

Chemistry 112

Learning Opportunities

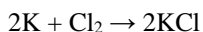
May 25 – 29

Classifying Reactions

There are five general types of reactions. Sometimes a single reaction may be classified as two different types. The five types are:

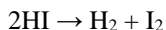
1. Combination – two or more substances react to form a single new substance. If the reactants are individual elements (no compounds), expect a combination reaction.

Example :



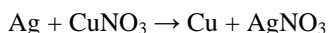
2. Decomposition – a single compound breaks down into simpler products. If the reactant is a single compound, expect a decomposition reaction.

Example:



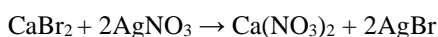
3. Single-replacement – one element replaces another element in a compound. Anions replace anions and cations replace cations. If the reactants are one element (not oxygen) and one compound, expect a single-replacement reaction.

Example:



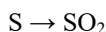
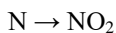
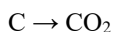
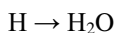
4. Double-replacement – two compounds exchange cations. If the reactants are both compounds, expect a double-replacement reaction. If there is a multivalent ion (more than one possible charge) use the same charge when forming products that the ion had when it was in the reactants.

Example:

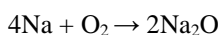
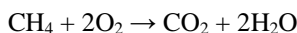


5. Combustion – a substance reacts with oxygen producing the most common oxides of the elements in the substance. If oxygen is a reactant, expect a combustion reaction. These reactions can also be combination reactions depending on the reactants present.

The following are elements commonly present in combustion reactions. These are the compounds they form when reacting with oxygen:



Example:



See Reaction types – Sample problems

Practice problems

Predict the products and give the reaction type for the following:

(you do not need to balance the equations)

