

Predicting Single and Double

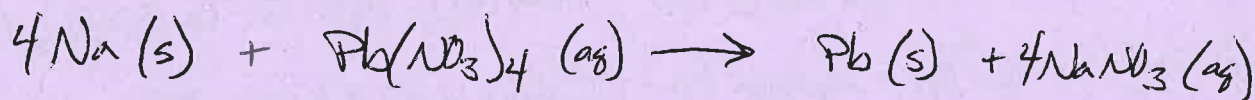
Displacement Reactions

Name Key

Block _____ Date _____

Recall that, for *single displacement* reactions, the relative reactivity of the element trying to displace and being displaced from an ionic compound is used to determine whether or not a reaction will occur. Use the Activity Series to predict whether the following reactions will occur. If a reaction will occur, write out the complete balanced equation and include phases. If no reaction – write “no reaction”.

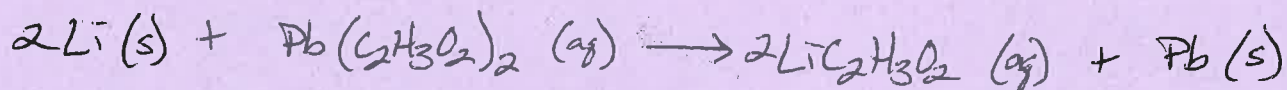
1. Sodium reacts with lead (IV) nitrate solution.



2. Zinc bromide solution reacts with aluminum.



3. Lithium reacts with aqueous lead (II) acetate.



4. Silver reacts with a solution of hydrofluoric acid (HF).

No Reaction

5. Tin (II) nitrate solution reacts with mercury.

No Reaction

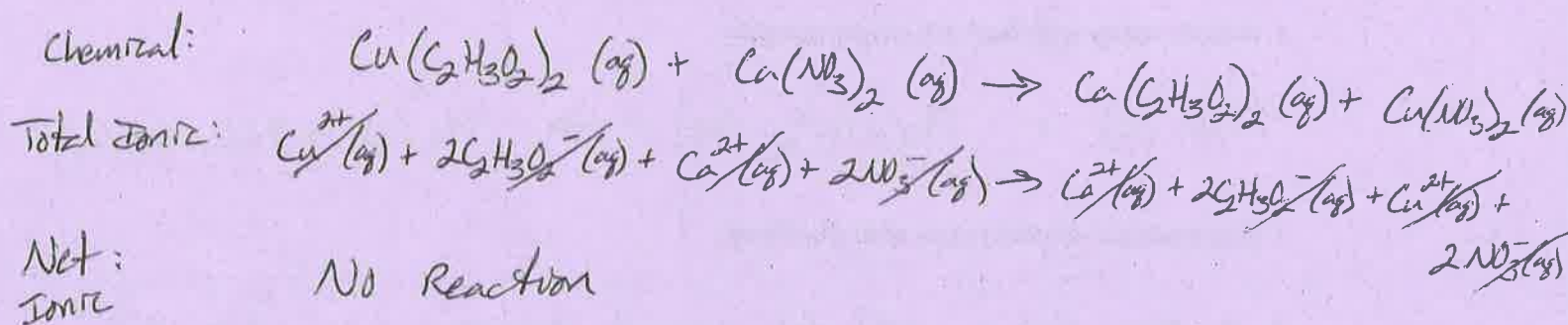
6. Chlorine reacts with aqueous potassium bromide.



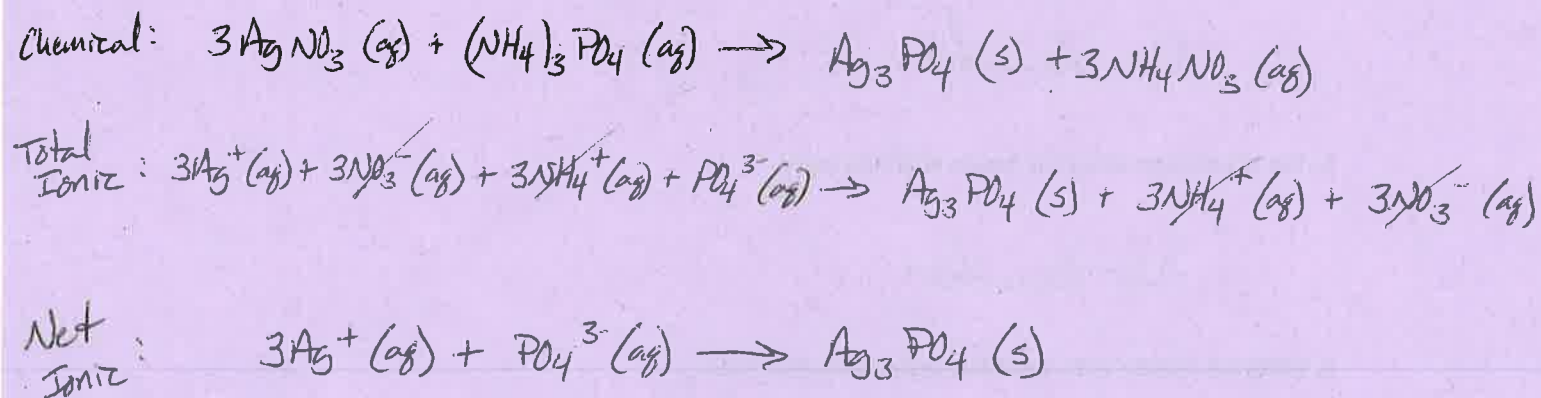
Double displacement reactions typically occur when mixing two aqueous ionic solutions. Since ionic compounds dissociate and are dissolved when placed in water, the mixing of 2 ionic solutions creates a sea of dissolved ions. Whether or not a reaction has occurred depends on whether or not a precipitate, gas, or water was produced during the rearrangement of ions. This can be shown using net ionic equations.

For the following reactions, write out the complete chemical equation for the reaction, followed by the total ionic equation and the net ionic equation. Finally, state whether or not a reaction has occurred by referencing the result of the net ionic equation.

1. Copper (II) acetate reacts with calcium nitrate.



2. Silver nitrate reacts with ammonium phosphate.



Recall that, for **double displacement** reactions, the products of the reaction are used to determine whether or not a reaction will occur. A reaction has only occurred if a precipitate (new solid), gas or water is produced. Use the Solubility Table to predict whether the following reactions will occur. If a reaction will occur, write out the complete balanced equation and include phases (use the solubility table to determine phases). If no reaction – write “no reaction”.

1. Silver nitrate reacts with barium bromide.



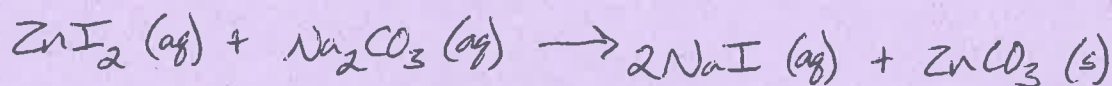
2. Copper (I) chloride reacts with potassium hydroxide.



3. Magnesium acetate reacts with ammonium sulfate.

No reaction (MgSO_4 & $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$ would be aq)

4. Zinc iodide reacts with sodium carbonate.



5. Calcium chromate reacts with zinc bromide.



6. Nitric acid reacts with calcium hydroxide.



7. Iron (III) nitrate reacts with aluminum sulfate.

No reaction ($\text{Fe}_2(\text{SO}_4)_3$ & $\text{Al}(\text{NO}_3)_3$ would be aq)

