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Slide-16

Stability of Carbocations

For $S_N 2$ reaction

Tertiary halide; Secondary halide; Primary halide; $CH_3 X$ For $S_N 1$ reaction

$$H_{2}C = \stackrel{\bigcirc{C}}{C} + CH_{2} \qquad \longleftrightarrow \qquad H_{2}C = \stackrel{\bigcirc{C}}{C} = CH_{2}$$

$$\stackrel{\bigcirc{C}}{\leftarrow} CH_{2} \qquad \stackrel{\bigcirc{C}}{\leftarrow} CH_{2} \qquad \stackrel{\bigcirc{C}}{\leftarrow} CH_{2}$$

For a given alkyl group, the reactivity of the halide, R-X, follows the same order in both the mechanisms R-I> R-Br>R-Cl>>R-F.