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THERMOPHYSICAL PROPERTIES

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THERMOPHYSICAL PROPERTIES

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ABSTRACT

Numerous fluids have been identified as promising alternative refrigerants, but much of the information needed to predict their behavior as pure fluids and as components in mixtures does not exist. In particular, reliable thermophysical properties data and models are needed to predict the performance of the new refrigerants in heating and cooling equipment and to design and optimize equipment to be reliable and energy efficient. The objective of this fifteen-month project has been to provide highly accurate, selected thermophysical properties data for Refrigerants 32, 123, 124, and 125, and to use these data to fit equations of state and transport property models. The new data have filled gaps in the existing data sets and resolved problems and uncertainties that existed in and between the data sets.

SCOPE

This project has involved selected measurements of the thermodynamic properties of HFC-32, HCFC-124, and HFC-125, and the development of high-accuracy modified Benedict-Webb-Rubin (MBWR) equations of state for each fluid. It has also included selected measurements of the transport properties of HFC-32 (viscosity and thermal conductivity) and HCFC-123 (thermal conductivity) and the development of detailed correlations for same. The experimental thermodynamic measurements have included, as appropriate, accurate determinations of the pressure-volume-temperature (PVT) behavior in the superheated vapor region; the PVT behavior of the compressed liquid; vapor pressures and saturated liquid densities; the critical temperature, pressure, and density; the vapor-phase speed of sound and the ideal-gas heat capacity; and selected measurements of the liquid-phase heat capacity. The experimental transport measurements have covered one-phase and saturated liquid and vapor states over the temperature range of interest.

SIGNIFICANT RESULTS

HFC-32

The Burnett apparatus has been used in the isochoric mode to determine the PVT relation for the vapor phase (147 data points). Eleven isochores were completed spanning the ranges 268 to 373 K (23 to 212°F) and 0.018 to 1.3 times the critical density (7.5 to 550 kg/m^3; 0.47 to 34.3 lb/ft^3); the highest absolute pressure was 9.7 MPa (1400 psi). Two Burnett expansions were completed at 373 K (212°F) to establish the densities of the isochores. The locations of

the measurements are indicated as a function of pressure and temperature by the filled circles on Figure 1, and as a function of density and pressure by the filled circles on Figure 2. The results of the measurements are given in Appendix A in Table 1; Appendix A includes all tables.

The vibrating tube densimeter has been used to determine the PVT relation for the liquid phase (654 data points). Twenty-one isotherms were completed spanning the ranges 243 to 343 K (-22 to 158°F) and 2000 to 6500 kPa (290 to 940 psi). The locations of the measurements are indicated as a function of pressure and temperature by the open circles on Figure 1, and as a function of density and pressure by the open circles on Figure 2. The results of the measurements are given in Table 2.

An isochoric PVT apparatus has been used to measure the density of liquid HFC-32 at 144 points using the same sample as used in the C_v study (see below). The temperatures ranged from 140 to 396 K (-208 to 253 °F) with pressures to 35 MPa (5000 psi). The locations of the measurements are shown in Figure 3, and the results are presented in Table 3.

The Burnett apparatus has been used to measure the vapor pressure of HFC-32 at 18 temperatures in the range from 268 K (23°F) to the critical temperature at 351.36 K (172.78°F). The results of these measurements are given in Table 4. An ebulliometer has been used to measure the vapor pressure of HFC-32 at low temperatures in the range between 208 and 237 K (-85 and -32°F). The results are tabulated in Table 5. The NIST Burnett and ebulliometric vapor-pressure data for HFC-32 have been correlated and their deviations from the resulting correlation are shown in Figure 4. Also shown in Figure 4 are the HFC-32 data of P.F. Malbrunot, et al. [J. Chem. & Eng. Data **13**, 16 (1968)]. The uncertainties in the NIST measurements are of order 0.05 %.

The saturated vapor and liquid densities have been obtained by extrapolating the Burnett vapor-phase and vibrating-tube liquid-phase PVT data to the vapor pressure curve. The saturated vapor and liquid densities so obtained are given in Tables 6 and 7, respectively.

A static method has been used to perform additional measurements of the vapor pressure of HFC-32. The sample was thermostatted in the PVT cell and two additional oscillating quartz-crystal pressure transducers were used to observe the equilibrium pressures. The two transducers, with maximum pressures of 0.2 MPa (30 psi) and 6 MPa (900 psi), were calibrated versus a gas-lubricated piston gage with an uncertainty of ± 0.01 %. The range of the vapor pressure data is from 140 to 340 K (-208 to 152°F). These results are given in Table 8.

An optical cell has been used to measure the refractive index and capillary rise of HFC-32 from 23°C (73°F) up to the critical temperature. The critical temperature was found to be T_c = (351.36 ± 0.02) K, which corresponds to (172.78 ± 0.04)°F. The refractive index data were combined with the liquid density data to deduce the value 0.1295 cm^3/g for the Lorentz-Lorenz constant. The refractive index data and the Lorentz-Lorenz constant were used to deduce the value ρ_c = (419 ± 7) kg/m^3 [(26.13 ± 0.44) lb/ft^3] for the critical density.

An adiabatic calorimeter has been used to measure the molar heat capacity at constant volume {C_v}for HFC-32. In total, 79 C_v values were measured in the liquid state and 105

values were measured in the vapor + liquid two-phase region. The temperatures ranged from 141 to 342 K (-206 to 156°F), with pressures up to 35 MPa (5000 psi). The measured values are given in Tables 9 through 16 for the liquid phase and in Tables 17 through 19 for the two-phase region. In addition to the temperature-density-pressure (T-ρ-P) state conditions, the tables present estimated uncertainties of the measurements which lead to values of liquid heat capacity, C_v, or heat capacity of the saturated liquid, C_s. These measurements include the amount of sample, N, the calorimeter bomb volume, V_{bomb}, the observed temperature rise, ΔT, the energy absorbed, Q_{tare}, and the heat capacity, dQ_{tare}/dT, of the empty calorimeter bomb, gross heat capacity, $Q/\Delta T$, and the PV work done by the sample to expand the bomb during a heat capacity measurement, $W_{pv,m}$. Figure 5 illustrates the pressures and temperatures covered by this study.

