

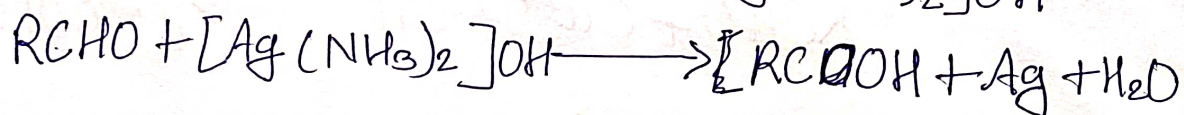
D. B. College (Jaynagar) Lect - 8
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(5) Reducing Character:

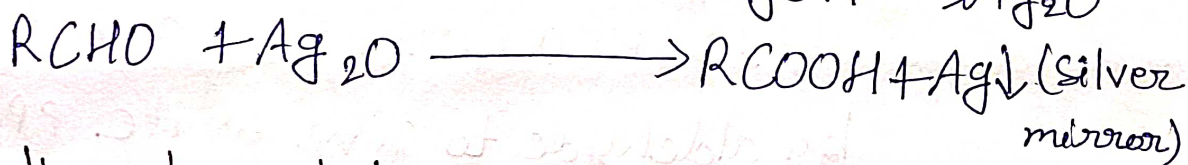
Aldehydes are easily oxidised so they are strong reducing agents.

(a) Tollen's reagent:

It oxidises aldehydes. Tollen's reagent is ammoniacal silver nitrate solution



silver mirror



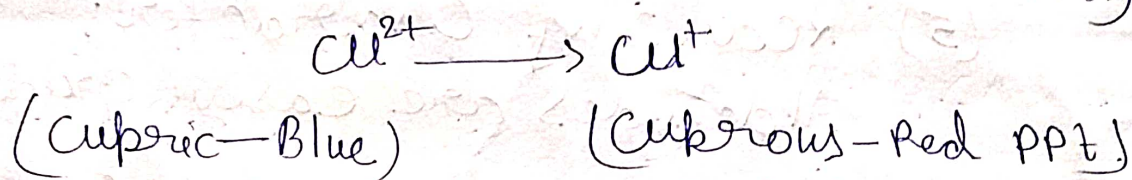
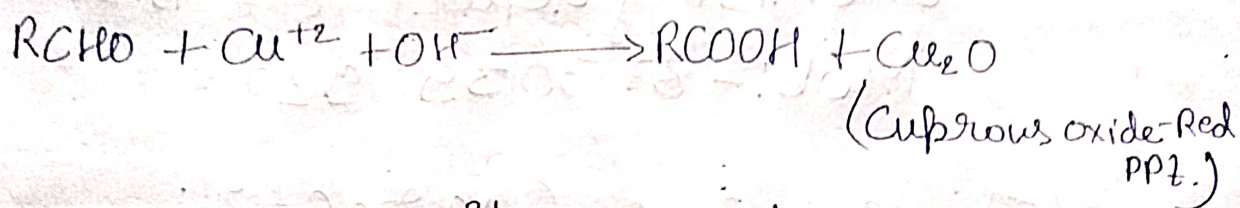
(b) Fehling's solution 1

It is a mixture of CuSO_4 , NaOH and sodium potassium tartrate.

Fehling solution A - (aq.) solution of CuSO_4

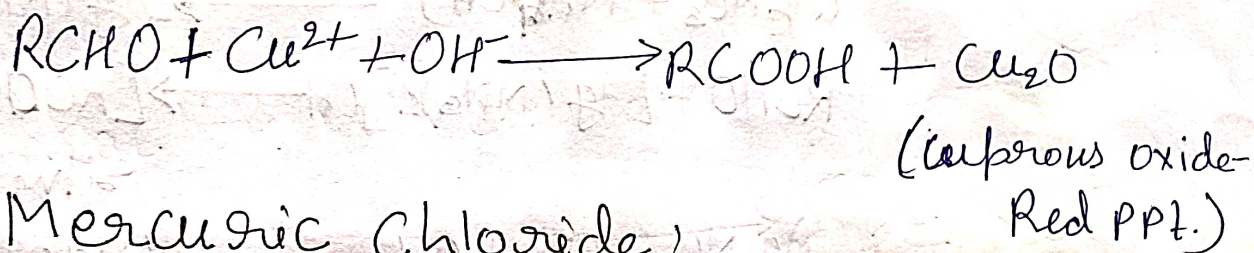
Fehling solution B - Roschelle salt (sodium potassium tartrate + NaOH)

Fehling's Solution A + Fehling's Solution B (Dark blue colour of cupric tartrate)



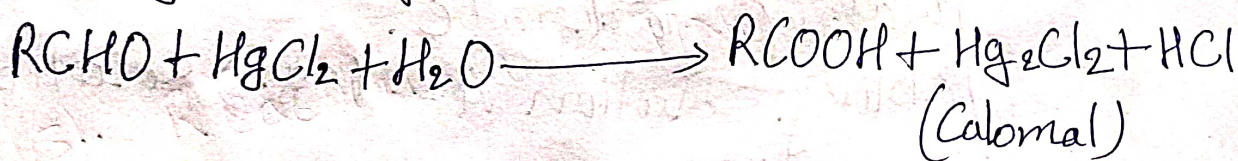
(c) Benedict's Solution:

It is a mixture of CuSO_4 + Sodium Citrate + Na_2CO_3 . It provides Cu^{2+} . It is reduced by aldehyde to give red ppt of cuprous oxide.



(d) Mercuric Chloride:

HgCl_2 is a corrosive sublimate. It is reduced by aldehyde to give white ppt of mercurous chloride (Calomal) which further react with aldehyde to give black ppt of Hg.

