Solubility and the Solubility Table

Solubility refers to a substance's ability to dissolve in something at a given temperature.

- single and double replacement reactions usually occur in aqueous solutions (aq)

- in order to predict the products a little more accurately for these two types of reactions, we must use the solubility table

solutions

solute *solvent*

- *the substance dissolved*
- *liquid doing the dissolving*

ex: sugar in water

solute *solvent*

A substance's solubility can be seen on the Solubility Table.

If the element/ion is soluble the state is aqueous (aq).
If the element/ion is insoluble the state is solid (s).

***Remember** You only need to use this table if you have a Single Replacement or Double Replacement reaction.*

Lets use the table.

Is $NaNO_3$ soluble?

Is $CaSO_4$ soluble?

Is Mg_3PO_4 soluble?

Is $NaCH_3COO$ soluble?

Check for the solubility on these four.

1. NaBr ?
2. Na_2SO_4
3. Ag_2SO_4
4. Na_3PO_4

Practice...

Predict:

- The type of reaction
  - The products of the reaction
  - The states of all elements/compounds in the reaction
  - Balance the equation.

1. _____ Na_2O (g) →

2. _____ $AgNO_3$ (aq) + _____ Ca (s) →

3. _____ $AgNO_3$ (aq) + _____ $CaSO_4$ (aq) →

4. _____ O_2 (g) + _____ $MgCl_2$ (aq) →

5. _____ $AgCH_3COO$ (aq) + _____ $MgCl_2$ (aq) →

6. _____ C_3H_8 (g) + _____ O_2 (g) →

7. _____ Al (s) + _____ O_2 (g) →

Word equations.

1. Nitrogen gas is reacted with magnesium strips.

2. Magnesium sulfide is allowed to decompose to its elements.

3. Heptane (C_7H_{16}) is burned under the presence of oxygen.

4. Solutions of ammonium chloride and lead II nitrate are mixed.