

than about 0.5% from Sengers' data. However, at the highest pressure, $p = 2463$ atm., the value of argon thermal conductivity is 1.7% greater than the value obtained by Sengers. When this was first noticed it was attributed to absorption of radiation by the carbon dioxide during calibration. The next calibrations were made with argon, thus putting a lower limit on the highest conductivity that could be measured since the maximum pressure for which data is available for argon is 2400 atm. This corresponds to a conductivity of 2.6×10^{-4} cal/cm sec $^{\circ}$ C (23). Subsequent studies as already discussed indicated that absorption of radiation could not have an effect as large as that obtained and the remaining calibrations were made with carbon dioxide. The variation is in the wrong direction to have been caused by convection of the carbon dioxide and argon is well away from the critical Rayleigh number of about 600. Its maximum Rayleigh number is only 15 for the present cell at a ΔT of 1 $^{\circ}$ C. Sengers did not state the purity of the argon used other than that it was spectroscopically pure. The argon used in this work was 99.998% pure, and the deviations are again in the wrong direction to have been caused by impurities. The variation can, however, be attributed to a drift in the calibration.

Estimate of Accuracy

The cell as originally modified from Kramer's design had only two steel pins in each end supporting the emitter between the two end insulators (Figure 1). The pairs of pins were set