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QUIZ

Limiting Reagent and Percent Yield

1. Which statements about limiting and excess reagents are **true**? Select all that apply.

A. Any reactant that is not used up during the chemical reaction is called a limiting reagent.

B. Any reactant that is not used up during the chemical reaction is called an excess reagent.

C. The reactant that determines how much product can be formed during a chemical reaction is called the limiting reagent.

D. The reactant that determines how much product can be formed during a chemical reaction is called the excess reagent.

E. The chemical reaction continues after the limiting reagent is used up because some amount of the other reactant remains.

F. The chemical reaction stops after the limiting reagent is used up even though some amount of the other reactant remains.

2. Ammonia (NH_3) is produced according to the given chemical reaction, which follows the law of conservation of mass.

$$2NO(g) + 5H_2(g) \rightarrow 2NH_3(g) + 2H_2O(g)$$

If 45.4 grams of NO and 12.1 grams of H_2 react, what is the largest amount of ammonia that can be formed? The final answer should be reported to one place after the decimal point.

A. 12.1 grams

B. 25.8 grams

C. 40.9 grams

D. 45.4 grams

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3. A reaction produces 14.2 grams of a product. The theoretical yield of that product is 17.1 grams. Which of the statements are **true**? Select all that apply.

A. The percent yield of the product is 14.2%.

B. The percent yield of the product is 17.1%.

C. The percent yield of the product is 83.0%.

D. The percent yield of the product is 120.0%.

E. The actual yield of the product is 14.2 grams.

F. The actual yield of the product is 17.1 grams.

Read the passage and use the equation to answer the next two questions.

A team of metallurgists and chemists is synthesizing copper to be used in wires. The copper is synthesized according to the given reaction, which adheres to the law of conservation of mass.

$Cu_2O(s) + C(s) \rightarrow 2Cu(s) + CO(g)$

To perform this synthesis, the team added 114.2 grams of Cu_2O to 11.1 grams of C to form 87.1 grams of Cu.

4. In this copper synthesis reaction, what is the limiting reagent and the excess reagent?

The limiting reagent is Cu20 and the excess reagent is C.

5. What is the theoretical yield and percent yield of Cu in this reaction?