A 32-term MBWR equation of state for HFC-32 has been developed. It is valid at temperatures from the triple point at 137 K (-213 °F) to 400 K (260°F), and it appears to be reasonable upon extrapolation up to 500 K (440°F). The maximum pressure for the equation is 40 MPa (6000 psi), and it appears to be reasonable upon extrapolation up to 100 MPa (15000 psi). This equation was fit using a multiparameter linear least squares routine to the data measured under this contract as well as selected data reported in the literature. Data used in the fit included vapor pressures, saturated liquid and vapor densities, liquid and vapor phase pressure-volume-temperature (PVT) data, virial coefficients, and isochoric heat capacities at saturation and in the single-phase liquid. Table 20 gives the coefficients to the equation of state, and Table 21 tabulates the saturation properties calculated with the equation of state. Figures 6 through 10 compare the values of various properties calculated with the MBWR equation to the experimental values used in the fit. This MBWR equation for HFC-32 will be incorporated into version 4.0 of the REFPROP computer package, which will be released in the coming months; it will be available as an option in addition to the CSDM equation of state for HFC-32.

The low- and high-temperature transient hot-wire thermal conductivity instruments have been used to measure the thermal conductivity of HFC-32 at 1030 points over the region from 160 to 340 K (-167 to 160°F) at pressures to 70 MPa (10,000 psi). The results of the analysis of these 1030 transient hot-wire measurements are given in Table 22. The measurements also have been extended to include two supercritical isotherms at 365 and 380 K (197 and 225°F); however, these measurements may have been affected by corrosion, which became a significant problem at these higher temperatures. A plot of the entire thermal conductivity surface, including the two supercritical isotherms, is provided for reference in Figure 11.

The vapor-phase thermal conductivity of HFC-32 is shown in Figure 12. The isotherms appear to be internally consistent, and a great deal of curvature is visible near the saturation boundary on the 330 K and 340 K isotherms. This curvature is attributed to the thermal conductivity critical enhancement.

The thermal conductivity data have been correlated as described in Appendix B. The fluid-specific information required for this correlation are the MBWR equation of state for HFC-32 described above and the parameters provided in Table 23. Deviations of the values of thermal conductivity calculated from the correlation from the experimental data used in the fit are given in Figure 13. The uncertainty is on the order of ±5 %.

The shear viscosities of compressed and saturated fluid HFC-32 have been measured at temperatures between 150 and 420 K (-190 to 297°F) at pressures to 35 MPa (4400 psi) with two torsionally oscillating, quartz-crystal viscometers. The results are given in Tables 24 and 25, and their dependence on density is illustrated in Figure 14. The saturated liquid data have been correlated using the equation

$$\eta^{-1} = 406.1\ (V - 0.0340),$$

when 17 is the viscosity in mPa-s and V is the molar volume in mol/dm^3. Most of the differences between the experimental and calculated viscosities are less than ± 2 %.

HCFC-124

The Burnett apparatus has been used in the isochoric mode to determine the PVT relation for the vapor phase of HCFC-124 at 172 points. Isochores were completed spanning the range 0.09 to 6 mol/L (0.77 lb/ft^3 to 51 lb/ft^3). The temperature range was 278 to 423 K (41 to 302°F). A Burnett expansion was completed at 423.15 K (302.00°F) to establish the densities of the isochores, and 13 additional data points were acquired during this procedure. The results of these measurements are given in Table 26.

The vibrating tube densimeter has been used to determine the PVT relation for HCFC-124 in the liquid phase. Twenty-two isotherms were completed spanning the ranges 275 to 372 K (-35 to 210°F) and 396 to 6500 kPa (57 to 922 psi). The results of these liquid-phase measurements are given in Table 27.

An isochoric PVT apparatus has been used to measure densities for liquid HCFC-124 at 151 points. The temperatures ranged from 104 to 400 K (-272 - 260°F) with pressures as high as 35 MPa (5000 psi). The pressures, temperatures, and densities are presented in Table 28.

The Burnett apparatus and the ebulliometer have been used to measure the vapor pressure of HCFC-124, and the results are presented in Table 29. The data span the very wide pressure range from 13 to 3163 kPa (1.9 to 458.8 psi) corresponding to the temperature range from 222 to 388 K (-60 to 239°F). The 109 data points were fit with a Wagner-type vapor pressure equation and had an extraordinarily small standard deviation of 0.012 %. The vapor pressure equation was extrapolated to the critical temperature at T_c = 395.43 K (corresponding to 252.10°F) to obtain a value of the critical pressure, P_c = 3617.9 kPa (524.7 psi).

An optical cell has been used to measure the refractive index and capillary rise of HCFC-124 from 23°C (73°F) up to the critical temperature. The critical temperature was found to be T_c = (395.43 ± 0.02) K, which corresponds to (252.10 ± 0.04)°F. The refractive index data were combined with the liquid density data to deduce the value 0.1198 cm^3/g for the Lorentz-Lorenz constant. The refractive index data and the Lorentz-Lorenz constant were used to deduce the value ρ_c = (552 ± 5) kg/m^3 [(34.43 ± 0.31) lb/ft^3] for the critical density.

A cylindrical acoustic resonator has been used to measure the speed of sound in HCFC-124 along isotherms between 250 and 400 K (-9 and 261°F) at pressures between 20 and 900

kPa (3 and 130 psi). The results are given in Table 30. The ideal-gas heat capacity, C_p^o, of HCFC-124 has been obtained by analyzing the speed of sound measurements at low pressures. The results are given in Table 31. The following expressions for C_p^o were obtained by fitting the data in Table 31:

$$C_p^o \text{ (HCFC-124)} = R\,(a_0 + a_1 t + a_2 t^2)$$

where **SI UNITS**

R	=	8.314471 J/K-mol (universal gas constant)
t	=	temperature in °C
a_0	=	11.2398 +/- .0035
a_1	=	2.436×10^{-2} +/- 1.3×10^{-4}
a_2	=	-2.13×10^{-5} +/- 1.3×10^{-6}
$M_{HCFC-124}$	=	0.136477 kg/mol (molar mass)

or **PI UNITS**

R	=	0.004381042 Btu/F-mol (universal gas constant)
t	=	temperature in °F
a_0	=	10.8000 +/- .0042
a_1	=	1.395×10^{-2} +/- 7.7×10^{-5}
a_2	=	-6.57×10^{-6} +/- 4.0×10^{-7}
$M_{HCFC-124}$	=	0.300880 lbm/mol (molar mass)

The second, third, and fourth acoustic virial coefficients - beta, gamma, and delta - have been obtained by analyzing the pressure dependence of the speed of sound. The results are given in Table 32.

