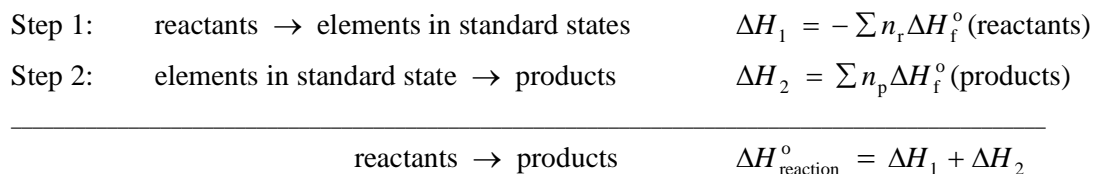


Chapter 7 Review Questions and Text Homework Solutions

Review Questions

8. Hess's law: In going from a particular set of reactants to a particular set of products, the change in enthalpy is the same whether the reaction takes place in one step or in a series of steps (ΔH is path independent). When a reaction is reversed, the sign of ΔH is also reversed but the magnitude is the same. If the coefficients in a balanced reaction are multiplied by a number, the value of ΔH is multiplied by the same number while the sign is unaffected.
9. Standard enthalpy of formation: The change in enthalpy that accompanies the formation of one mole of a compound from its elements with all substances in their standard states. The standard state for a compound has the following conventions:
- gaseous substances are at a pressure of exactly 1 atm.
 - for a pure substance in a condensed state (liquid or solid), the standard state is the pure liquid or solid.
 - for a substance present in solution, the standard state is a concentration of exactly 1 *M*.

The standard state of an element is the form in which the element exists under conditions of 1 atm and 25°C. ΔH_f° values for elements in their standard state are, by definition, equal to zero.



So: $\Delta H_{\text{reaction}}^\circ = \sum n_p \Delta H_f^\circ$ (products) $- \sum n_r \Delta H_f^\circ$ (reactants)

Text Homework

