

GENERAL CHEMISTRY

STANDARD 8.8

DEFINITIONS

- **Ionic Equation:** A chemical equation where the electrolytes are written as dissociated ions
 - Used to represent solutions where ionic compounds are dissolved in solution and a precipitate is formed
- **Electrolyte:** An ion in solution
- **Spectator Ion:** An ion on both sides of an ionic equation
- **Net Ionic Equation:** The total ionic equation with all spectator ions ignored

EXAMPLE

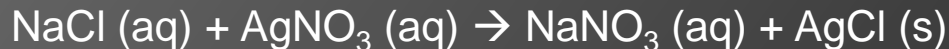
- Consider the reaction between aqueous sodium chloride and silver nitrate:



- First, determine the products by switching the anions/cations and balancing oxidation #s

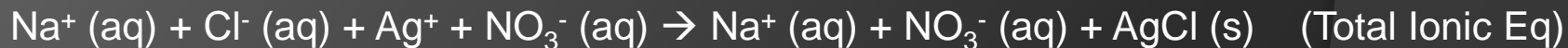


- Next, use a solubility table to determine the state of matter of the products:



- Next, balance the equation (already balanced).

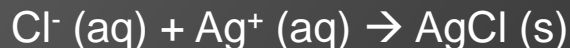
- Next, split the **aqueous** compounds into individual ions (**aqueous ONLY**)



- Now, identify the spectator ions, which are the same on both sides:



- Finally, cancel out the spectator ions to write the net ionic equation:



ANOTHER EXAMPLE

- Consider the reaction between aqueous silver nitrate and barium chloride:



- First, determine the products by switching the anions/cations and balancing oxidation #s



- Next, use a solubility table to determine the state of matter of the products:



- Next, balance the equation:



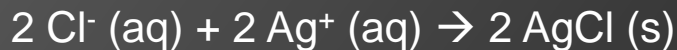
- Next, split the **aqueous** compounds into individual ions (**aqueous ONLY**)



- Now, identify the spectator ions, which are the same on both sides:



- Finally, cancel out the spectator ions to write the net ionic equation:



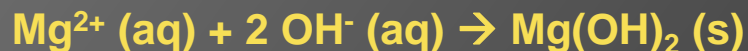
- Finally, simplify the net ionic equation: $\text{Cl}^- (\text{aq}) + \text{Ag}^+ (\text{aq}) \rightarrow \text{AgCl} (\text{s})$

MORE EXAMPLES

- Consider the reaction between aqueous magnesium chloride and aqueous sodium hydroxide
- Consider the reaction between aqueous aluminum chloride and aqueous sodium carbonate
- Consider the reaction between aqueous lead (II) nitrate and aqueous magnesium iodide
- Consider the reaction between aqueous potassium iodide and calcium chloride

MORE EXAMPLES SOLUTIONS

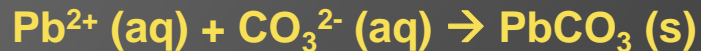
- Consider the reaction between aqueous magnesium chloride and aqueous sodium hydroxide



- Consider the reaction between aqueous aluminum chloride and aqueous sodium carbonate



- Consider the reaction between aqueous lead (II) nitrate and aqueous magnesium iodide



- Consider the reaction between aqueous potassium iodide and calcium chloride

No Reaction