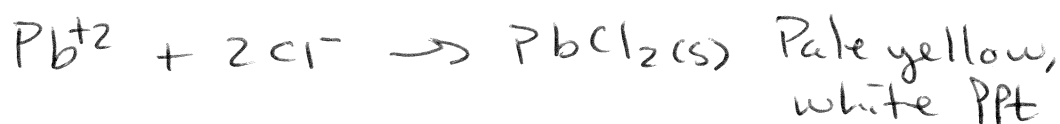


# 9-24-18 - Protocol to Separate Two Solids by Selective Precipitation

Chloride precipitates  $\text{Ag}^+$  and  $\text{Pb}^{2+}$ :



When  $\text{AgCl(s)}$  and  $\text{PbCl}_2(\text{s})$  occur in the same sample it may be necessary to separate both ions,  $\text{Ag}^+$  and  $\text{Pb}^{2+}$  in order to identify them.

To learn how to do this we will mix both  $\text{AgNO}_3$  and  $\text{Pb(NO}_3)_2$ , deliberately precipitate both ions with  $6\text{M HCl}$ , and then separate and identify both ions:

1. Combine 3 drops  $\text{AgNO}_3$  with 4 drops  $\text{Pb(NO}_3)_2$ . Mix.
2. Add 15 drops  $6\text{M HCl}$ . A white ppt forms.
3. Spin tubes for  $\sim 30\text{s}$ . Discard liquid above white pellet. Keep pellet.
4. Wash pellet with  $\sim 1\text{mL } \text{dH}_2\text{O}$ . Spin for  $\sim 30\text{s}$ . Discard liquid above pellet.
5. Add  $1\text{mL } \text{dH}_2\text{O}$ . Heat to hot. Do not boil! Mix.
6. Spin tubes hot.

7. Transfer liquid above pellet to new tube.  
Keep new tubes AND pellets.
8. To the tubes with the liquid test for  $Pb^{2+}$   
by adding 2 drops  $K_2CrO_4$ . Yellow PPT confirms  
 $Pb^{2+}$ .
9. To the pellet: Add 1 mL  $NH_4OH$ . Mix well.  
Pellet should dissolve completely.
10. Add 2-10 drops 3M  $HNO_3$ . white ppt confirms  $Ag^+$