

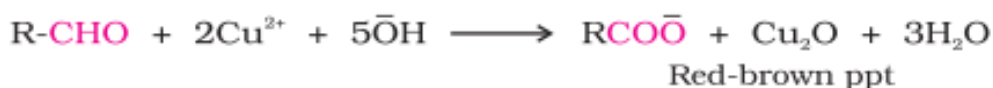
Reactions given by Aldehydes only

Tollens's test: Aldehydes are oxidised to corresponding acids with Tollens's reagent (ammoniacal solution of silver nitrate):



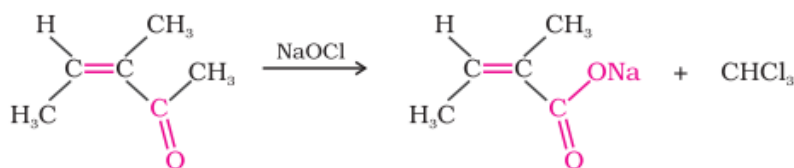
The reaction occurs in alkaline medium.

Fehling's test: Aliphatic aldehydes are oxidised to corresponding acid with Fehling solution (ammoniacal solution of Cu(II)-tartarate):



Reactions given by Ketones only

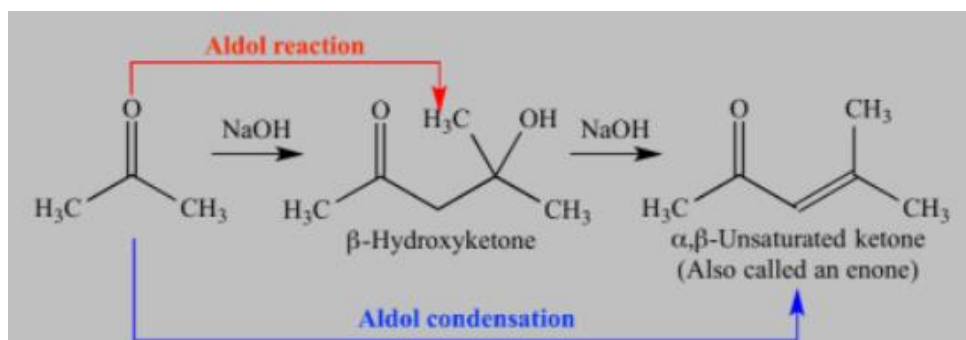
Halo-form test: Methyl ketone gives haloform test:



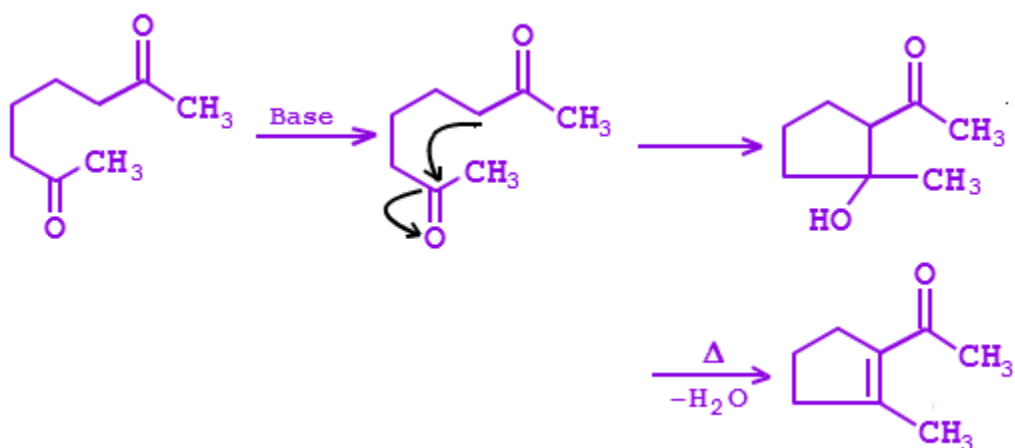
Iodoform reaction with sodium hypiodite is also used for detection of CH_3CO group or $\text{CH}_3\text{CH}(\text{OH})$ group which produces CH_3CO group on oxidation.

Ketones do not give Tollens's test or Fehling's test.

Aldol condensation: Aldehydes and ketones having at least one α -hydrogen undergo a reaction in the presence of dilute alkali as catalyst to form β -hydroxy aldehydes (aldol) or β -hydroxy ketones (ketol), respectively.

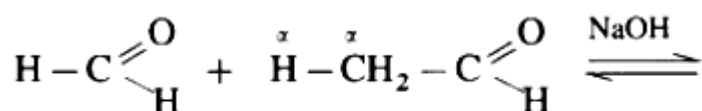


Intramolecular Aldol Condensation:



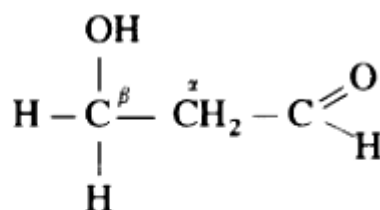
Intramolecular aldol is preferred when five or six membered ring is formed.

Cross aldol condensation:



Formaldehyde

Acetaldehyde



3-Hydroxypropanal

Cannizzaro reaction: Aldehydes which do not have an α -hydrogen atom, undergo self-oxidation and reduction (disproportionation) reaction on heating with concentrated alkali.

