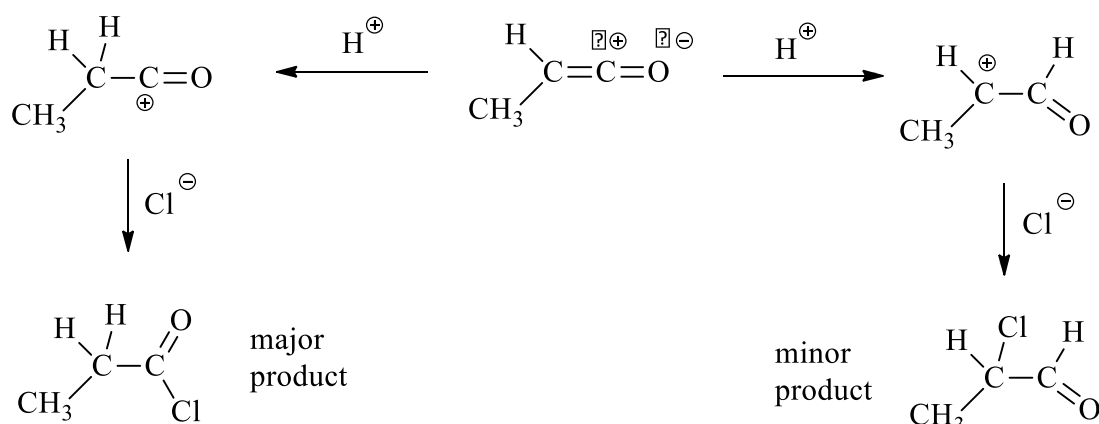


Marks
2

- Hydrogen chloride, HCl, reacts with the compound $\text{CH}_3\text{CH}=\text{C}=\text{O}$ in an electrophilic addition reaction. Use your knowledge of the mechanism of electrophilic addition to a $\text{C}=\text{C}$ double bond to predict the major product of this reaction. Explain your reasoning.

Electrophilic addition of H^+ to the $\text{C}=\text{C}$ double bond gives 2 possible carbocations. Due to polarisation, the carbon of the carbonyl $\text{C}=\text{O}$ double bond has a partial positive charge. The H^+ electrophile will not attack that carbon (like charges repel), so the carbocation on the left in the scheme below is formed preferentially. This carbocation then leads to the acid chloride as the major product.



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