

CHAPTER OVERVIEW

6: Chemical Thermodynamics

Thus far we have studied the thermodynamics of gases expanding or contracting. While this is important given how modern engines work, where's the chemistry? It's about time that we examine the thermodynamics of actual chemical reactions and other transformations, such as phase changes. Over the next few chapters we will show how thermodynamics can be used to calculate chemical reaction yields, the freezing temperature of water, and how both the freezing and boiling points of water are changed by salting it. To do so, we first have to define the energies and entropies of actual chemicals. This requires tabulating thermodynamic data on basically all known substances. To this end, you are undoubtedly familiar with calorimetry to measure enthalpy. Gibbs energy can then be derived from enthalpy by measuring the entropy. And in the next section we discuss how to measure entropy.

[6.1: Entropy and the 3rd Law](#)

[6.2: Energy, it's all relative](#)

[6.3: Enthalpy and Gibbs Energy of Formation- Hess's Law examples](#)

[6.4: Chemical reactions and chemical potential](#)

[6.5: Equilibrium Constants](#)

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