## Precipitation Reactions Worksheet

Write chemical, complete ionic, and net ionic equations for the following reactions that may produce precipitates. Use NR to indicate that no reaction occurs.

1.	Aqueous solutions of potassium iodide and silver nitrate are mixed.
2.	Aqueous solutions of ammonium phosphate and sodium sulfate are mixed.
3.	Aqueous solutions of aluminum chloride and sodium hydroxide are mixed.
4.	Aqueous solutions of lithium sulfate and calcium nitrate are mixed.
5.	Aqueous solutions of iron (II) sulfate and barium hydroxide are mixed.

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6. 
$$NH_3SO_4(aq) + BaCl_2(aq) \rightarrow$$

7. 
$$Na_2S(aq) + NiSO_4(aq) \rightarrow$$

8. 
$$Al(NO_3)_3(aq) + Na_3PO_4(aq) \rightarrow$$

9. 
$$(NH_4)_2CO_3(aq) + MgSO_4(aq) \rightarrow$$

10. 
$$Ca(OH)_2(aq) + Na_2SO_4(aq) \rightarrow$$

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Write chemical, complete ionic, and net ionic equations for the following reactions that may produce precipitates. Use NR to indicate that no reaction occurs.

1. Aqueous solutions of potassium iodide and silver nitrate are mixed.

Chemical 
$$KI_{(aq)}^{\dagger} + A_gNO_{3(aq)}^{\dagger} \rightarrow KNO_{3(aq)}^{\dagger} + A_gI_{(s)}$$

complete  $K^{\dagger} + I^{\dagger} + A_g^{\dagger} + NO_3^{\dagger} \rightarrow K^{\dagger} + NO_3^{\dagger} + A_gI_{(s)}$ 

net ionic  $A_g^{\dagger} + I_{(aq)}^{\dagger} + I_{(aq)}^{\dagger} \rightarrow A_gI_{(s)}$ 

2. Aqueous solutions of ammonium phosphate and sodium sulfate are mixed.

3. Aqueous solutions of aluminum chloride and sodium hydroxide are mixed.

$$A1C1_3(uq) + 3NuOH_{10q})$$
  $\longrightarrow$   $A1(6H)_3(s) + 3NuC1(uq)$   
 $A1^{3+} + 3C1^- + 3Nu+ + 3OH^- \longrightarrow A1(0H)_3(s) + 3Nu+ + 3C1^-$   
 $A1^{3+} + 3OH^- \longrightarrow A1(0H)_3(s)$ 

4. Aqueous solutions of lithium sulfate and calcium nitrate are mixed.

5. Aqueous solutions of iron (II) sulfate and barium hydroxide are mixed.

Fe SOy (ag) + Ba (OH) 2(ug) Fe (OH) 2(s) + Ba SOY (s)

Fe<sup>2+</sup> + SOy<sup>2-</sup> + Ba<sup>2+</sup> + ZOH<sup>-</sup> 
$$\rightarrow$$
 Fe (OH) 2(s) + Ba SOY (s)

Fe<sup>2+</sup> + SOy<sup>2-</sup> + Ba<sup>2+</sup> + ZOH<sup>-</sup>  $\rightarrow$  Fe (OH) 2(s) + Ba SOY(s)

- 6.  $NH_3SO_4(aq) + BaCl_2(aq) \rightarrow NH_3Cl_2(aq)^{+}$  Bc  $SO_4(s)$   $NH_3^{2+} + SO_4^{2-} + Ba^{2+} + 2cl^{-} \rightarrow NH_3^{2+} + 2cl^{-} + BaSO_4(s)$   $Ba^{2+} + SO_4^{2-} \longrightarrow BaSO_4(s)$
- 7.  $Na_{2}S(aq) + NiSO_{4}(aq) \rightarrow Na_{2}SO_{4}(aq) + NiS(s)$   $2Na^{+} + 5^{2-} + Ni^{2+} + SO_{4}^{2-} \longrightarrow 2Na^{+} + SO_{4}^{2-} + NiS(s)$  $Ni^{2+} + 5^{2-} \longrightarrow NiS(s)$
- 8.  $AI(NO_3)_3(aq) + Na_3PO_4(aq) \rightarrow AIPO_4(s) + 3Na NO_3(cq)$   $AI^{3+} + 3NO_3^{-} + 3Na^{+} + PO_4^{3-} \longrightarrow AIPO_4(s) + 3Na^{+} + 3NO_3^{-}$   $AI^{3+} + PO_4^{3-} \longrightarrow AIPO_4(s)$
- 9.  $(NH_4)_2CO_3(aq) + MgSO_4(aq) \rightarrow (NH_4)_2 SO_{(aq)} + MgCO_3(s)$   $2NH_4^{\dagger} + CO_3^{2-} + Mg^{2+} + SO_4^{2-} \longrightarrow 2NH_4^{\dagger} + SO_4^{2-} + MgCO_3(s)$  $Mg^{2+} + CO_3^{2-} \longrightarrow MgCO_3(s)$
- 10.  $Ca(OH)_{2}(aq) + Na_{2}SO_{4}(aq) \rightarrow CaSO_{(cs)} + 2NaOH_{(aq)}$   $Ca^{2+} + 2OH^{-} + 2Na^{+} + SO_{4}^{2-} \longrightarrow (aSO_{4(s)} + 2Na^{+} + ZOH^{-}$   $Ca^{2+} + SO_{4}^{2-} \longrightarrow CaSO_{4(s)}$