

the system. All gases were purchased from the Matheson Company and the mixtures were made and analyzed by them. The minimum purities of the gases were specified by the Matheson Company as follows:

Nitrogen, Prepurified Grade	99.996%
Ethane, C. P. Grade	99.0%
Carbon Dioxide (in mixtures), Bone Dry Grade	99.8%
Carbon Dioxide (for calibration), Coleman Grade	99.99%
Argon	99.998%

The compositions of the mixtures were specified to 0.1%, and were accepted without further analysis.

The experimental data, smoothed and interpolated, are presented in Table I. Smoothing and interpolation were accomplished by fitting polynomials in density or pressure over one or two ranges of conductivity (7). The percentage standard error of estimate,

$$S = \left[\sum_{i=0}^n \left(\frac{k_{ci} - k_i}{k_i} \right)^2 / (N - n - 1) \right]^{1/2} \times 100 \quad (5)$$

for each of the ranges is presented with the data.