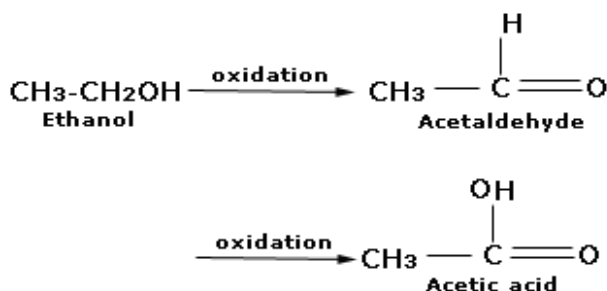


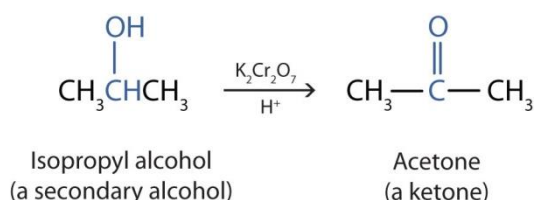
Describe reactions involving carbonyl compounds (ketones/aldehydes)

Aldehydes are formed by distilling a **primary alcohol** with acidified potassium dichromate:



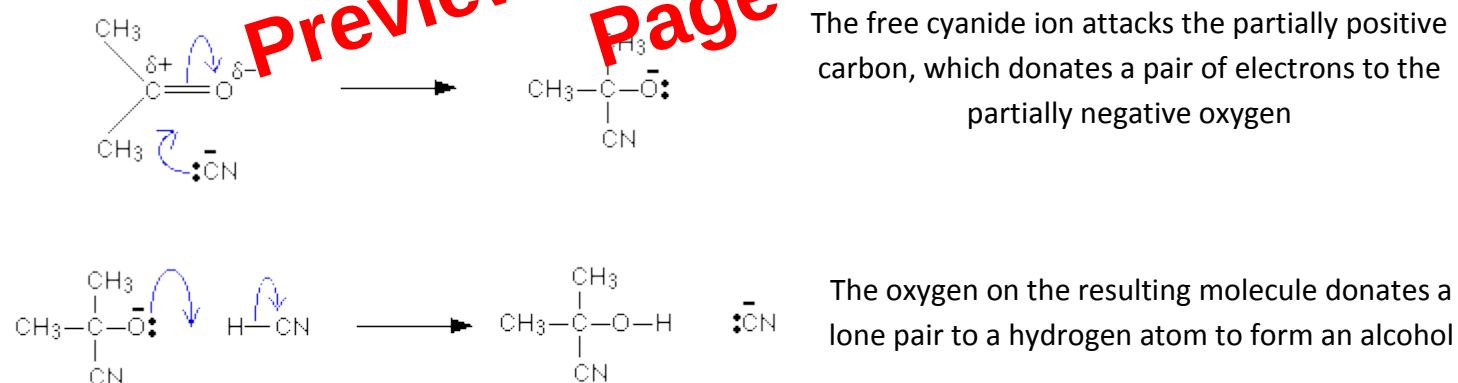
If the primary alcohol is heated under reflux rather than distilled, then it will form a carboxylic acid instead of an aldehyde.

Ketones are formed by refluxing a **secondary alcohol** with acidified potassium dichromate:



For oxidation to occur, there must be a hydrogen on the carbon atom with the hydroxyl group attached – therefore **tertiary alcohols cannot be oxidised**.

Ketones and aldehydes react identically with cyanides to form cyanohydrins, therefore only the nucleophilic addition of a ketone is shown:



Effective medicines

There are huge costs in developing new drugs, associated with manufacture, testing and marketing. Therefore pharmaceutical companies are reluctant to develop new drugs from scratch; rather it is cheaper to develop a more effective medicine from one which already exists.

Combinatorial chemistry is used to make a large number of related compounds in a short period of time, so their effectiveness as a medicine can be checked through screening.