An adiabatic calorimeter has been used to measure the molar heat capacity at constant volume {C_v} for HCFC-124. The measurements were carried out in the single-phase-liquid (74 points) and saturated-liquid (132 points) states. Five isochores have been completed. The temperatures ranged from 173 to 345 K (-148 to 161 °F) with pressures to 35 MPa (5000 psi). The measurements are presented for the liquid phase in Tables 33 through 37 and for the two-phase region in Table 38. The temperatures of the saturated liquid ranged from 94 to 343 K (-290 to 158°F).

A 32-term MBWR equation of state for HCFC-124 has been developed. It is valid at temperatures from 210 to 450 K (-82 to 350°F), and it appears to be reasonable upon extrapolation up to 500 K (440°F); the maximum pressure is 20 MPa (3000 psi). The techniques and types of data used in the fit are similar to those for HFC-32 described above. Table 39 gives the coefficients to the equation of state, and Table 40 gives the saturation properties calculated with the equation of state. Figures 15 and 16 compare values of density and vapor pressure calculated with the MBWR equation to the experimental values used in the fit. This MBWR equation should be adequate for all refrigeration calculations involving HCFC-124; however, its predictions may differ slightly from those of the MBWR equation of state that

will be incorporated into version 4.0 of the REFPROP computer package, which will be released in the coming months.

HFC-125

The Burnett apparatus has been used in the isochoric mode to determine the PVT relation for the vapor phase of HFC-125 at 87 points. Isochores were completed at densities up to 2.9 mol/L (21.7 lb/ft^3). The temperature range was 273 to 363 K (32 to 194°F). A Burnett expansion was completed at 363 K (194°F) to establish the densities of the isochores. The results of these measurements are given in Table 41.

The vibrating tube densimeter has been used to determine the PVT relation for HFC-125 in the liquid phase. Fifteen isotherms were completed spanning the ranges 275 to 369 K (36 to 205°F) and 1500 to 6200 kPa (230 to 900 psi). The results of these liquid-phase measurements are given in Table 42.

An isochoric PVT apparatus has been used to measure the density of liquid HFC-125 at 87 liquid-state conditions. The measured temperatures ranged from 174 to 398 K (-146 to 257°F) with pressures up to 35 MPa (5000 psi). The results are presented in Table 43.

The Burnett apparatus and the glass ebulliometer have been used to measure the vapor pressure of HFC-125 at 68 points, given in Table 44. The data span the very wide pressure range from 77 to 3313 kPa (1.9 to 458.8 psi) corresponding to the temperature range from 218 to 335 K (-60 to 239°F). The data were fit with a Wagner-type vapor pressure equation and had a standard deviation of 0.009% . The vapor pressure equation was extrapolated to the critical temperature at T_c = 339.33 K (151.11 °F) to obtain a value of the critical pressure, P_c = 3628.6 kPa (525.1 psi).

A static method has been employed to measure the vapor pressure of HFC-125 at 37 temperatures ranging from 175 to 335 K (-145 to 143°F). The results are given in Table 45.

An optical cell has been used to measure the refractive index and capillary rise of HFC-125 from 23°C (73 °F) up to the critical temperature. The critical temperature was found to be T_c = (339.33 ± 0.02) K, which corresponds to (151.11 ± 0.04)°F. The refractive index data were combined with the liquid density data to deduce the value 0.0984 cm^3/g for the Lorentz-Lorenz constant. The refractive index data and the Lorentz-Lorenz constant were used to deduce the value ρ_c = (565 ± 9) kg/m^3 [(35.24 ± 0.56) lb/ft^3] for the critical density.

A cylindrical acoustic resonator has been used to measure the speed of sound in HFC-125 [or more precisely, in a mixture of HFC-125 with a small amount of CFC-115 as an impurity] along isotherms between 240 and 380 K (-27.1 and 224.3°F) at pressures up to 1 MPa (145 psi) or 80% of the vapor pressure, whichever is less. The results are given in Table 46. The gas heat capacity, C_p^o, of HFC-125 was obtained by analyzing the speed of sound measurements at low pressures and is given in Table 47. The following expressions for C_p^o were obtained by fitting the data in Table 47:

$$C_p^o \text{ (HFC-125)} = R\,(a_0 + a_1 t + a_2 t^2)$$

where **SI UNITS**

R	=	8.314471 J/K-mol (universal gas constant)
t	=	temperature in °C
a_0	=	10.7661 +/- 0.0075
a_1	=	0.02362 +/- 2.7×10^{-4}
a_2	=	-1.42×10^{-5} +/- 2.7×10^{-6}
$M_{HFC-125}$	=	0.120022 kg/mol (molar mass)

or **PI UNITS**

R	=	0.004381042 Btu/F-mol (universal gas constant)
t	=	temperature in °F
a_0	=	10.3417 +/- 0.0089
a_1	=	0.01313 +/- 1.5×10^{-4}
a_2	=	-4.38×10^{-6} +/- 8.3×10^{-7}
$M_{HFC-125}$	=	0.264603 lbm/mol (molar mass)

The second, third, and fourth acoustic virial coefficients - beta, gamma, and delta - have been obtained from the pressure dependence of the speed of sound and are given in Table 48.

An adiabatic calorimeter has been used to measure molar heat capacity at constant volume {C_v} for HFC-125. In total, 120 C_v values were measured in the liquid state and 100 values were measured in the vapor + liquid two-phase region. The temperatures ranged from 176 to 342 K (-143 to 156°F) with pressures to 35 MPa (5000 psi). The measured values are given in Tables 49 through 55 for the liquid phase and Tables 56 through 62 for the two-phase region.

A 32-term MBWR equation of state for HFC-125 has been developed. It is valid at temperatures from 200 to 400 K (-100 to 260°F), and it appears to be reasonable upon extrapolation up to 500 K (440°F); the maximum pressure is 20 MPa (3000 psi). The techniques and types of data used in the fit are similar to those for HFC-32 described above. Table 63 gives the coefficients to the equation of state, and Table 64 gives the saturation properties calculated with the equation of state. Figures 17 through 21 compare the values of various properties calculated with the MBWR equation to the experimental values used in the fit. This MBWR equation should be adequate for all refrigeration calculations involving HFC-125; however, its predictions may differ slightly from those of the MBWR equation of state that will be incorporated into version 4.0 of the REFPROP computer package, which will be released in the coming months.

