

Measurements were taken over a temperature range 30°C to 400°C and a pressure range of 0-40 Kb. The pressure dependence of the emf was obtained from the raw data, e.g. as shown in Figure 8, using only the data where apparatus friction effects were known. These would correspond to the straight line sections in Figure 8. On the compression curve this gives data to the highest pressures and on the release curve gives data to the lowest pressure. The curves rarely went thru the origin as they should. This was attributed to apparatus friction and/or small spurious emf's in the circuit. This offset from zero was always small except for the chromel. The chromel offsets from 0 emf at 0 pressure could be accounted for by the above mentioned strain effects.

The curves were first displaced so that they went thru the origin. The compression and decompression curves were then corrected for the compression and decompression values of the bismuth transitions. These results were averaged to give the final curve of emf versus pressure at a fixed temperature interval. During the experimental cycle ΔT drifted somewhat. Each individual experimental point was corrected to a constant ΔT before the above data reduction was made.

For all temperature intervals the cold seal was at a temperature above 30°C. Therefore an additional correction to the final curves was made so that they would all correspond to temperature intervals of 30°C \rightarrow T.

In general data was taken at ΔT 's of approximately 75°C, 150°C, 200°C, 275°C, 325°C for each material with about 20 pressure data points at each temperature. We estimate that uncertainty of the data in the piston cylinder experiments to be approximately 5 percent. This results