

AP Chemistry

Summer Assignment

Dacula High School

****The following assignment is to be completed and brought on the first day of class****

Please contact Ms. Zoino at Allison.Zoino@gwinnett.k12.ga.us with any questions!



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.

CuCl₂ _____ Fe₂O₃ _____ SnO _____
PbCl₄ _____ Cu₂S _____ HgS _____
AuI₃ _____ CoP _____

4. Name these compounds with polyatomic ions.

Fe(NO₃)₃ _____ NaOH _____ Cu₂SO₄ _____
Ca(ClO₃)₂ _____ KNO₂ _____ NaHCO₃ _____
NH₄NO₂ _____ Cu₂Cr₂O₇ _____

5. Name these binary acids

HCl _____ HI _____

6. Name these acids with polyatomic ions.

HClO₄ _____ H₂SO₄ _____ HC₂H₃O₂ _____
H₃PO₄ _____ HNO₂ _____ H₂CrO₄ _____
H₂C₂O₄ _____ H₂CO₃ _____

7. Name these compounds appropriately.

CO _____ NH₄CN _____ HIO₃ _____ NI₃ _____
AlP _____ OF₂ _____ LiMnO₄ _____ HClO _____
HF _____ SO₂ _____ CuCr₂O₇ _____ K₂O _____
FeF₃ _____ KC₂H₃O₂ _____ MnS _____

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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. We did not cover solubility rules in Honors Chemistry, but do a little research and see if you can identify each of the following compounds as soluble or insoluble in water.

Na_2CO_3 _____	CoCO_3 _____	$\text{Pb}(\text{NO}_3)_2$ _____
K_2S _____	BaSO_4 _____	$(\text{NH}_4)_2\text{S}$ _____
AgI _____	$\text{Ni}(\text{NO}_3)_2$ _____	KI _____
FeS _____	PbCl_2 _____	CuSO_4 _____
Li_2O _____	$\text{Mn}(\text{C}_2\text{H}_3\text{O}_2)_2$ _____	$\text{Cr}(\text{OH})_3$ _____
AgClO_3 _____	$\text{Sn}(\text{SO}_3)_4$ _____	FeF_2 _____

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. Remember that a double replacement reaction means that the two cations switch – remember to balance your charges!

silver nitrate and potassium chloride _____

magnesium nitrate and sodium carbonate _____

strontium bromide and potassium sulfate _____

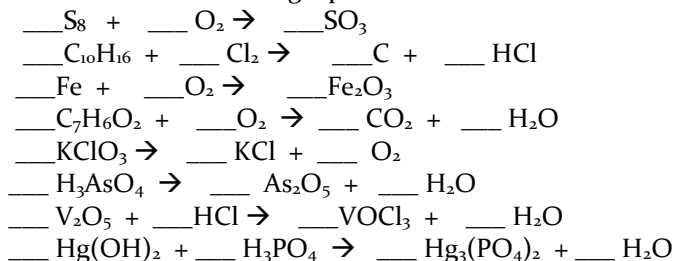
cobalt (III) bromide and potassium sulfide _____

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.



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Stoichiometry and Limiting Factor – Be sure to SHOW YOUR WORK!

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



13. $2\text{NaClO}_3 \rightarrow 2\text{NaCl} + 3\text{O}_2$

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

14. $4\text{NH}_3 + 5\text{O}_2 \rightarrow 4\text{NO} + 6\text{H}_2\text{O}$

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 factor?

16. $\text{Na}_2\text{S} + 2\text{AgNO}_3 \rightarrow \text{Ag}_2\text{S} + 2\text{NaNO}_3$

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

What mass of the excess reactant remains?

What mass of silver sulfide would precipitate?

17. $6\text{NaOH} + 2\text{Al} \rightarrow 2\text{Na}_3\text{AlO}_3 + 3\text{H}_2$

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