

LIMITING REACTANTS

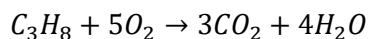
EVIDENCE NOTEBOOK

KEY IDEAS

1. Percent yield formula: $\frac{\text{Actual}}{\text{Theoretical}} \times 100\% = \text{Percent Yield}$

In a lab, a student produces 2.54 grams of 2-methylbutane when 2.86 grams were expected.

- What is the **actual value** that would be used in the formula above?
 - What is the **theoretical value** that would be used in the formula above?
 - What was the student's percent yield? (*Show the work and steps*)
2. Limiting reactants practice problem: For the reaction below, a student combines 1.5 moles of propane with 22.4 moles of oxygen gas and ignites the mixture in a specially designed vessel. If the combustion is complete, what is left in the vessel after the reaction?



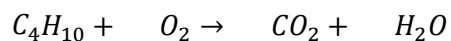
Step 1: Determine the limiting reactant. Which reactant is in excess?

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Step 2: What else will be left over?

CHECKPOINTS

Balance the following equation and then use it for questions 1-3:

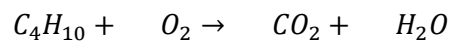


	C	
	H	
	O	

1. A scientist combines 2.3 mol of butane to 18.7 mol oxygen. How many moles are left over for each component of this reaction?

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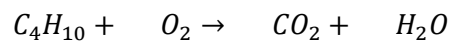
Balance the following equation and then use it for questions 1-3:



2. In a sealed vessel with 16.2 mol of oxygen and an unknown amount of butane in it, the above reaction took place, producing 7.3 mol of carbon dioxide. The vessel had no carbon dioxide at the start of the reaction. How many moles of oxygen would be left in the vessel?

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Balance the following equation and then use it for questions 1-3:



3. A student mixes 3.4 grams of oxygen with 4.5 grams of butane, after they combust.
 - a. What will be leftover? (Answer in grams)

- b. Calculate the percent yield if the student produced 2.5 grams of carbon dioxide in lab.