HCFC-123

An isochoric PVT apparatus has been used to measure the density of liquid HCFC-123 at 105 points. The temperatures ranged from 176 to 380 K (-143 to 224°F) with pressures to 35 MPa (5000 psi). The pressures, temperatures, and densities are presented in Table 65.

An adiabatic calorimeter has been used to measure the molar heat capacity at constant volume {C_v} for HCFC-123. The measurements were carried out in the single-phase-liquid (79 points) and saturated-liquid (92 points) states. Six isochores have been completed. The temperatures ranged from 167 to 341 K (-159 to 155 °F) with pressures up to 35 MPa (5000 psi). These measurements are presented in Tables 66 through 71 for the liquid phase and in Tables 72 and 73 for the two-phase region.

The existing MBWR equation of state for HCFC-123 has been revised and considerably improved using the recently measured data. This work was prompted by an evaluation of equations of state for HFC-134a and HCFC-123 carried out by Annex 18 of the International Energy Agency. Preliminary results of this comparison revealed weaknesses in some of the derived properties (specifically, speed of sound and heat capacity) for our previous HCFC-123 MBWR fit. The revised equation is accurate for all thermodynamic properties from just above the triple point to about 550 K (530°F) and at pressures up to 40 MPa (6000 psi). The techniques and types of data used in the fit are similar to those for HFC-32 described above. Table 74 gives the coefficients to the equation of state. This MBWR equation for HCFC-123 will be used in version 4.0 of the REFPROP computer package, which will be released in the coming months; it will be available as an option to the CSDM equation of state for HCFC-123.

The low- and high-temperature transient hot-wire thermal conductivity instruments have been used to measure the thermal conductivity of HCFC-123 at 1618 points. Liquid-phase data have been obtained in the temperature range from 180 to 440 K (-136 to 332°F) at pressures from the saturated vapor pressure to 70 MPa (10000 psi). Vapor-phase data have been obtained from 290 to 449 K (62 to 332°F). Supercritical data have been obtained at 480 K (405°F). The results of the analysis of these 1618 transient hot-wire measurements are given in Table 75. A plot of the entire thermal conductivity surface is provided for reference in Figure 22. The vapor-phase thermal conductivity of HCFC-123 is shown in Figure 23. It appears to be quite consistent with the supercritical isotherm.

The thermal conductivity data have been correlated as described in Appendix B. The fluid-specific information required for this correlation are the MBWR equation of state for HCFC-123 described above and the parameters provided in Table 76. Deviations of the values of thermal conductivity calculated from the correlation from the experimental data used in the fit are given in Figure 24. The deviations are generally less than ± 5 % .

COMPLIANCE WITH AGREEMENT

NIST has complied with all terms of the grant agreement modulo small shifts in the estimated level of effort from one property and/or fluid to another.

PRINCIPAL INVESTIGATOR EFFORT

Dr. Richard F. Kayser is the NIST Principal Investigator for the MCLR program. During the fifteen months of this project, Dr. Kayser devoted approximately four weeks to monitoring and reviewing the research, and preparing the quarterly and final report. The project involves multiple researchers and capabilities in Gaithersburg, MD and Boulder, CO.

