

Enthalpy and Hess's Law

(Not "Hiss's Law"—
That's a zoology thing.)

Enthalpy

- In chemistry, the heat involved in a reaction at constant pressure (room pressure) is called enthalpy, H
- Chemists are most interested in ΔH for reactions.

- $\Delta H = H_{\text{products}} - H_{\text{reactants}}$
- ΔH is negative, exothermic
- ΔH is positive, endothermic

Standard Enthalpy

- Standard Enthalpy is what is used most often.
- Standard room pressure, 1 atm
- Standard temperature of 25 °C

ΔH°

Hess's Law

- In a series of reactions, the sum of all the standard enthalpies is the sum for the entire process.
- **Rules for Hess's Law:**
 1. If you have to multiply an entire reaction by a factor, the ΔH also gets multiplied by that amount.
 2. If you reverse a reaction, you change the sign on the ΔH for that reaction.
- (example problems)

Types of problems from this chapter:

1. $q = mC\Delta T$
2. Calorimetry without chemical reactions.
3. Determining endothermic or exothermic processes by ΔH .
4. Hess's Law problems.
5. Combined Hess's Law and calorimetry problems.