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## Writing Net Ionic Equations (from 9-3)

\* You have now learned to write and balance simple chemical equations following the law of conservation of mass.

ex) Sodium chloride yields Sodium ions plus chloride ions



However, this equation, known as the total chemical equation doesn't give us an accurate picture of all of the chemistry at work.

- To make more sense of what's happening we also need to include symbols in the equation that tell us the physical state of the ingredients involved.

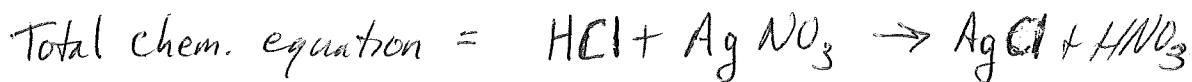
The physical state symbols are:

(s) = solid, (l) = liquid, (g) = gas, & (aq) = aqueous solution

Aqueous Solutions are made of ionic solutes & at least 1 solvent. This means that ionic compounds involved in chemical equations will dissociate or break up into its (+) cations & anions (-) in solution

So, when we write what's known as a net ionic equation we are re-writing chemical equations to include ions in the equation, and then determine what our final equation is.

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\* we include physical states:

Molecular  
Equation



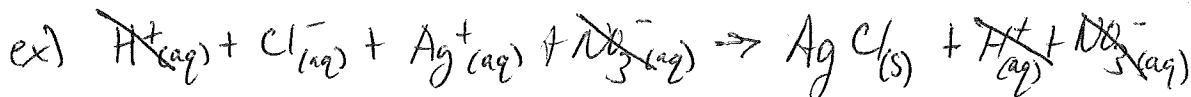
- ① • re-write the equation "breaking up" any aqueous compounds into their ions: & balance

Total Ionic  
Equation



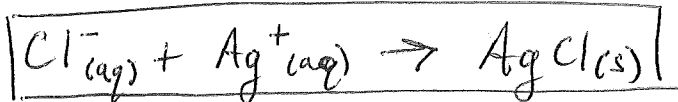
\* Notice that I left the solid alone - only break up the aqueous compounds

- ② • Cancel out any ions that appear in both the reactants & products - these are known as spectator ions and don't have direct affect on the outcome.



- ③ Write the final net ionic equation using all remaining items:

Net Ionic  
Equation



\* We will use this net ionic formula technique tomorrow

Liquids & gases follow the same rule when writing net ionic equations - only break up aqueous (aq) compounds into their ions & leave s, l, & g alone.

