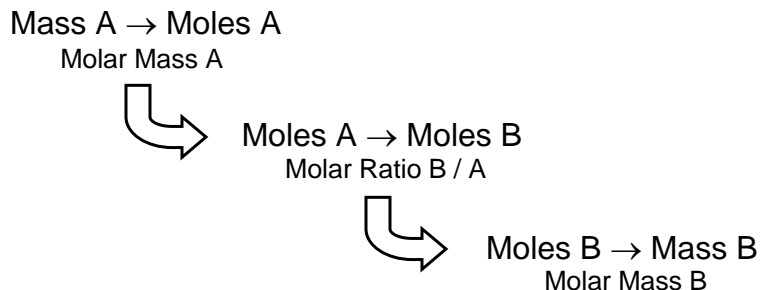


9-2 Stoichiometry

Stoichiometry involving masses:

ALL REACTANTS AND PRODUCTS ARE RELATED BY MOLES!!

Masses must be converted to and from moles using molar masses.

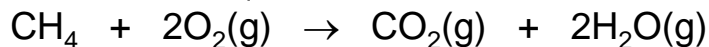


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9-2 Stoichiometry

How many grams of H₂O are produced when 400g of CH₄ is burned?

- 1) Write the balanced equation



- 2) Convert grams of CH₄ into moles (Use molar mass of CH₄)

$$400 \text{ g } \cancel{\text{CH}_4} \left[\frac{1 \text{ mol CH}_4}{16.0 \text{ g } \cancel{\text{CH}_4}} \right] = 25 \text{ mol CH}_4$$

- 3) Relate moles of CH₄ to moles of H₂O (Use molar ratio of H₂O to CH₄)

$$25 \text{ mol } \cancel{\text{CH}_4} \left[\frac{2 \text{ mol H}_2\text{O}}{1 \text{ mol } \cancel{\text{CH}_4}} \right] = 50 \text{ mol H}_2\text{O}$$

- 4) Convert moles of H₂O into grams (Use molar mass of H₂O)

$$50 \text{ mol } \cancel{\text{H}_2\text{O}} \left[\frac{18.0 \text{ g H}_2\text{O}}{1 \text{ mol } \cancel{\text{H}_2\text{O}}} \right] = 900 \text{ g H}_2\text{O}$$

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