

## Calorimetry and Enthalpy Learning Objectives

At the end of this chapter you should be able to...

- Describe the standard reference state for thermodynamics.
- Use Hess's Law to determine enthalpies of reactions from other measured reactions.
- Use standard enthalpies of formation to determine enthalpies of processes.
- Use tabulated formation enthalpies and heat capacities to calculate reaction enthalpies under non-standard temperature conditions.
- Describe enthalpies of chemical reactions using bond enthalpies.
- Describe the working principles and assumptions for constant pressure and constant volume calorimetry.
- Determine reaction enthalpies and internal energy changes using calorimetry data.
- Relate internal energy changes with enthalpy changes for chemical reactions.