

THERMOCHEMISTRY

- Chemical reactions have energy changes associated with them. The changes always refer to the energy of the products minus the energy of the reactants (Δ energy).
- Heat is one form of energy. **Symbol for heat is q.**
- **Units of heat are joules (kg·m²/sec²)**

(calories used by biochemists, nutritionists)

$$1 \text{ calorie} = 4.184 \text{ joules}$$

- If heat measured for a process at constant pressure, and reported per mole of substance in the process, we will call that the **enthalpy change** of the process.

$$\Delta H = \text{joules/mole or kilojoules/mole}$$

Reactions that give off heat are called **exothermic** and have negative ΔH value.

Reactions that absorb heat are called **endothermic** and have positive ΔH value.

- **Enthalpy** can be used with a thermochemical equation to do stoichiometric calculations.
- Thermochemical equations can be added to get new equations and to calculate the enthalpy change of the new equation.