,1-dichloroethane. Write a pair of propagation steps to form 1,1-dichloroethane from chloroethane.

- 6 What would be the product of the reaction of ethane with a large excess of chlorine in the presence of uv light?

- 7 Some 1,2-dichloroethane can be formed in a termination step. Write an equation to show how this can happen.