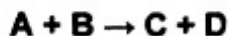


Name: Key Date: _____

Chemical Reactions



A and B are reactants

C and D are products

"+" is read "and" or "plus" (when mixed with..., added to..., exposed to..., etc.)

"→" is read "produces" (can also mean "decomposes into" when there is only one reactant)

Signs a Reaction has Occurred

- Bubbles appear (shows that a gas has been produced)
- A **PRECIPITATE** forms (a solid that settles to the bottom, sometimes the solid particles are too small to detect and instead it appears as a cloudy solution)
- Color change
- Temperature change
- Light is emitted
- Change in volume (because of a change in density)
- Change in electrical conductivity
- Change in melting or boiling point
- Change in smell
- Change in taste

Chemical Reactions

For the following reactions, write: a) The word equation
b) The skeletal equation

1. Magnesium metal reacts in a solution of sulfuric acid to produce hydrogen gas and a solution of magnesium sulfate.

WE: Magnesium metal + sulfuric acid → Hydrogen gas + Magnesium sulfate
SE: $\text{Mg (s)} + \text{H}_2\text{SO}_4 \text{ (aq)} \rightarrow \text{H}_2 \text{ (g)} + \text{MgSO}_4 \text{ (aq)}$

2. Potassium hydroxide and hydrogen are produced when potassium is placed in water.

WE: Potassium + water → Potassium hydroxide and hydrogen
SE: $\text{K (s)} + \text{H}_2\text{O (l)} \rightarrow \text{KOH (s)} + \text{H}_2 \text{ (g)}$

3. Zinc reacts with lead (IV) nitrate to produce zinc nitrate and lead.

WE: Zinc + lead (IV) nitrate → zinc nitrate + lead
SE: $\text{Zn (s)} + \text{Pb(NO}_3)_4 \rightarrow \text{Zn(NO}_3)_2 + \text{Pb (s)}$

4. Calcium chloride reacts with silver nitrate to produce a white precipitate, silver chloride and calcium nitrate remains in solution.

WE: calcium chloride + silver nitrate → silver chloride + calcium nitrate
SE: $\text{CaCl}_2 + \text{AgNO}_3 \rightarrow \text{AgCl (s)} + \text{Ca(NO}_3)_2 \text{ (aq)}$

5. Calcium carbonate decomposes into calcium oxide and carbon dioxide.

WE: Calcium carbonate → calcium oxide + carbon dioxide
SE: $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2 \text{ (g)}$

Name: _____ Date: _____

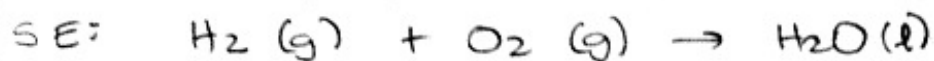
6. Potassium chlorate, a solid white powder, can be decomposed on heating to yield solid potassium chloride and pure oxygen gas.

WE: Potassium chlorate \rightarrow Potassium chloride + Oxygen gas



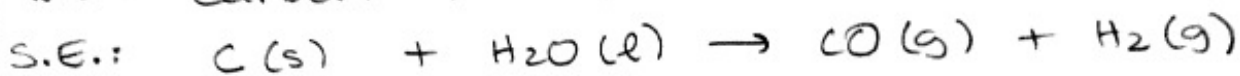
7. In the hydrogen bomb, hydrogen gas and oxygen gas react to make water.

WE: Hydrogen gas + Oxygen gas \rightarrow Water



8. Carbon monoxide and hydrogen gas are produced when carbon is placed in water.

W.E.: Carbon + Water \rightarrow carbon monoxide + Hydrogen gas



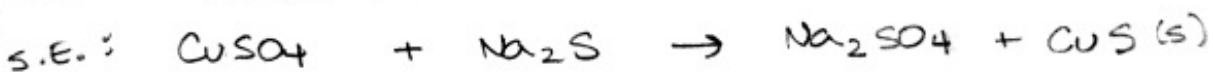
9. Nitrogen monoxide from automobile exhaust reacts with oxygen to produce nitrogen dioxide, which is a toxic brown gas.

W.E.: Nitrogen monoxide + Oxygen \rightarrow Nitrogen dioxide



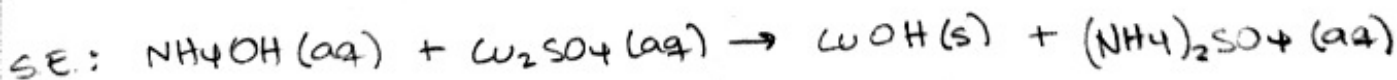
10. Sodium sulfate and a greenish brown solid copper (II) sulfide are formed when copper (II) sulfate is mixed with sodium sulfide.

W.E.: Copper (II) sulfate + Sodium sulfide \rightarrow Sodium sulfate + Copper (II) sulfide



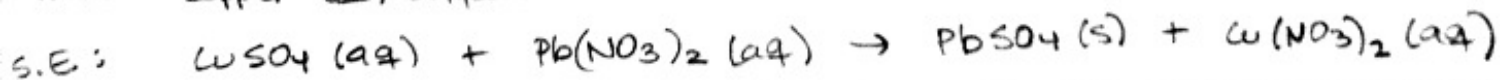
11. A clear, colorless solution of ammonium hydroxide reacts with a clear blue solution of copper (I) sulfate to produce a blue precipitate of copper (I) hydroxide and a solution of ammonium sulfate.

W.E.: Ammonium Hydroxide + Copper (I) sulfate \rightarrow Copper (I) Hydroxide + Ammonium Sulfate



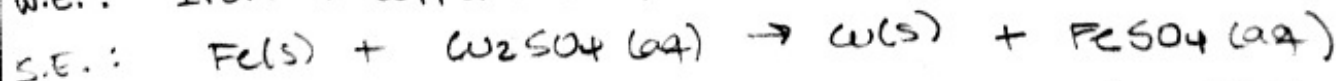
12. When solutions of copper (II) sulfate and lead (II) nitrate are mixed, a precipitate of lead (II) sulfate forms. The other product of the reaction, copper (II) nitrate remains in solution.

W.E.: Copper (II) sulfate + Lead (II) Nitrate \rightarrow Lead (II) sulfate + Copper (II) Nitrate



13. When a piece of solid iron is placed in a solution of copper (I) sulfate, solid copper forms on the iron strip and the solution turns red with iron (II) sulfate dissolved in solution.

W.E.: Iron + Copper (I) sulfate \rightarrow Copper + Iron (II) sulfate



14. A silver nitrate solution reacts with a sodium chloride solution to produce solid silver chloride and sodium nitrate solution.

W.E.: Silver Nitrate + Sodium chloride \rightarrow Silver chloride + Sodium Nitrate

