



Hercules Titans

AP Chemistry Summer Assignment

Course Title: AP Chemistry

Course ID: 66600

Department: Science

Credit Value: 10

Grade Level for which course is intended: 11-12 Total Instruction days: 180

Length of Course: One Year

Pre-requisites: Chemistry (P), Algebra 1&2 (with a Grade of B or better in all of these classes)

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

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 _____

8. Write the formulas.

Tin (IV) phosphide _____ copper (II) cyanide _____

Magnesium hydroxide _____ sodium peroxide _____

Sulfurous acid _____ lithium silicate _____

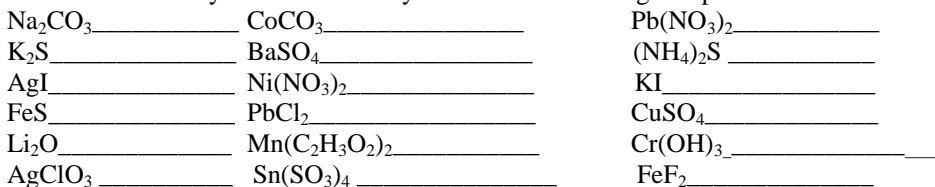
Potassium nitride _____ chromium (III) carbonate _____

Gallium arsenide _____ cobalt (II) chromate _____

Zinc fluoride _____ dichromic acid _____

Solubility rules

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

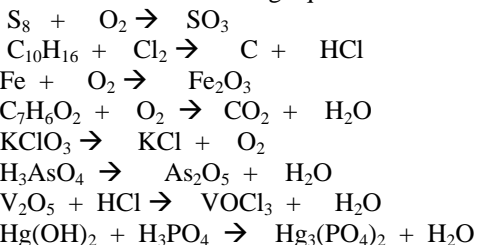


10. Predict whether each of these double replacement reactions will give a precipitate or not based on the solubility of the products. If yes, identify the precipitate.

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 _____

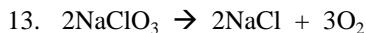
Balancing Equations

11. Balance the following equations with the lowest whole number coefficients.

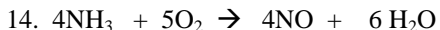


Stoichiometry and Limiting Factor

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

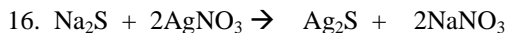


What mass of sodium chloride is formed along with 45.0g of oxygen gas?



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

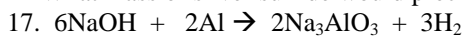
15. If the reaction in #14 is done with 25.0g of each reactant, which would be the limiting factor?



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?



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

