

atmospheric pressure. The anneal temperature for the atmospheric pressure runs of the present work was controlled by a different, far less sophisticated system than that used for the ones at high pressure. Consequently, this data is only suitable for comparison with previous work.

In order to obtain a sufficient range of values along isotherms to make a plot of $\log D$ vs pressure (Figure 11), the isobars of Figure 10 were extrapolated graphically. Many of the points included in Figure 11 range beyond the region in which data was actually taken.

In Figure 12 the $\log$ of each diffusion constant is plotted as a function of the ratio of the melting point of lead at the anneal pressure to the anneal temperature. The melting points used are those reported by Butuzov³⁶ and Christensen.³⁷ The pressure calibration used in these two determinations of the lead fusion curve is different than that of the present work; therefore, it was necessary to convert the reported pressure scale to that used in this study.

Calculated activation energies and activation volumes along with other quantities of interest such as melting points and diffusion constants are tabulated in Tables 1 and 2.

Figure 13 shows the pressure calibration³⁸ for the sample geometry used in this study. Included also on this plot are calibration points for the same sample design with the exception of length of the tube heater.

Figure 14 shows calibration phase transitions for Bi, Hg and Yb made in the same sample design and material as the diffusion runs, with the exception that these runs were made at room temperature.