Reaction mechanism : Substitution Reactions

Step 1: **“Initiation”** using UV light

Cl—Cl + UV light Cl• + Cl•

Step 2 **“ Propagation”**

H3C—H + Cl• CH3• + H—Cl

CH3• + Cl2 CH3Cl + Cl•

Step 3 : **“Termination”**

CH3• + CH3• H3C— CH3

CH3• + Cl• CH3Cl

Cl• + Cl• Cl2

Evidence for mechanism

1. Ethane is produced
2. When adding a catalyst called tetra ethyl lead speeds up the reaction

3. reaction does not proceed without UV light

Reaction mechanism : Ionic addition

**Step 1: Polarisation**

**Step 2: Heterolytic fission**

**Step3 : Carbonium ion formation**

**Step 4: Bromide ion attacks carbonium ion**

**Evidence for mechanism**

**When ethane reacts with bromine water and salt( NaCL) a number of products are formed including**

1. **2-bromoethanol**
2. **1-bromo- 2- chloroethane**
3. **1,2 dibromoethane**