References to Table XII

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Two sets of heats of sublimation for the elements are listed in Table XII. One corresponds to the value at 0°K, and is commonly called the cohesive energy, $\Delta H_0°$. The cohesive energy is discussed in Section 12. The second set of values is the heat of sublimation at 298°K (25°C). This value is more important than the cohesive energy for those involved in making thermodynamic calculations, since almost all thermodynamic data are based on the standard state at 298°K (25°C). As a first approximation $\Delta H_0° \simeq \Delta H_s^{298}$, and for many applications knowledge of one or the other is sufficient. Since there is a difference between the two quantities, both are listed for convenience.

To convert $\Delta H_0°$ to ΔH_s^{298} or vice versa the reviewer made use of the tabulations of $(H_{298}° - H_0°)$ for the solid and for the gas as given by Lewis *et al.*[57] and Stull and Sinke.[53] That is,

$$\Delta H_0° - \Delta H_s^{298} = (H_{298}° - H_0°)_{(s)} - (H_{298}° - H_0°)_{(g)}. \quad (11.1)$$

If either or both values for $(H_{298}° - H_0°)$ were not available, then the reviewer estimated them; data so estimated are identified in Table XII.

Since $\Delta H_s^{298} \simeq \Delta H_0°$, the discussion concerning the periodic variation of this quantity and its relationship to other properties is deferred until Section 12.

Estimated Data. The heats of sublimation at 298°K (25°C) that were not experimentally determined were estimated from the cohesive energies.

[57] G. N. Lewis, M. Randall, K. S. Pitzer, and L. Brewer, "Thermodynamics," 2nd ed. McGraw-Hill, New York, 1961.