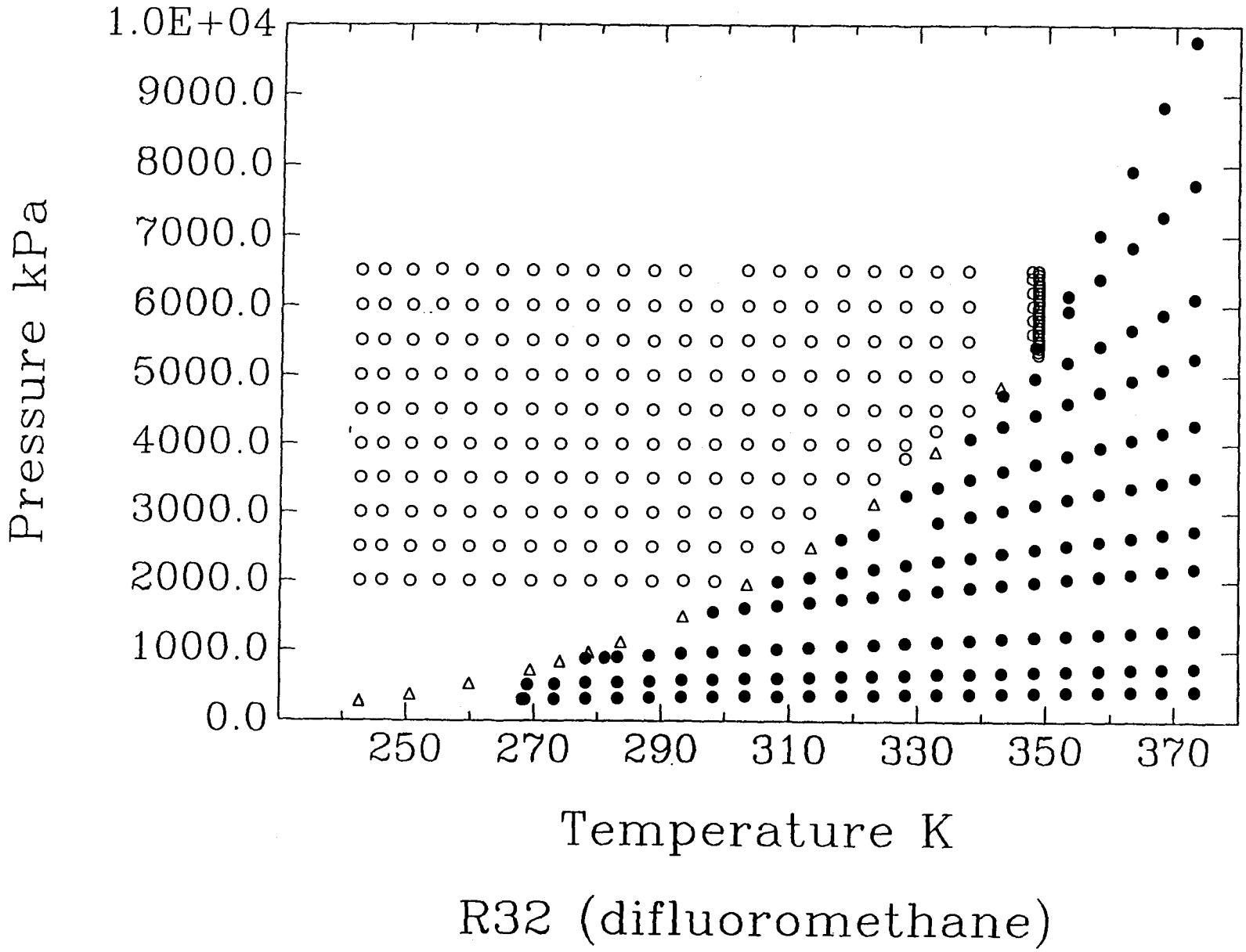

Figure 1. The locations as a function of pressure and temperature of the 147 vapor-phase densities obtained for HFC-32 using the Burnett apparatus (filled circles) and the 654 liquid-phase densities obtained using the vibrating-tube densimeter (open circles); the triangles represent the density of the saturated liquid.

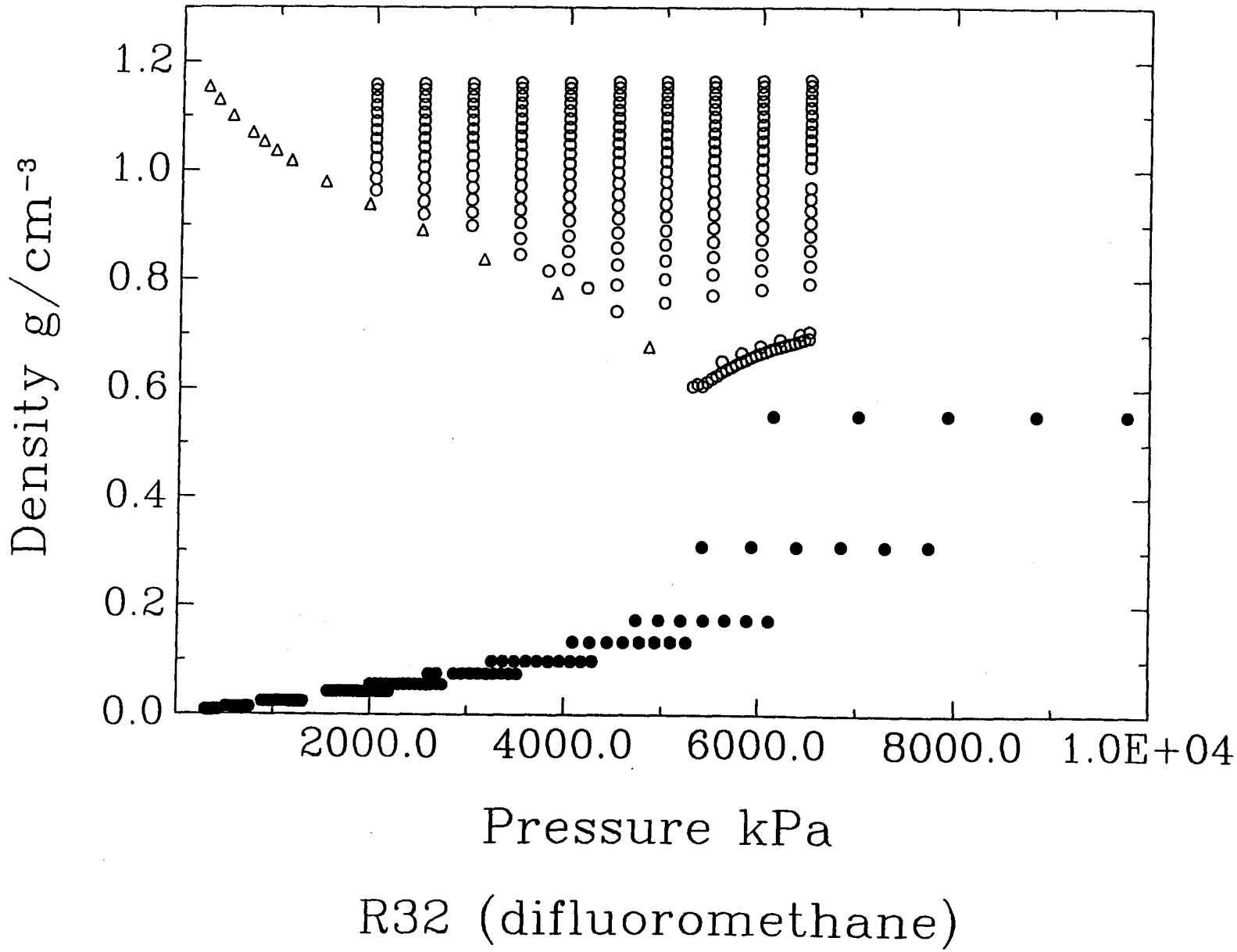

Figure 2. The locations as a function of density and pressure of the 147 vapor-phase densities obtained for HFC-32 using the Burnett apparatus (filled circles) and the 654 liquid-phase densities obtained using the vibrating-tube densimeter (open circles); the triangles represent the density of the saturated liquid.

