

Decomposition Reactions

Decomposition reaction: A chemical reaction in which a compound breaks down into elements or simpler compounds.

Binary Compound Decomposition into Elements

- A binary compound will usually break into its elements.
- **Electrolysis** is the process that uses electrical energy to cause a chemical reaction, and is often used in decomposition reactions.

Example: Electrolysis of molten sodium chloride

- Heat can also be used to decompose an compound into its elements. This process is called ***thermal decomposition***.

Example: Decomposition of mercury (II) oxide

Decomposition of a Metal Nitrate

- Compounds that are composed of two elements do generally not decompose into single elements.
- Metal nitrates decompose to a metal nitrite and oxygen gas.

Example: Thermal decomposition of sodium nitrate

Decomposition of a Metal Carbonate

- Metal carbonates are always going to decompose to carbon dioxide gas and a solid metal oxide.

Example: Decomposition of calcium carbonate

Decomposition of a Metal Chlorate

- Metal chlorates are always going to decompose into oxygen gas and an ionic compound including chlorine.

Example: Decomposition of sodium chlorate

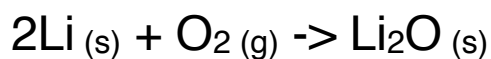
Decomposition of Metal Hydroxides

- When heated, a metal hydroxide will generally form a metal oxide and water.

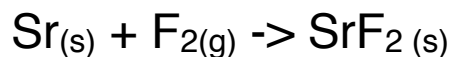
Example: Decomposition of calcium hydroxide

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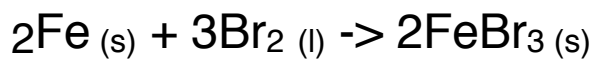
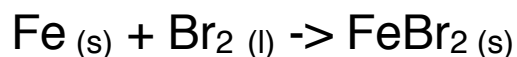
21) Lithium + Oxygen



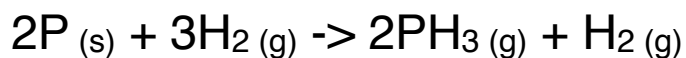
22) Strontium + Fluorine



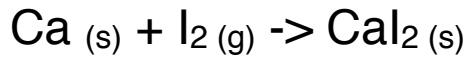
23) Iron + Bromine



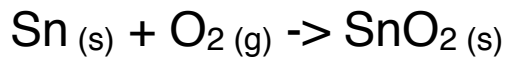
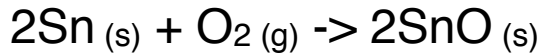
24) Phosphorous + Hydrogen, gaseous phosphorous trihydride



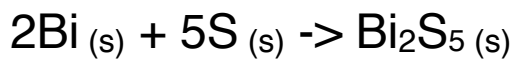
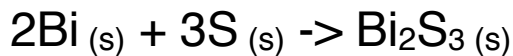
25) Calcium + Iodine



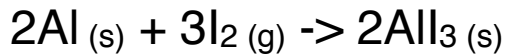
26) Tin + Oxygen



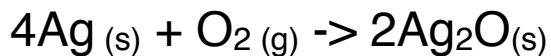
27) Bismuth + Sulfur



28) Aluminum + Iodine



29) Silver + Oxygen



30) Nitrogen + Oxygen, Nitrogen Dioxide

