

Introduction for Module 5 – Limiting Reactants

Textbook: [Open Stax Chemistry 2e](#)

Suggested Reading: [Chapter 4.4](#)

Learning Objectives:

- **Explain the concepts of theoretical yield and limiting reactants/reagents.**
- **Derive the theoretical yield for a reaction under specified conditions.**

Captions and Attributions:

- 1) Chemical reactions are like recipes. When we have more of one ingredient than we need, we are left with excess, and the ingredient we run out of first is the limiting reactant and will determine stoichiometry. [Figure 4.13 Sandwich making can illustrate the concepts of limiting and excess reactants](#) by [Open Stax](#) is licensed under [CC BY 4.0](#).
- 2) In this example, we run out of Cl_2 before H_2 , and therefore chlorine (Cl_2) is the limiting reactant. [Figure 4.14 When \$\text{H}_2\$ and \$\text{Cl}_2\$ are combined in nonstoichiometric amounts](#) by [Open Stax](#) is licensed under [CC BY 4.0](#).



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