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| limiting reactant & percent yield  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues, Weds., &Thurs after school!  After-hours question? Email me at home: [eagenest@madison.k12.wi.us](mailto:eagenest@madison.k12.wi.us) |  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. (Circle answers). You calculate the theoretical yield by converting the amount

of *each* of the **(reactants / products)** into the amount of *just one* of the **(reactants / products).**

1. The reactant that gives the least product is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The formula for finding percent yield is:

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|  | The balanced reaction we used in lab: |  |
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1. Using a periodic table and ***the information above***, fill in these conversion factors:

1 mole of potassium hydroxide = \_\_\_\_ grams

\_\_\_\_ mole of H2SO4 = \_\_\_\_ moles of H2

\_\_\_\_ mole of Al = \_\_\_\_ moles of KAl(SO4)2▪12H2O

1 mole of KAl(SO4)2▪12H2O = \_\_\_\_\_\_\_ grams KAl(SO4)2▪12H2O

1. In a perfect world, if you react 808 moles of H2SO4 in the above reaction how many moles of H­2 will you get?
2. In the real world, Bobby Brown does the above reaction with 808 moles of H2SO4 and he only gets 501 moles of H2. What was Mr. Brown’s % yield?
3. If Mr. Brown tries the experiment again, 123 grams of aluminum and 123 grams of KOH and more than enough of the other reactants,
   1. which will be the limiting reactant?
   2. How many grams of KAl(SO4)2▪12H2O will be his theoretical yield?
   3. If he only gets 208 g of KAl(SO4)2▪12H2O, what was his % yield?
4. Calculate the answer writing both number and correct UNIT.

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|  | The balanced reaction we used in lab: |  |
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1. In a perfect world, if you react 40.8 grams of Al in the above reaction how many moles of KAl(SO4)2▪12H2O will you get?
2. In the real world you attempt the above reaction with 40.8 grams of Al and you only get 680. grams of 40.8 grams of KAl(SO4)2▪12H2O .
   1. What was your % yield?
   2. List three things that might have caused your yield to be so low:
3. If you try the above reaction again, using 3.00 grams of aluminum and 16.5 grams of KOH and more than enough of the other reactants,
   1. which will be the limiting reactant?\*
   2. How many grams of KAl(SO4)2▪12H2O will be your theoretical yield?\*\*

* 1. If you only get 30.6 g of KAl(SO4)2▪12H2O, what was your % yield?

\*Strategy: Try converting grams of the first reactant into grams of product, Then do the same for the second reactant. The limiting reactant will be whichever reactant gives the least product

\*\*Strategy: Do a conversion, using the grams of your limiting reactant as the starting point and trying to finish up in grams of your product.