**How to Use Table F: Solubility Guidelines for Aqueous Solutions**

**Overview:**

This table is used to determine whether a particular compound is soluble or insoluble in water (aqueous) solution. If an insoluble substance is formed in the reaction between two aqueous solutions of different salts (ionic compounds), it is called a precipitate and settles to the bottom of the container.

**The Table:**

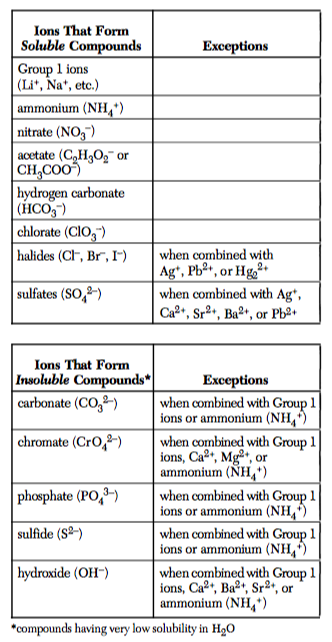
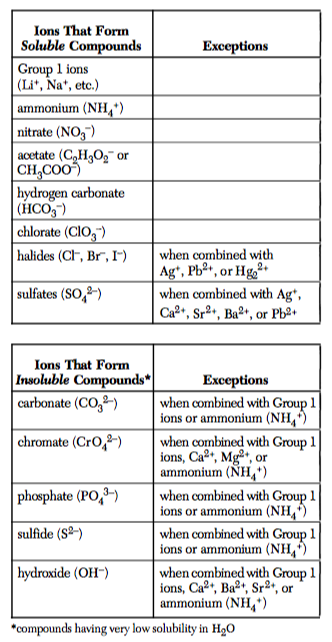
The top chart shows ions that form soluble compounds with some exceptions noted. The bottom chart shows ions that form insoluble or nearly insoluble compounds with some exceptions noted.

Some general rules for solubility can be stated using information from this table:

* all compounds containing Group 1 ions are soluble in water
* all compounds containing ammonium, nitrate, acetate, hydrogen carbonate, and chlorate ions are soluble in water

Be very careful to note the Exceptions columns. Many questions on the regents involve these examples.

**Additional Information:**

* The halides are negative ions formed from Group 17 elements, known as the halogens.
* Since a relatively large amount of a soluble substance may be dissolved in a given amount of water, these solutions may be concentrated (strong solutions).
* Since only a small amount of an insoluble substance dissolves in a given amount of water, these solutions are dilute (weak solutions).
* Soluble ionic substances (salts) dissolved in water form solutions that readily conduct an electric current. They are referred to as strong electrolytes.
* The notation (s) following the formula of a substance indicates that the substance is a solid or insoluble in water (a precipitate). The notation (aq) following a formula indicates an aqueous solution of that substance (soluble in water).
* ****When an insoluble substance (precipitate) is formed, it may be separated from the rest of the solution by the process of filtration. However, a soluble solute cannot be separated from the solvent by filtration.

**Table F Practice**

**Directions**: Determine if the compound is soluble or insoluble, then determine if the compound can be separated from the mixture by filtration. Explain your answer.

1. Ammonium nitrate (NH4NO3)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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1. Potassium phosphate (K3PO4)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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1. Magnesium sulfide (MgS)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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1. Sodium hydroxide (NaOH)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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1. Silver chlorate (AgClO3)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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1. Silver chloride (\_\_\_\_\_\_\_\_\_\_\_)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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1. Ammonium phosphate (\_\_\_\_\_\_\_\_\_\_\_\_\_)
   1. Circle One: Soluble or Insoluble
   2. Can filtration be used to separate this compound from the mixture? Explain.

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