



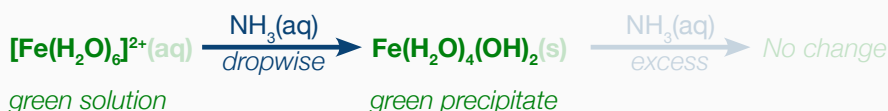
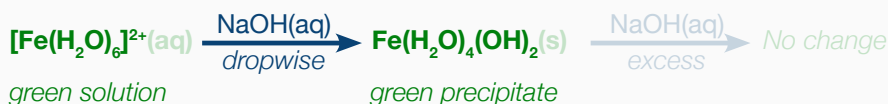
Inorganic Revision Sheet

Metal Aqua Ion Reactions for OCR (A)

Fe^{2+} , Fe^{3+} , Cu^{2+} , Cr^{3+} and Mn^{2+}

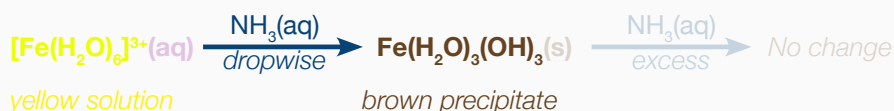
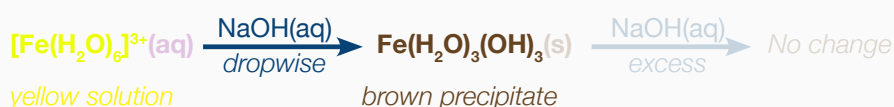
Iron (II), Fe^{2+}

dropwise NaOH or NH_3 = green ppt
excess NaOH = no change
excess NH_3 = no change



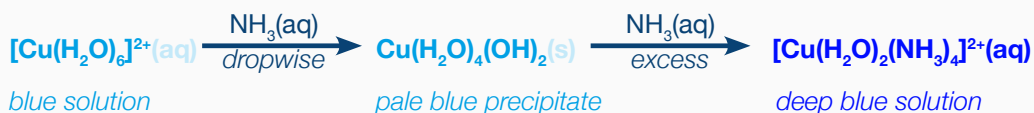
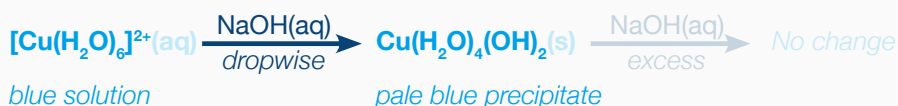
Iron (III), Fe^{3+}

dropwise NaOH or NH_3 = brown ppt
excess NaOH = no change
excess NH_3 = no change



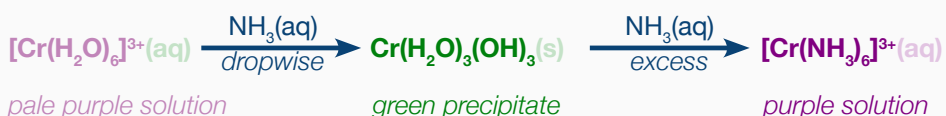
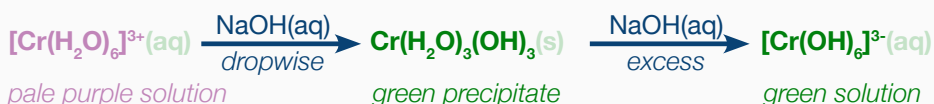
Copper (II), Cu^{2+}

dropwise NaOH or NH_3 = blue ppt
excess NaOH = no change
excess NH_3 = deep blue solution



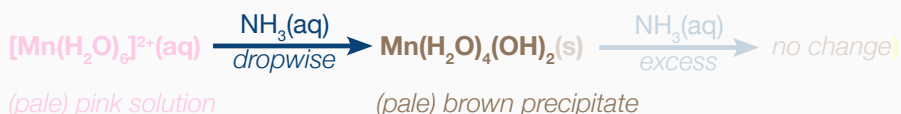
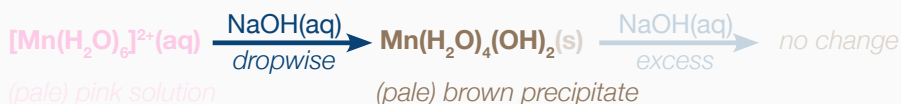
Chromium (III), Cr^{3+}

dropwise NaOH or NH_3 = green ppt
excess NaOH = green solution
excess NH_3 = purple solution



Manganese (II), Mn^{2+}

dropwise NaOH or NH_3 = brown ppt
excess NaOH = no change
excess NH_3 = no change





Inorganic Revision Sheet

Metal Aqua Ion Reactions for OCR (A)

Changing Oxidation States



$\text{Fe}^{2+}(\text{aq})$ can be oxidised to $\text{Fe}^{3+}(\text{aq})$ by $\text{H}^+/\text{MnO}_4^-$



$\text{Fe}^{3+}(\text{aq})$ can be reduced to $\text{Fe}^{2+}(\text{aq})$ by I^-



$\text{Cr}^{3+}(\text{aq})$ can be oxidised to $\text{CrO}_4^{2-}(\text{aq})$ with $\text{H}_2\text{O}_2 / \text{OH}^-$
 $\text{CrO}_4^{2-}(\text{aq})$ is easily converted to $\text{Cr}_2\text{O}_7^{2-}$ with addition of H^+



$\text{Cr}_2\text{O}_7^{2-}(\text{aq})$ can be reduced to $\text{Cr}^{3+}(\text{aq})$ with Zn / H^+



$\text{Cu}^{2+}(\text{aq})$ can be reduced to $\text{Cu}^+(\text{aq})$ with I^-
 $\text{Cu}^+(\text{aq})$ disproportionates readily to $\text{Cu}^{2+}(\text{aq})$ and $\text{Cu}(\text{s})$

Ligand Exchange

Copper (II), Cu^{2+}



Chromium (III), Cr^{3+}

