

STOICHIOMETRY: GRAMS TO GRAMS NOTES

Vocabulary:

Stoichiometry- Greek, "stoeichion" meaning "element," and "metron" meaning "to measure." The process of calculating substance quantities in a reaction using the balanced equation.

Balanced Equation- An equation that upholds mass conservation and equal element counts on both sides of an equation.

Coefficient- a whole number put before a formula in a chemical equation to achieve equilibrium.

Conversion factor- a numeric ratio of equal measurements used to convert quantities between different units.

Moles(mol)- the quantity of an element or compound containing 6.02×10^{23} (Avagadro's number) particles (ex. atoms, ions, etc.) of that element/compound.

Molar (Molecular) Mass-the weight (in grams) of a single mole of particles (atoms, ions, or molecules) of an element/compound.

Steps:

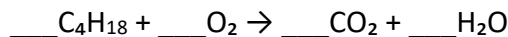
1. _____ the equation
2. Convert grams A given in the problem to _____ by dividing by the _____ from the periodic table.
3. Determine the _____ to _____ ratio between A and B.
4. Convert moles of B to _____ by multiplying the _____ _____ of B.
5. _____ across, _____ bottom.

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Ketzbook's Stoichiometry Tricks Video:

Problem: How many grams of carbon dioxide are produced when 2800 grams of octane are burned in excess air?

1. Balance reaction:



2. Mass of A(C₄H₁₈) given: _____
3. Molar Mass of A(C₄H₁₈): _____
4. Mole to Mole Ratio of A and B _____
5. Molar Mass of B(CO₂): _____
6. Use the given information to solve the problem:

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7. Answer: _____

Practice Problem:

Problem: If 14 grams of H₂ and excess O₂ react to produce water. How many grams of H₂O are produced?

1. Balance the equation:
- $$\underline{\quad} \text{H}_2 + \underline{\quad} \text{O}_2 \rightarrow \underline{\quad} \text{H}_2\text{O}$$
2. Determine mass A: _____
 3. Convert mass A into 1 mol A: _____
 4. Determine the mole-to-mole ratio:
 5. 2 moles C₄H₁₀ require 26 moles O₂
 6. Using the given information to solve the problem:

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7. Answer: _____

Adapted from: Foundation, C.-12. (n.d.). 12 foundation. CK. <https://flexbooks.ck12.org/cbook/ck-12-chemistry-flexbook-2.0/section/12.1/primary/lesson/everyday-stoichiometry-chem/>

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