

Stoichiometry Quiz

Name _____

Perform Stoichiometric Calculations.

Methane (CH₄) is the main component in natural gas, which many families use in their homes. It is highly recommended that homes that use natural gas have installed a carbon monoxide detector. When oxygen levels are low, the combustion of natural gas can produce carbon monoxide, which is poisonous to humans. When oxygen levels are adequate, carbon dioxide is produced.

Using the chemical equation for the combustion of methane, determine how many grams of oxygen would be necessary for the complete combustion of 67.9 grams of CH₄.



1. How many moles are in 78.3 grams of methane gas?

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2. If you have 4.3 moles of oxygen, how many moles of methane will you be able to combust?

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3. Determine how many grams of oxygen would be necessary for the complete combustion of 67.9 grams of CH₄.

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4. Working in the lab you spill 15 mL of $\frac{1.50 \text{ moles}}{1L}$ sulfuric acid(H₂SO₄) on the lab bench. You have been warned that hydrochloric acid is not safe to touch and you know that you need to clean it up. You teacher informs you that sodium hydroxide will neutralize the spill if you use the correct amount. $\frac{1.75 \text{ moles}}{1L}$ NaOH is available in the lab. Using the chemical equation provided, determine the volume of sodium hydroxide necessary to neutralize the spill so that you can clean up.

