

Hess's Law and Characteristics of Enthalpy Changes

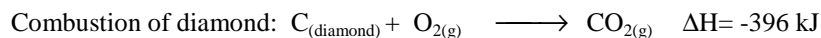
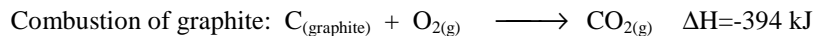
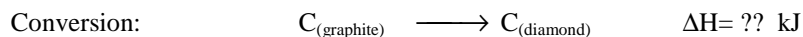
Enthalpy is a state function, independent of the pathway.

Hess's Law: ΔH , change in enthalpy is the same regardless of the step or steps taken to go from reactants to products. Generally requires manipulating and adding several equations together.

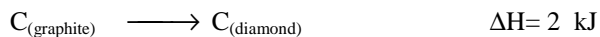
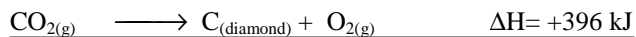
Using Hess's Law to compute enthalpy changes:

- 1.) If the reaction is reversed, the sign is reversed.
- 2.) The value of ΔH is proportional to quantities of reactants and products. For instance, if twice as much is used, then ΔH is doubled.

Ex: Calculate the ΔH for the conversion of graphite into diamond. Given:



Solution: Work Backwards from required reaction. Allow the final reaction to guide you. Trial and Error.



Homework Practice: P.268 #57 – 64, 88, 89, 90, 101