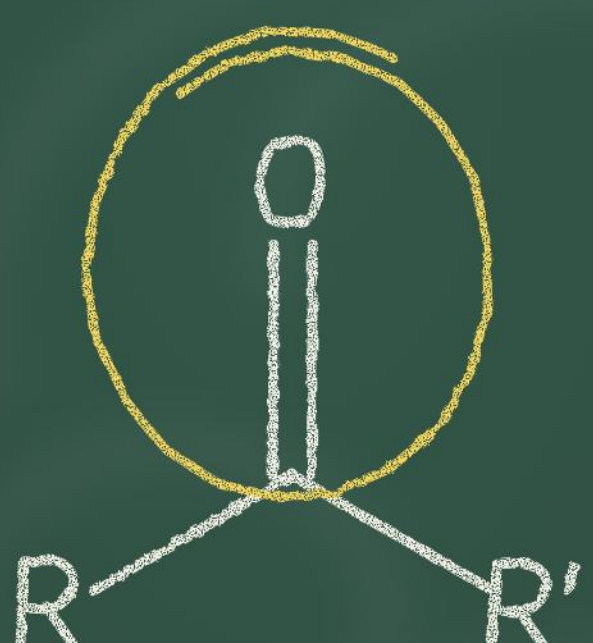
PrayogX · Chemistry

PRAYOGX

The Carbonyl Chapter in 1 Minute

one chapter, one group



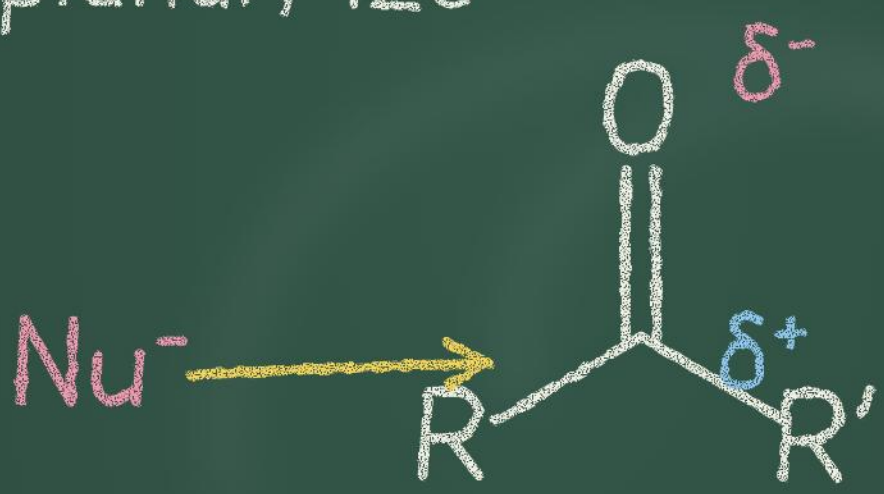
C=O

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sp^2 carbon
planar, 120°



polar bond

δ⁺ carbon calls the nucleophile

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making aldehydes & ketones

alcohol $\xrightarrow{[O]}$ C=O

alkene $\xrightarrow{O_3,\ Zn/H_2O}$ C=O

alkyne $\xrightarrow{H_2O,\ Hg^{2+}}$ C=O

acyl chloride $\xrightarrow{H_2,\ Pd\text{-}BaSO_4}$ C=O

Rosenmund reduction

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nucleophilic addition





HCN → cyanohydrin

ROH → hemiacetal, acetal

NH_2-Z → oxime, hydrazone

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α-H present → aldol

no α-H → Cannizzaro

tests for aldehydes



Tollens': silver mirror



Fehling's: red precipitate
(aliphatic aldehydes)

ketones: no

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carboxylate ion



charge shared → stable

so RCOOH is acidic

electron-withdrawing groups

raise acidity

esters · amides · nylon

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remember

1. polar C=O
2. nucleophilic addition
3. aldol, Cannizzaro
4. Tollens' test
5. resonance → acidity

one group, one chapter