CHEM 261

Substitution Reactions

S_N1 reactions - Substitution Nucleophilic Unimolecular

- Rate depends on 1 concentration (concentration of the starting material) -
- Not concerted has a carbocation intermediate
- Not stereospecific
- Works if leaving group is tertiary (not primary, slow on secondary) -

Example: Tertiary Halide

-No $S_N 2$ possible, sterically crowded – does work by $S_N 1$



No S_N2

Mechanism:

..⊖ ⊕ + :Br: Br The bromine group leaves with its electrons from the ≥ covalent bond, leaving behind a reactive carbocation intermediate Carbocation intermediate

(no S_N1)

Carbocation Stability:



Most stable

The 3 alkyl groups donate e⁻ density into the positive charge





sp , tetranedrai, bond angle roo

The result of an S_N1 mechanism is often a racemic mixture or mix of diastereomers