

Organic Chemistry

Aromatic Rearrangements

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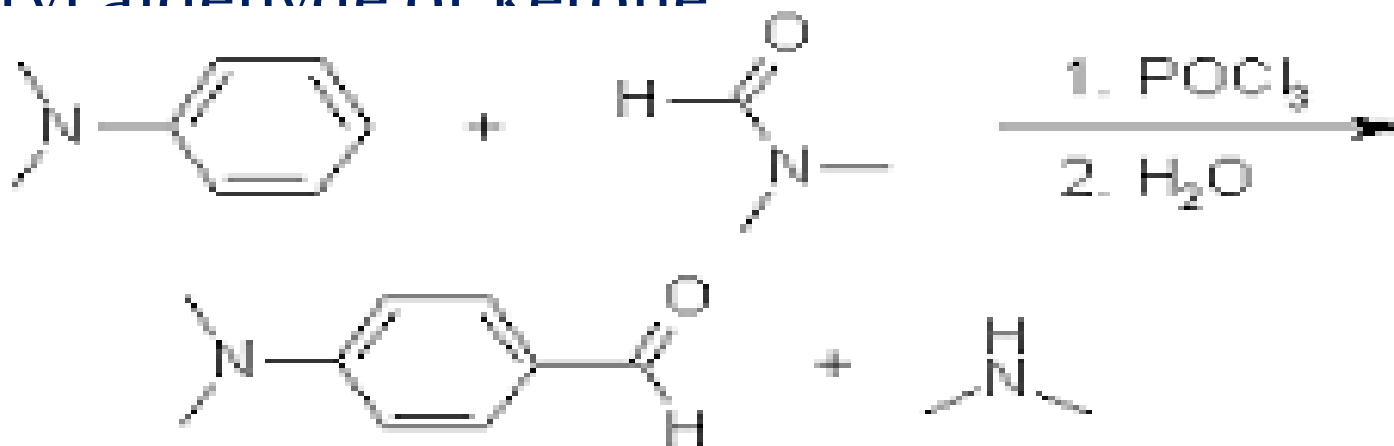
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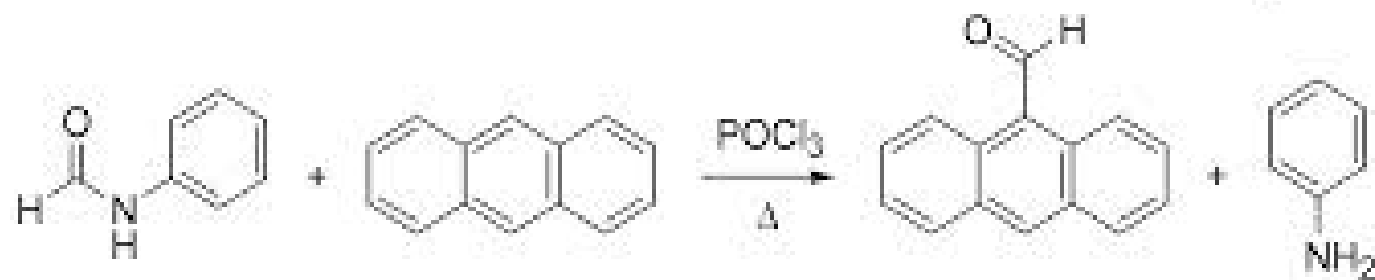
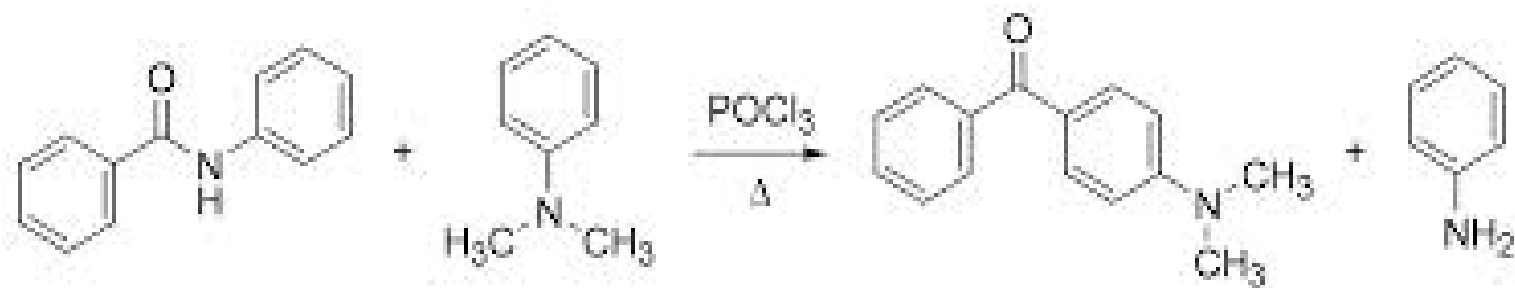
Selective Organic Name Reaction

Msc Ist & IInd

VELSMEIER – HAACK REACTION (FROMYLATION)

The Vilsmeier-Haack reaction is an organic reaction used to convert an electron rich aromatic ring to an aryl aldehyde using DMF Dimethylformamide, an acid chloride (phosphorus oxychloride), and aqueous workup to produce an aryl aldehyde or ketone





