



Organic Chemistry Revision Sheets

Halogenoalkanes | Nucleophilic Substitution (S_N1)

Reaction

REACTANTS: Halogenoalkane and Nucleophile

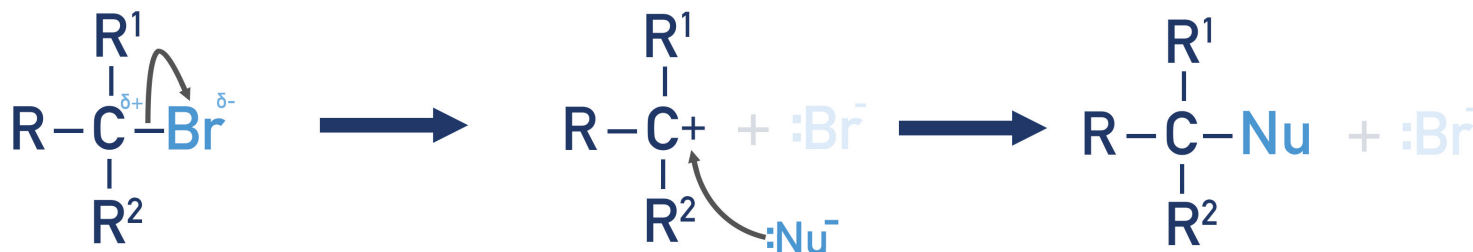
REACTION TYPE: Nucleophilic Substitution, S_N1

REACTION:
(example of
2-bromo-2-meth-
ylpropane)



Mechanism

The first step of the S_N1 mechanism is the breaking of the carbon-halogen bond in the halogenoalkane, forming a carbocation. The nucleophile is then able to form a bond with the carbocation.



Notes:

- The S_N1 reaction occurs (usually) with tertiary halogenoalkanes and only slightly with secondary halogenoalkanes. This is because the carbon-halogen bond is too 'crowded' by alkyl groups for the nucleophile to attack the partially positive carbon directly.
- S_N1 reaction is **slower** than S_N2 reaction.
- S_N2 reaction occurs mainly with primary halogenoalkanes (and, to a lesser extent, secondary halogenoalkanes).