

Redissolving of metal hydroxides

1 What is redissolve?

- precipitate dissolve when excess reactant is used \therefore further reactions

	All 4 level + NaOH(aq) / KOH(aq) Al^{3+} Zn^{2+} Pb^{2+}	升级 + $NH_3(aq)$ $\xrightarrow{NH_3 \rightleftharpoons NH_4^+ + OH^-}$ Zn^{2+} Cu^{2+}
limited	$Al^{3+} + 3OH^- \rightarrow Al(OH)_3$ $Zn^{2+} + 2OH^- \rightarrow Zn(OH)_2$ $Pb^{2+} + 2OH^- \rightarrow Pb(OH)_2$ } ② forms white ppt	$Zn^{2+} + 2OH^- \rightarrow Zn(OH)_2$ } ② forms white ppt $Cu^{2+} + 2OH^- \rightarrow Cu(OH)_2$ } ② forms blue ppt
excess	$Al(OH)_3 + OH^- \rightarrow Al(OH)_4^-$ $Zn(OH)_2 + 2OH^- \rightarrow Zn(OH)_4^{2-}$ $Pb(OH)_2 + 2OH^- \rightarrow Pb(OH)_4^{2-}$ } ③ then dissolve again	$Zn(OH)_2 + 4NH_3 \rightarrow Zn(NH_3)_4^{2+} + 2OH^-$ $Cu(OH)_2 + 4NH_3 \rightarrow Cu(NH_3)_4^{2+} + 2OH^-$ } ③ then dissolve again \hookrightarrow ④ gives deep blue sol ⁿ

\rightarrow ① Add drop by drop until in excess

2 Distinguishing tests

- 大部分问题也不会用到 redissolve 的方法
 - > eg. $Zn(NO_3)_2$, $Pb(NO_3)_2$
 - \rightarrow Add HCl(aq), $Pb^{2+} + 2Cl^- \rightarrow PbCl_2$
- 用 redissolve 的例题
 - > eg. $Zn(OH)_2$, $Al(OH)_3$
 - \rightarrow Add both solids into $NH_3(aq)$ respectively.
 - \rightarrow $Al(OH)_3$ does not dissolve,
 - $Zn(OH)_2$ dissolves.
 - $\rightarrow Zn(OH)_2 + 4NH_3 \rightarrow Zn(NH_3)_4^{2+} + 2OH^-$