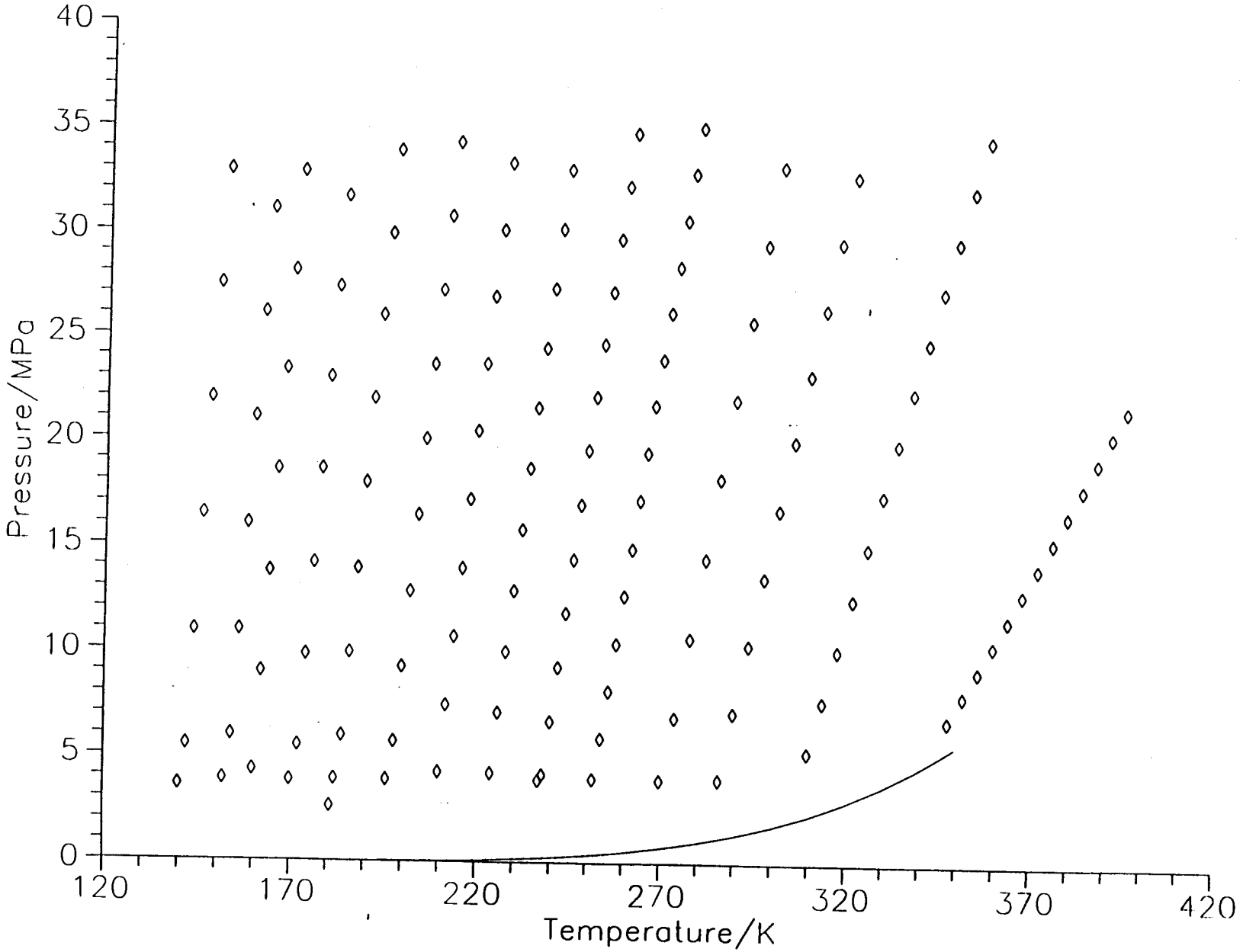

Figure 3. Range of measured temperatures and pressures for isochoric PVT study of HFC-32.

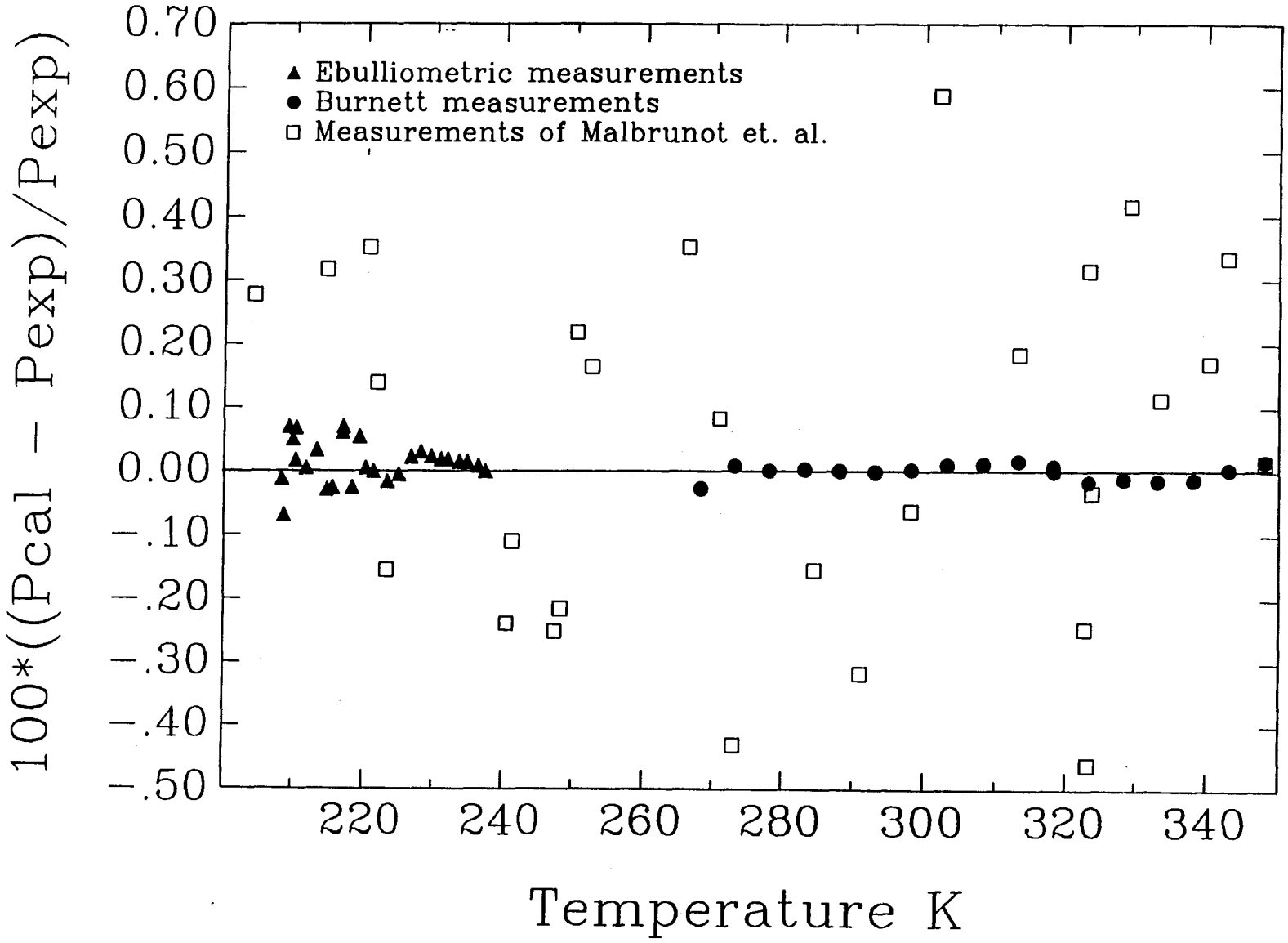

Figure 4. Deviations of HFC-32 vapor pressure data from a correlation of the Burnett and ebulliometric vapor pressure data obtained at NIST. The open squares denote the data of P.F. Malbrunot, et al., 1. Chem. & Eng. Data **13**, 16 (1968).

