

Percent Yield Worksheet

- 1) Write the equation for the reaction of iron (III) phosphate with sodium sulfate to make iron (III) sulfate and sodium phosphate.

- 2) If I perform this reaction with 25 grams of iron (III) phosphate and an excess of sodium sulfate, how many grams of iron (III) sulfate can I make?

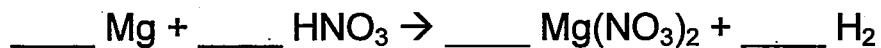
- 3) If 18.5 grams of iron (III) sulfate are actually made when I do this reaction, what is my percent yield?

- 4) Is the answer from problem #3 reasonable? Explain.

- 5) If I do this reaction with 15 grams of sodium sulfate and get a 65.0% yield, how many grams of sodium phosphate will I make?

Percent Yield Calculations

- 1) Balance this equation and state which of the six types of reaction is taking place:



Type of reaction: _____

- 2) If I start this reaction with 40 grams of magnesium and an excess of nitric acid, how many grams of hydrogen gas will I produce?
- 3) If 1.7 grams of hydrogen is actually produced, what was my percent yield of hydrogen?
-

- 4) Balance this equation and state what type of reaction is taking place:



Type of reaction: _____

- 5) If 25 grams of carbon dioxide gas is produced in this reaction, how many grams of sodium hydroxide should be produced?
- 6) If 50 grams of sodium hydroxide are actually produced, what was my percent yield?

Percent Yield Worksheet

- 1) Write the equation for the reaction of iron (III) phosphate with sodium sulfate to make iron (III) sulfate and sodium phosphate.



- 2) If I perform this reaction with 25 grams of iron (III) phosphate and an excess of sodium sulfate, how many grams of iron (III) sulfate can I make?

33 grams

- 3) If 18.5 grams of iron (III) sulfate are actually made when I do this reaction, what is my percent yield?

$$(18.5 / 33) \times 100\% = 56\%$$

- 4) Is the answer from problem #3 reasonable? Explain.

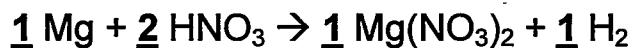
Yes. Any yield under 100% is reasonable under the law of conservation of mass.

- 5) If I do this reaction with 15 grams of sodium sulfate and get a 65.0% yield, how many grams of sodium phosphate will I make?

According to the stoichiometry, the theoretical yield is 11.5 grams. Multiplying this by 0.650, you get 7.48 grams.

Percent Yield Calculation Answers

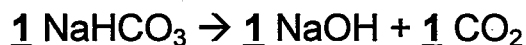
- 1) Balance this equation and state which of the six types of reaction is taking place:



Type of reaction: single displacement

- 2) If I start this reaction with 40 grams of magnesium and an excess of nitric acid, how many grams of hydrogen gas will I produce?
- **3.3 grams** (when Mg atomic mass = 24.3 grams)
- 3) If 1.7 grams of hydrogen is actually produced, what was my percent yield of hydrogen?
- **52%**

-
- 4) Balance this equation and state what type of reaction is taking place:



Type of reaction: decomposition

- 5) If 25 grams of carbon dioxide gas is produced in this reaction, how many grams of sodium hydroxide should be produced?
22.7 grams NaOH
- 6) If 50 grams of sodium hydroxide are actually produced, what was my percent yield?
 $50/22.7 \times 100\% = 220\%$
Hopefully, you understand that this is not a reasonable answer to this question and indicates that something very wrong happened during this reaction.