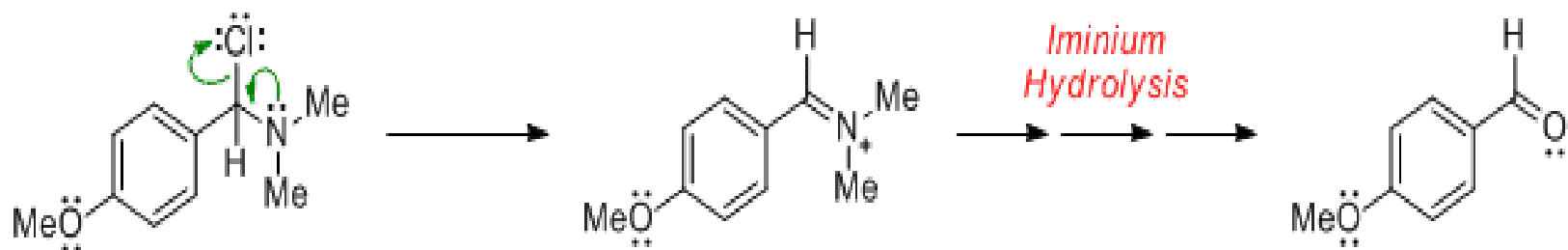
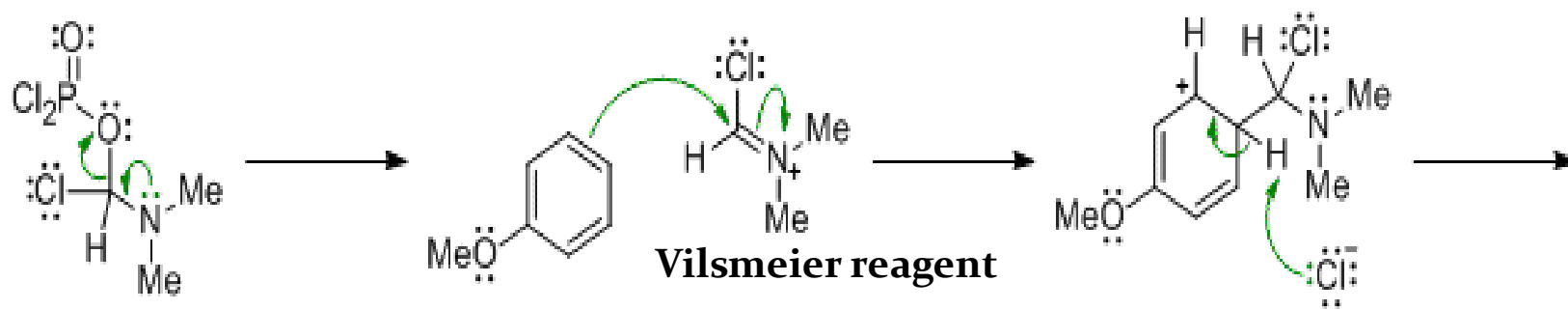
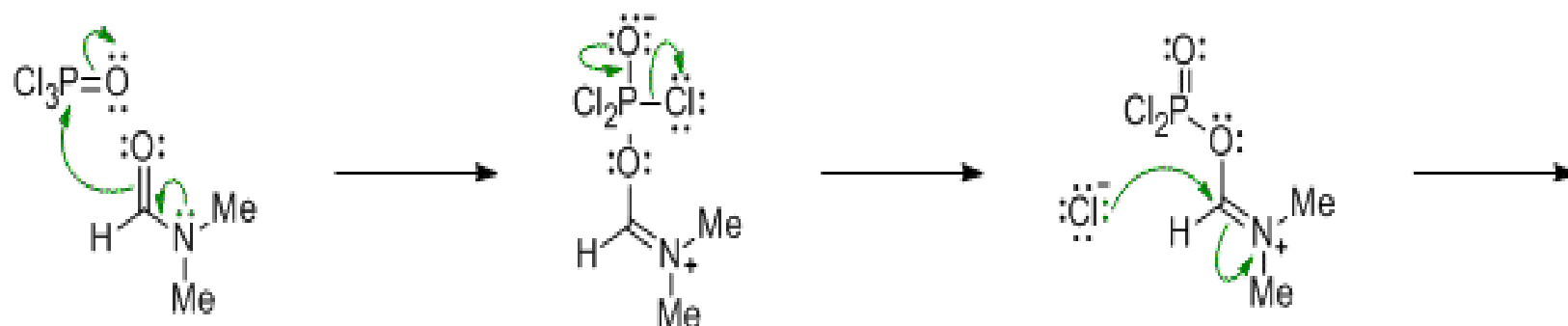
MECHANISM

The mechanism begins with the reaction of DMF with the acid chloride to form chloroiminium ion known as the "Vilsmeier reagent". The amide O is replaced with Cl, (P-O bond being stronger).

The electron rich aromatic ring then attacks the iminium ion with loss of aromaticity.

A deprotonation step restores aromaticity, which is followed by the release of a chloride ion to form another iminium intermediate.

Aqueous work-up then leads to the aryl aldehyde final product





Thank
you

