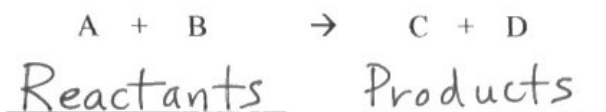


Chemical Equations Notes

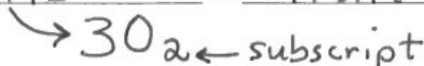
KEY



Law of Conservation of Mass:



We balance equations in order to satisfy the Law of Conservation of Mass. Equations are balanced by adding a coefficients in front of the formula of a compound or element.

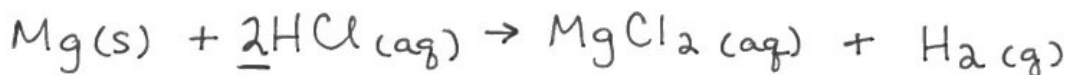


In order to write a **balanced chemical equation** for a reaction, follow these simple steps:

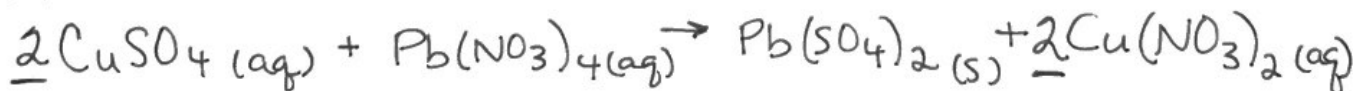
1. Write the correct formula for each reactant and product.
2. Write reactants on the left and products on the right. Separate with a yields (→) sign.
3. Indicate the phase of each reactant or product using one of the following:
 - (aq) = aqueous solution (Acids are aqueous solutions unless otherwise stated.)
 - (s) = solid (Pure metals are solids unless otherwise stated.)
 - (l) = liquid (pure substance like water or alcohol)
 - (g) = gas
4. Balance all of the elements **except hydrogen and oxygen**, by placing a coefficient in front of the formula where more atoms are needed. Just work your way from left to right across the equation.
5. Balance the hydrogen.
6. Balance the oxygen.
7. Double check all elements.

Try these:

1. Magnesium metal reacts with hydrochloric acid to produce aqueous magnesium chloride and hydrogen gas.



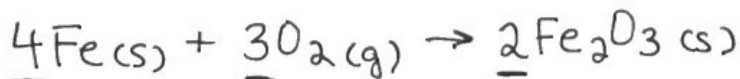
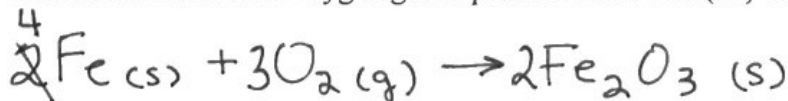
2. Aqueous copper (II) sulfate reacts with aqueous lead (IV) nitrate to produce solid lead (IV) sulfate and aqueous copper (II) nitrate.



3. Solid tin (IV) chlorate decomposes **when heated** to produce solid tin (IV) chloride and oxygen gas.

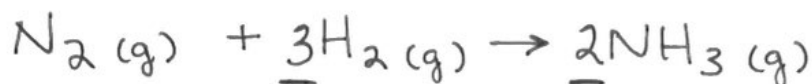


4. Iron metal reacts with oxygen gas to produce solid iron (III) oxide.

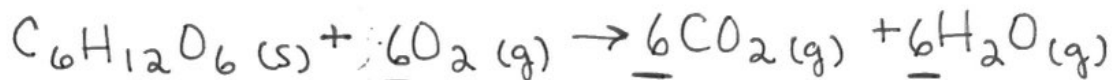


Chemical Equations Notes

5. Nitrogen gas reacts with hydrogen gas to produce ammonia (nitrogen trihydride) gas.



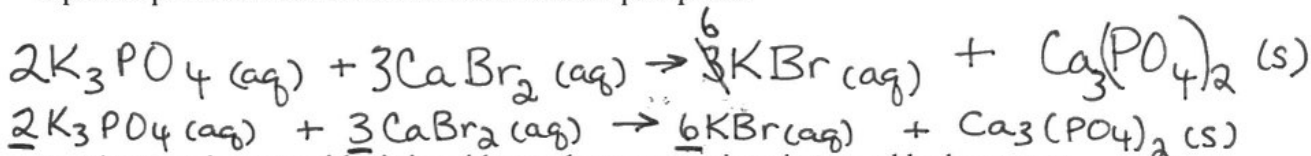
6. When solid glucose burns it reacts with oxygen in the air to produce carbon dioxide gas and water vapor.



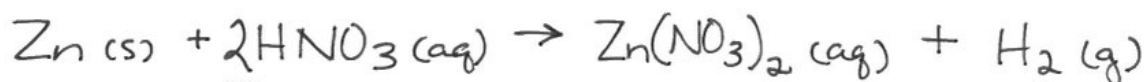
7. Solid magnesium carbonate decomposes **when heated** to form solid magnesium oxide and carbon dioxide gas.



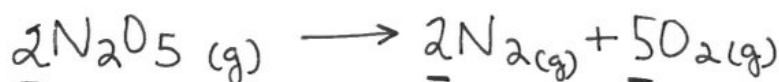
8. Aqueous potassium phosphate reacts with aqueous calcium bromide to produce aqueous potassium bromide and solid calcium phosphate.



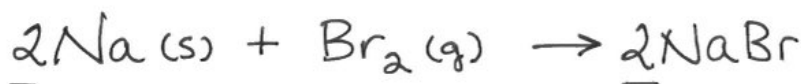
9. Zinc metal reacts with nitric acid to make aqueous zinc nitrate and hydrogen gas.



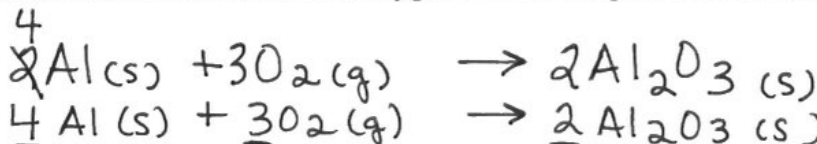
10. Dinitrogen pentoxide gas can be decomposed into nitrogen gas and oxygen gas.



11. Solid sodium reacts with bromine gas to produce solid sodium bromide.



12. Aluminum metal reacts with oxygen in the air to produce solid aluminum oxide.



13. Liquid hydrogen peroxide decomposes into oxygen gas and liquid water. This reaction is aided by the use of a manganese dioxide **catalyst**.