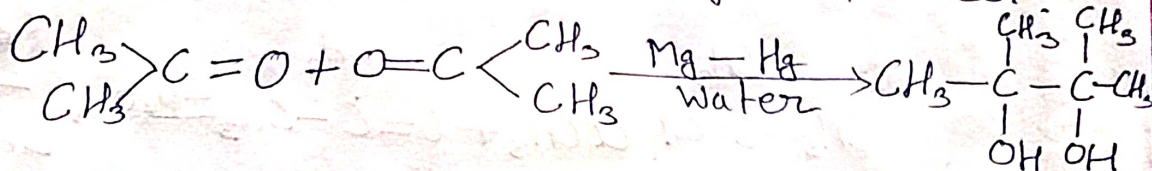


(C) Reaction with Schiff's reagent!

Schiff's reagent is dil solution of p-rosaniline hydrochloride or magenta dye. Its pink colour is discharged by passing SO_2 gas and the colourless solution is called Schiff's reagent, Aldehyde reacts with this reagent to restore the pink colour.

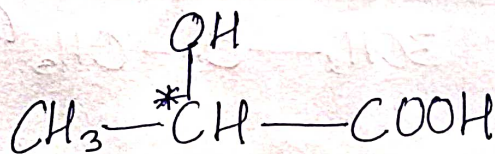
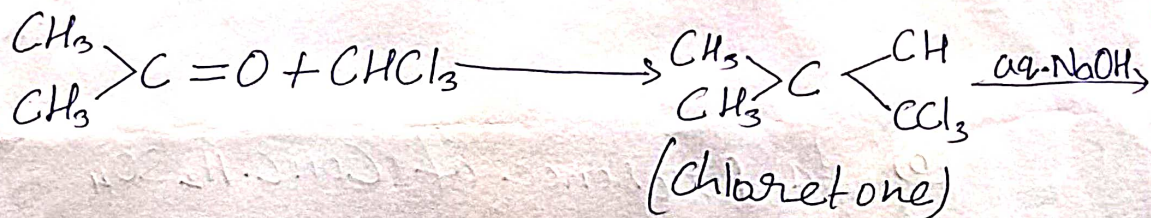
(F) Reaction of only ketones:

(1) Reduction: Acetone is reduced by magnesium amalgam and water to give Pinacol



Pinacol

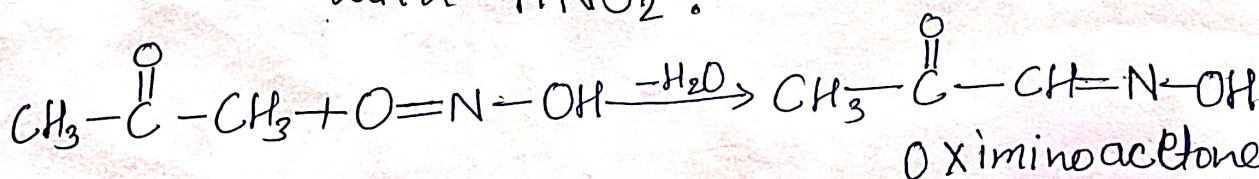
(2) Reaction with Chloroform:



(Lactic acid)

2 Hydroxy propanoic acid

(3). Reaction with HNO_2 :

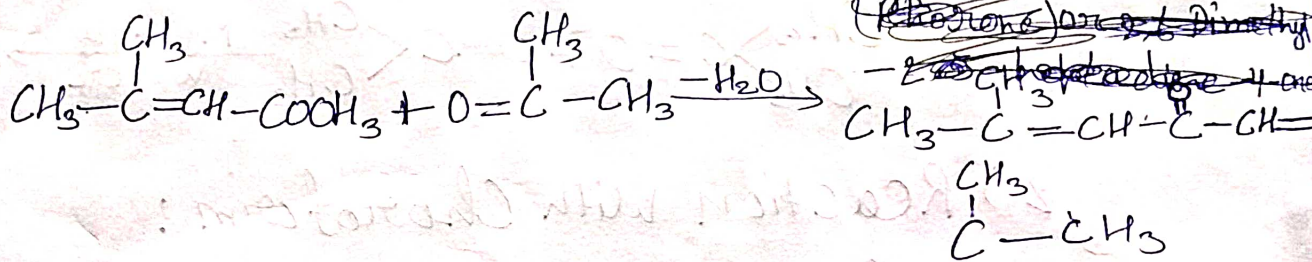
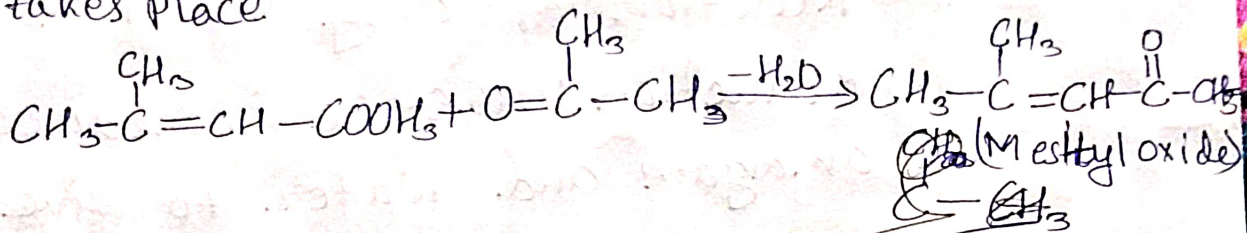


(4) Oxidation reaction: According to Popoff's rule α -group stays with smaller alkyl group.



(5) Condensation reaction:

(a) In presence of dry HCl - aldol Condensation takes place



(b) In presence of Conc. H_2SO_4