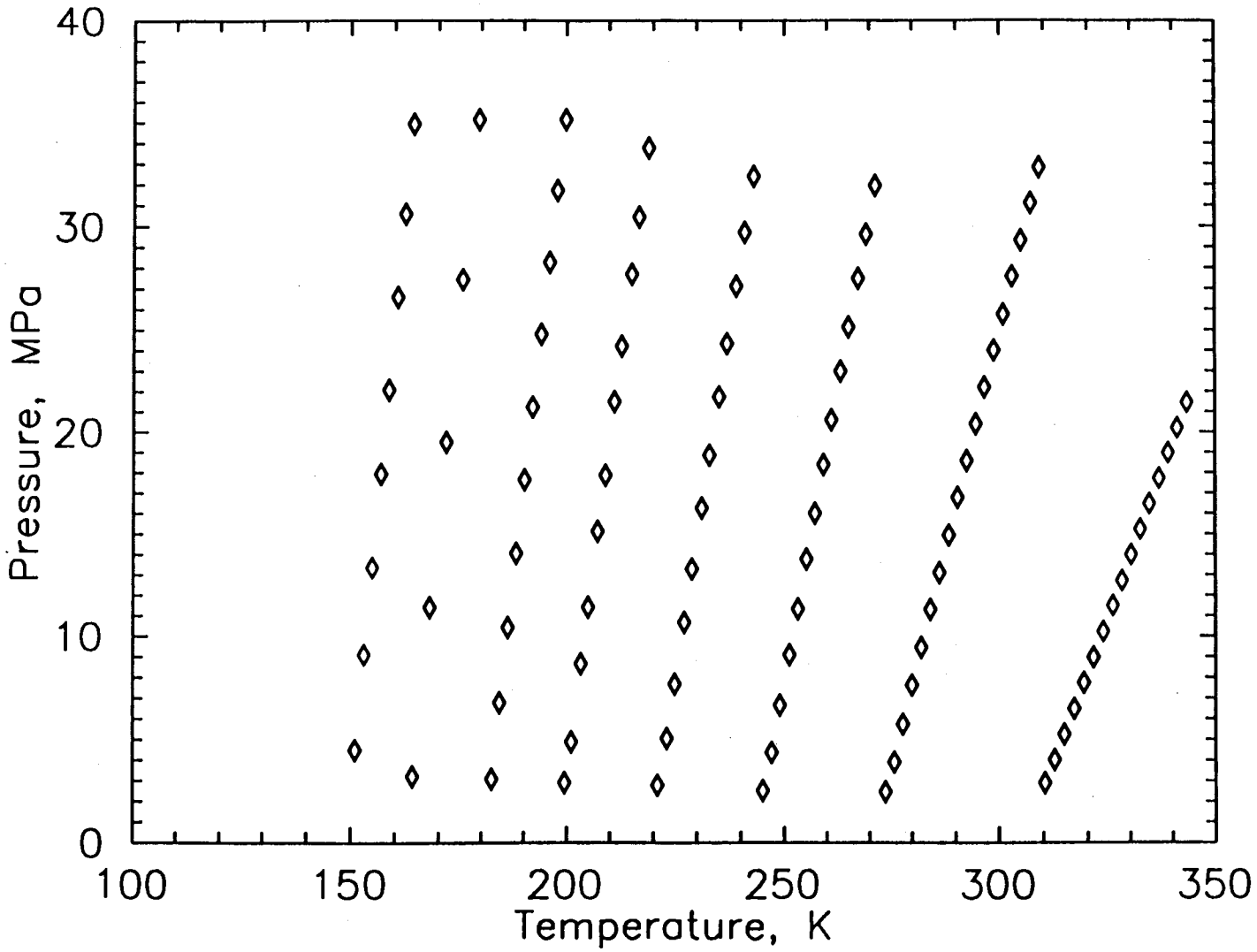

Figure 5. Range of measured temperatures and pressures for C_v study of HFC-32.

