Answer on Question # 69135, Chemistry / General Chemistry

How do I identify $Ba(NO_3)_2$, KOH , $ZnSO_4$, $MgSO_4$ solutions by only mixing each other?

Solution:

When you add $ZnSO_4$ or MgSO₄ solutions in Ba(NO₃)₂ solution, the white precipitate has to be appeared. The next reaction:

 $Ba^{2+} + SO_4^{2-} \Longrightarrow BaSO_4 \downarrow$

The adding solution without falling out of precipitate can be estimated as KOH solution.

When you add KOH solution in ZnSO₄ or MgSO₄ solutions, the white precipitate has to be appeared. But the abundance of KOH solution can dissolve precipitate in ZnSO₄ solution. The reactions:

 $\begin{array}{c} 2OH^- + Mg^{2+} \Longrightarrow Mg(OH)_2 \downarrow \\ 2OH^- + Zn^{2+} \Longrightarrow Zn(OH)_2 \downarrow \\ Zn(OH)_2 \downarrow + 2OH^- \Rightarrow [Zn(OH)_4]^{2-} \end{array}$

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