

AP Chemistry Summer Assignment – Gulf Shores High School

The following assignment is to be completed and brought on the first day of class. **DO NOT SHARE ANSWERS.** We will grade on FIRST DAY OF SCHOOL!!

Nomenclature

1. **Name** these binary compounds of two **nonmetals**.

IF₇ _____

N₂O₅ _____

XeF₂ _____

N₂O₄ _____

As₄O₁₀ _____

SF₆ _____

PCl₃ _____

S₂Cl₂ _____

2. **Name** these binary compounds with a fixed charge metal.

AlCl₃ _____

MgO _____

BaI₂ _____

KI _____

SrBr₂ _____

Na₂S _____

CaF₂ _____

Al₂O₃ _____

3. **Name** these binary compounds of cations with variable charge (**Roman Numerals**).

CuCl₂ _____

Fe₂O₃ _____

SnO _____

PbCl₄ _____

Cu₂S _____

HgS _____

AuI₃ _____

CoP _____

4. **Name** these compounds with polyatomic ions.

$\text{Fe}(\text{NO}_3)_3$ _____

NaOH _____

Cu_2SO_4 _____

$\text{Ca}(\text{ClO}_3)_2$ _____

KNO_2 _____

NaHCO_3 _____

NH_4NO_2 _____

$\text{Cu}_2\text{Cr}_2\text{O}_7$ _____

5. **Name** these binary acids (Hydro -ic acids)

HCl _____

HI _____

6. **Name** these acids with polyatomic ions. (I **-ate** something **-icky** and **Sprite** is delicious)

HClO_4 _____

H_2SO_4 _____

$\text{HC}_2\text{H}_3\text{O}_2$ _____

H_3PO_4 _____

HNO_2 _____

H_2CrO_4 _____

$\text{H}_2\text{C}_2\text{O}_4$ _____

H_2CO_3 _____

7. **Name** these compounds appropriately.

CO _____

NH_4CN _____

HIO_3 _____

NI_3 _____

AlP _____

OF_2 _____

LiMnO_4 _____

HClO _____

HF _____

SO_2 _____

CuCr_2O_7 _____

K_2O _____

FeF_3 _____

KC₂H₃O₂ _____

MnS _____

8. **Write** the formulas.

Tin (IV) phosphide _____

copper (II) cyanide _____

Magnesium hydroxide _____

sodium peroxide _____

Sulfurous acid _____

lithium silicate _____

Potassium nitride _____

chromium (III) carbonate _____

Gallium arsenide _____

cobalt (II) chromate _____

Zinc fluoride _____

dichromic acid _____

Solubility rules

9. Review solubility rules and identify each of the following compounds as soluble(aqueous) or insoluble(solid) in water.

Remember: NAG SAG with Castro Bear and PMS exceptions

If its a precipitate, put ppt

If its not, put aq for aqueous

Na₂CO₃ _____

CoCO₃ _____

Pb(NO₃)₂ _____

K₂S _____

BaSO₄ _____

(NH₄)₂S _____

AgI _____

Ni(NO₃)₂ _____

KI _____

FeS _____

PbCl₂ _____

CuSO₄ _____

Li₂O _____

Mn(C₂H₃O₂)₂ _____

Cr(OH)₃ _____

AgClO₃ _____

Sn(SO₃)₄ _____

FeF₂ _____

10. Predict whether each of these double replacement reactions will give a precipitate or not based on the solubility of the products. If yes, **identify** the precipitate. If they precipitate, write the **net ionic equation** for each. If no precipitate forms, just put NO RXN.

silver nitrate and potassium chloride _____

magnesium nitrate and sodium carbonate _____

strontium bromide and potassium sulfate _____

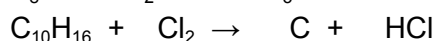
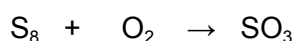
cobalt (III) bromide and potassium sulfide _____

ammonium hydroxide and copper (II) acetate _____

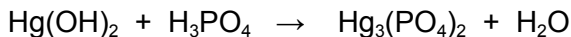
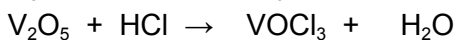
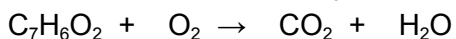
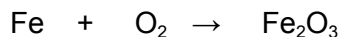
lithium chlorate and chromium (III) fluoride _____

Balancing Equations

11. Balance the following equations with the lowest whole number coefficients. Identify the type of equation as well: synthesis, decomposition, single replacement, double replacement or combustion.

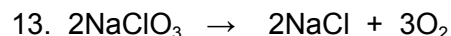


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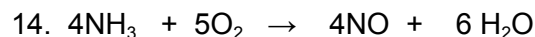


Stoichiometry and Limiting Reactants

12. Given the equation below, what **mass** of water would be needed to react with 10.0g of sodium oxide?

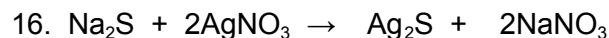


What **mass** of sodium chloride is formed along with 45.0g of oxygen gas?



What **mass** of water will be produced when 100.0g of ammonia is reacted with **excess** oxygen?

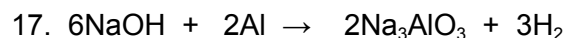
15. If the reaction in #14 is done with 25.0g of each reactant, which would be the limiting reactant?



If the above reaction is carried out with 50.0g of sodium sulfide and 35.0g of silver nitrate, which is the limiting reactant?

What mass of the excess reactant remains?

What mass of silver sulfide would precipitate?



What **volume** of hydrogen gas (measured at STP) would result from reacting 75.0g of sodium hydroxide with 50.0g of aluminum?