

## Organic Qualitative Analysis

Functional Group	Test	Result	Further info
<b>Alkene</b> -C=C-	Shake with bromine water	Orange colour goes to COLOURLESS	Electrophilic addition reaction of Br <sub>2</sub> across C=C bond
<b>Halogenoalkane</b> R-X	Add AgNO <sub>3(aq)</sub> in ethanol	Precipitate of AgX  AgCl white ppt AgBr cream ppt AgI pale yellow ppt  Remember the use of NH <sub>3</sub> to identify ppt	Nucleophilic substitution  Followed by precipitation
<b>Primary/Secondary Alcohol</b> R-OH	Add acidified K <sub>2</sub> Cr <sub>2</sub> O <sub>7(aq)</sub> Reflux	Orange to Green (also happened with aldehydes)	Oxidation reaction of Primary alcohol to aldehyde and carboxylic acid  Oxidation of secondary alcohol to ketone  Note Tertiary alcohols are NOT oxidised.
<b>Carbonyl compounds</b>	React with 2,4-DNP	Orange ppt, recrystallise and check mpt of derivative.	
<b>Aldehydes</b> R-CHO	Warm with Fehling's solution Or Tollens' solution	Blue colour to red ppt Or Silver mirror	Oxidation reaction of aldehyde to carboxylic acid  Note Ketones cannot be oxidised
<b>Carboxylic acids</b> R-COOH	Add NaHCO <sub>3(aq)</sub>	Bubbles – CO <sub>2(g)</sub> produced	Acid + carbonate reaction
<b>Phenols</b>	Weakly acidic – but no reaction with sodium carbonate solution. Reacts with Br <sub>2</sub> to give a white ppt, and bromine is decolourised	White ppt and Br <sub>2</sub> decolourised	Electrophilic substitution