

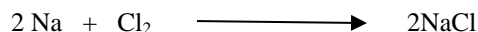
Name: _____

10 Pts.

Chemistry Worksheet: Limiting Reactant Stoichiometry
Show all work with proper Units and Sig Figs

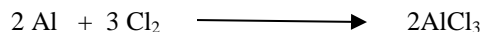
1. Circle the limiting reactant in each scenario:

- a.) A car's wheel uses 5 lug nuts and 1 tire: You have ...
35 lug nuts and 9 tires
120 lug nuts and 20 tires
- b.) A sandwich uses 2 pieces of bread, 1 slice of cheese, 5 pickles and 3 slices of ham. You have ...
20 pieces of bread / 12 slices of cheese / 40 pickles / 36 slices of ham
46 slices of bread / 30 slices of cheese / 200 pickles / 60 slices of ham
- c.) A toy needs 22 washers and 16 bolts. Each washer weighs 1.22 grams and each bolt weighs 2.00 grams.
61 grams of washers / 80 grams of bolts
150 grams of washers / 150 grams of bolts
- d.) Use this balanced equation to answer the following problems.



- 12 moles Na and 12 moles Cl_2
320 moles Na and 190 moles Cl_2
0.50 moles Na and 0.30 moles Cl_2
0.136 moles Na and 0.090 moles Cl_2

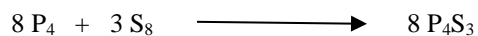
- e.) Use this balanced equation to answer the following problems.



- 6.0 moles Al and 7.5 moles Cl_2
74 moles Al and 60 moles Cl_2
0.0225 moles Al and 0.0200 moles Cl_2
0.45 moles Al and 0.75 moles Cl_2

2. Mole : Mole Limiting Reactant Stoichiometry . You need to find the limiting reactant first.

- a.) Use this balanced equation to answer the following problems.



0.322 moles of P_4 are reacted with 0.250 moles of S_8 . How many moles of P_4S_3 will be formed?

14 moles of P_4 are reacted with 5.0 moles of S_8 . How many moles of P_4S_3 will be formed?

3. Mass : Mass Limiting Reactant Stoichiometry

- 1.) Find moles of each reactant. (Divide by molar mass)
- 2.) Determine which reactant is the limiting reactant.
- 3.) Use the limiting reactant to start the stoichiometry problem with the mole ratio to find moles of asked for product.
- 4.) Convert moles of asked for product to grams. (multiply by molar mass)

a.) For the reaction: $\text{H}_2 + \text{I}_2 \longrightarrow 2 \text{HI}$
120 grams of H_2 are reacted with 12 000 grams of I_2 . How many grams of HI will be produced?

b.) For the reaction: $\text{C}_3\text{H}_8 + 5 \text{O}_2 \longrightarrow 3 \text{CO}_2 + 4 \text{H}_2\text{O}$
260 grams of C_3H_8 are reacted with 980 grams of O_2 . How many grams of CO_2 are formed?

c.) For the reaction: $2 \text{Al} + 3 \text{Cl}_2 \longrightarrow 2 \text{AlCl}_3$
7.22 grams of Al reacts with 22.00 grams of Cl_2 . How many grams of AlCl_3 are produced?

d.) For the UNBALANCED reaction: $\text{C}_2\text{H}_6 + \text{O}_2 \longrightarrow \text{CO}_2 + \text{H}_2\text{O}$
375 grams of C_2H_6 reacts with 900 grams of O_2 . How many grams of H_2O would be produced?