

Answer on Question #44390 – Chemistry - Organic Chemistry Question

Ph-CH₂-Cl is very reactive towards both S_N1 and S_N2 reactions. Explain

Answer

Ph-CH₂-Cl is a primary halide. For an S_N2 reaction, the primary halides are most reactive because they have minimized steric interactions in the S_N2 process due to small hydrogen atoms.

For S_N1 reactions, an intermediate carbocation must form before the nucleophile can react. The benzyl cation in contrast to the typical alkylhalides is extremely stable due to multiple resonance forms (see below). Hence Ph-CH₂-Cl shows high reactivity towards S_N1 reaction too.

