

Steps for Solving Limiting Reactant Problems:

1. Complete and Balance your equation.
2. Calculate the Molar Mass (MM) for all compounds in the reaction.
3. Calculate initial moles (n_i) of all reactants.
4. Determine the Limiting Reactant (LR)
 - a. Ask **THE** Question:

 “If (insert first reactant here) is the LR, how many moles of (insert second reactant here) are needed?”
 - b. Answer the question by converting from moles of the first reactant to moles of the second reactant.
 - c. Compare the amount of moles needed (answer found in b above) to the initial moles of the second reactant (n_i)

 If **$n_i >$ than moles calculated**, then the **second reactant is in excess** and the first reactant is limiting.

 If **$n_i <$ than moles calculated**, then the **second reactant is in limiting** and the first reactant is in excess.
5. Box in the n_i for the LR on the table. All further calculations (Ex. amount of second reactant needed, amounts of products produced, etc.) must start with the n_i of the LR.

The Table below is merely a way to keep all of your information and calculations organized. Fill it in as needed. You still need to show your work.

	A	+	B	→	C	+	D
$g_{initial}$							
MM							
$n_{initial}$							
+n / -n							
n_{final}							
g_{final}							

Example Problems:

1. If 12.5 g of Magnesium reacts with 35.2 g of aluminum chloride, answer the following questions?
- A) What is the limiting reactant? _____
- B) How many grams of each product will be produced? _____
- C) How many grams of the excess reactant will be left over? _____



g_{initial}					
MM					
n_{initial}					
+n / -n					
n_{final}					
g_{final}					

2. If 2.68 g of sodium sulfide reacts with 10.6 g of Copper (I) nitrate, answer the following questions?

- A) What is the limiting reactant? _____
- B) How many grams of each product will be produced? _____
- C) How many grams of the excess reactant will be left over? _____



g_{initial}					
MM					
n_{initial}					
+n / -n					
n_{final}					
g_{final}					

3. If 24.1 g of Sodium Hydroxide reacts with 10.3 g of sulfuric acid, answer the following questions:

- A) What is the limiting reactant? _____
- B) How many grams of each product will be produced? _____
- C) How many grams of the excess reactant will be left over? _____
- D) If this reaction produced 6.84 g of sodium sulfate in the lab, what is the percent yield of the reaction? _____



g_{initial}					
MM					
n_{initial}					
+n / -n					
n_{final}					
g_{final}					

4. If 48.3 g of Propane reacts with 12.7 g of oxygen, answer the following questions:

- A) What is the limiting reactant? _____
- B) How many grams of each product will be produced? _____
- C) How many grams of the excess reactant will be left over? _____



g_{initial}					
MM					
n_{initial}					
+n / -n					
n_{final}					
g_{final}					

5. If 3.42 g of K_2PtCl_4 reacts with 1.61 g of ammonia, answer the following questions:
- A) What is the limiting reactant? _____
 - B) How many grams of each product will be produced? _____
 - C) How many grams of the excess reactant will be left over? _____
 - D) If this reaction produced 1.95 g of $Pt(NH_3)_2Cl_2$ (s) in the lab, what is the percent yield of the reaction? _____



g_{initial}					
MM					
n_{initial}					
+n / -n					
n_{final}					
g_{final}					