

Chemistry Chapter 9 Worksheet

Name: _____

Provide a short and specific definition in YOUR OWN WORDS. Do not use the definition from the book

It should be noted that the chemical formulas and chemical names may not really exist. These chemical formulas and chemical names were created so you could practice using the naming rules.

Additional Notes:

Composition stoichiometry _____

Reaction stoichiometry _____

Mole ratio _____

Limiting reactant _____

Excess reactant _____

Theoretical yield _____

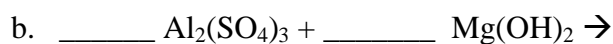
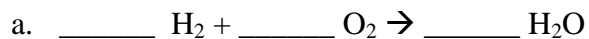
Actual yield _____

Percent yield _____

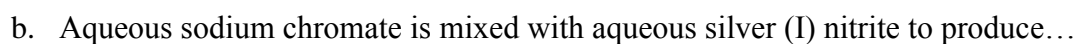
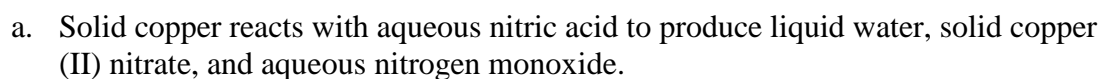
Chemistry Chapter 9 Worksheet

Section 9.1

1. Balance and finish (if needed) the following skeletal equations and then write down ALL the mole ratios for the following equations.



2. Write out the skeletal equation, balance, and finish (if needed) the following equations and then write down ALL the mole ratios for the following equations.



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6. Iron (II) nitrate reacts with copper (III) oxide to produce Iron (II) oxide and copper (III) nitrate.
- a. How many particles of Iron (II) oxide are produced from 4567 g copper (III) oxide?
- b. How many grams of Iron (II) oxide are produced from 9.3×10^{22} particles of Iron (II) nitrate?
- c. How many particles of Iron (II) oxide are produced from 2.55×10^{25} particles of copper (III) oxide?
7. How many grams of NaCl will be produced when 9.6 moles of sodium reacts completely with chlorine gas?

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12. How many moles of hydrogen gas are produced by decomposing 15 moles of water?

13. Aqueous sodium chloride reacts and silver nitrate react to produce aqueous sodium nitrate and solid silver chloride.

a. How many grams of sodium chloride are required to produce 15 moles of silver chloride?

b. How many moles of silver nitrate are required to produce 2 moles of silver chloride?

c. How many grams of silver nitrate are produced by 5584 grams of sodium chloride?

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14. How many grams of oxygen gas are produced when 100 grams of water decomposed?

15. How many molecules of mercury (II) sulfate is produced when 5 moles of copper (IV) sulfate reacts with mercury (II) phosphide?

16. How many grams of silver (IV) nitrate are produced when 9.24×10^{24} molecules of silver (IV) phosphate reacts with cobalt (III) nitrate?

17. How many atom of potassium are formed when 45 moles of potassium nitride decomposes?

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Section 9.3

18. Write down the steps to determine the limiting reactant in a reaction.

19. 6 moles of hydrogen gas reacts with 6 moles of oxygen gas to produce water vapor.

a. Which of the molecules is the limiting reactant and which is the excess reactant?

Balanced Equation: _____

20. 6 moles of hydrogen gas reacts with 100 grams of oxygen gas to produce water vapor.

a. Which of the molecules is the limiting reactant and which is the excess reactant?

21. 6.9×10^{24} molecules of hydrogen gas reacts with 150 grams of oxygen gas to produce water vapor.

a. Which of the molecules is the limiting reactant and which is the excess reactant?

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22. 6 moles of hydrogen gas reacts with 6 moles of oxygen gas to produce water vapor.
- How many moles of water vapor can be produced?

23. 6 moles of hydrogen gas reacts with 100 grams of oxygen gas to produce water vapor.
- How many grams of water vapor can be produced?

24. 13 moles of iron (III) oxide reacts with 20 moles of potassium chloride.
- How many grams of potassium oxide can you produce?

- How many grams of excess reactant do you have left over?

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25. 326 grams of Iron (III) Oxide and 2.2 moles of Potassium Nitrate react to produce....

a. Complete and balance the equation

b. Find the limiting and excess reactants

c. Determine how many moles of Iron (III) **product** can be produced

d. Determine how many grams of Potassium **product** can be produced

e. How much Excess reactant is left

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26. 1.56×10^{25} particles of sodium carbonate react with 500 grams of magnesium phosphide react to produce...

a. Complete and balance the equation

b. Find the limiting and excess reactants

c. Determine how many grams of the sodium **product** can be produced

d. Determine how many particles of the magnesium **product** can be produced

e. How much Excess reactant is left

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31. 350 grams of solid manganese (II) oxide is placed in 7.5×10^{24} molecules of aqueous hydrochloric acid to produce solid manganese (II) chloride, chlorine gas, and water.
- If 1.5×10^{24} molecules of chlorine gas are produced, what is the percent yield?

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32. 450 grams of solid scandium (II) synthesizes with 2500 grams of liquid diatomic bromine.
- What is the percent yield of the reaction if 2500 grams of the product is produced?

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33. 1000 grams of magnesium oxide reacts with 400 grams of aluminum in a single replacement reaction.
- What is the percent yield if 600 grams of the aluminum product is produced?