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## Chemical Reactions Worksheet

Directions: Balance the following chemical reactions using the given information. In addition, classify each chemical reaction. Answers appear immediately following the problems.

1. Hypochlorous acid decomposes into water and dichlorine monoxide.

## Reaction classification:

$\qquad$
2. Acetic acid is burned.

Reaction classification: $\qquad$
3. Solid magnesium fluoride appears upon mixing magnesium chloride and sodium fluoride.

Reaction classification: $\qquad$
4. Phosphorus $\left(\mathrm{P}_{4}\right)$ and oxygen produce tetraphosphorus decaoxide.

Reaction classification: $\qquad$
5. Calcium and hydrochloric acid create a gas. Identify the gas through the balanced equation.

Reaction classification: $\qquad$
6. Calcium hydroxide is added to perchloric acid..
$\qquad$

## Answers to the Chemical Reactions Worksheet:

1. Hypochlorous acid decomposes into water and dichlorine monoxide.

$$
\mathbf{2} \mathbf{H C l O}(\mathbf{a q}) \rightarrow \mathbf{H}_{2} \mathrm{O}(\mathbf{l})+\mathbf{C l}_{2} \mathbf{O}(\mathbf{a q}) \quad \text { Classification: Decomposition }
$$

2. Acetic acid is burned.

$$
\mathrm{HC}_{2} \mathrm{H}_{3} \mathrm{O}_{2}(\mathrm{aq})+2 \mathrm{O}_{2}(\mathrm{~g}) \rightarrow 2 \mathrm{CO}_{2}(\mathrm{~g})+2 \mathrm{H}_{2} \mathrm{O}(\mathrm{l})
$$

Classification: Combustion / Burning
3. Solid magnesium fluoride appears upon mixing magnesium chloride and sodium fluoride.

$$
\mathbf{M g C l}_{2}(\mathbf{a q})+2 \mathbf{N a F}(\mathbf{a q}) \rightarrow \mathbf{M g F}_{2}(\mathbf{s})+\mathbf{2} \mathbf{N a C l}(\mathbf{a q}) \quad \text { Classification: Precipitation }
$$

4. Phosphorus $\left(\mathrm{P}_{4}\right)$ and oxygen produce tetraphosphorus decaoxide.

$$
\mathbf{P}_{4}(\mathbf{s})+\mathbf{5} \mathbf{O}_{\mathbf{2}}(\mathrm{g}) \rightarrow \mathbf{P}_{4} \mathbf{O}_{10}(\mathbf{s}) \quad \text { Classification: Combination }
$$

5. Calcium and hydrochloric acid create a gas. Identify the gas through the balanced equation.

$$
\mathrm{Ca}(\mathrm{~s})+2 \mathrm{HCl}(\mathrm{aq}) \rightarrow \mathrm{CaCl}_{2}(\mathrm{aq})+\mathbf{H}_{2}(\mathrm{~g})
$$

Classification: Single Replacement
6. Calcium hydroxide is added to perchloric acid..

$$
\mathrm{Ca}(\mathrm{OH})_{2}(\mathrm{aq})+2 \mathrm{HClO}_{4}(\mathrm{aq}) \rightarrow \mathbf{C a}\left(\mathrm{ClO}_{4}\right)_{2}(\mathbf{a q})+2 \mathbf{H}_{2} \mathrm{O}(\mathbf{l}) \quad \text { Classification: Acid/Base }
$$