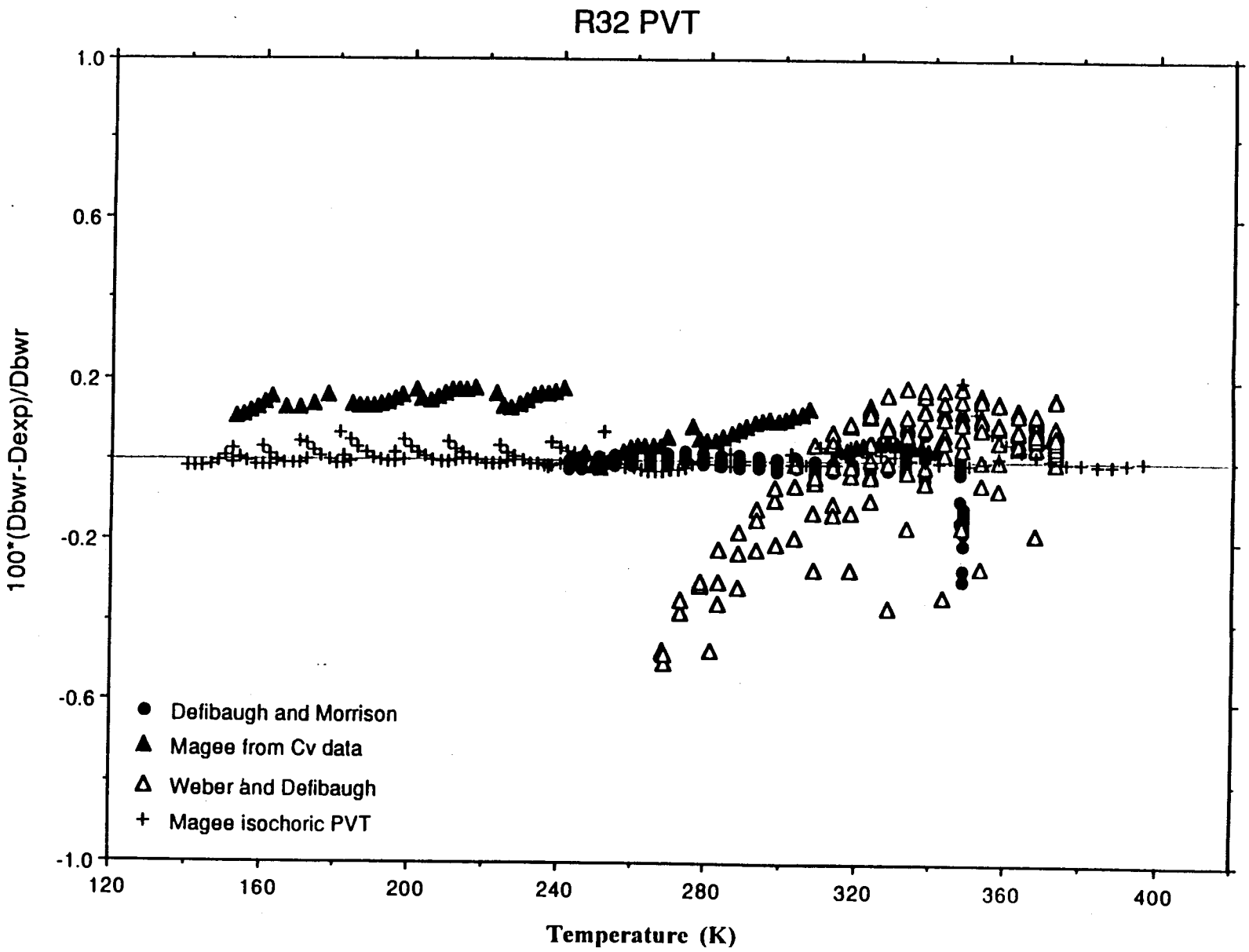

Figure 6. Deviations of the values of density calculated from the MBWR equation of state for HFC-32 from experimental data used in the fit.

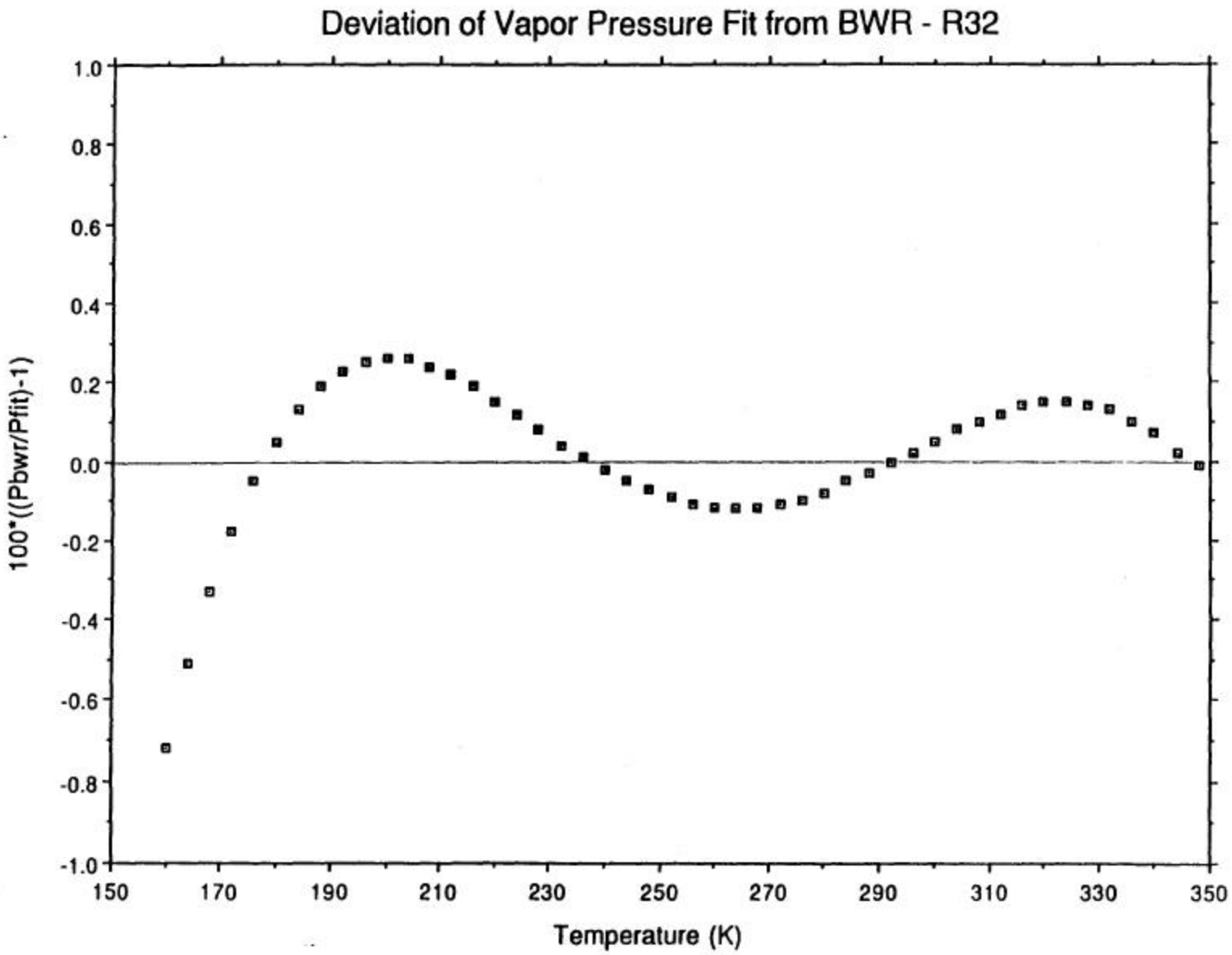

Figure 7. Deviations of the values of vapor pressure calculated from the MBWR equation of state for HFC-32 from a correlation of the experimental vapor pressure data used in the fit.

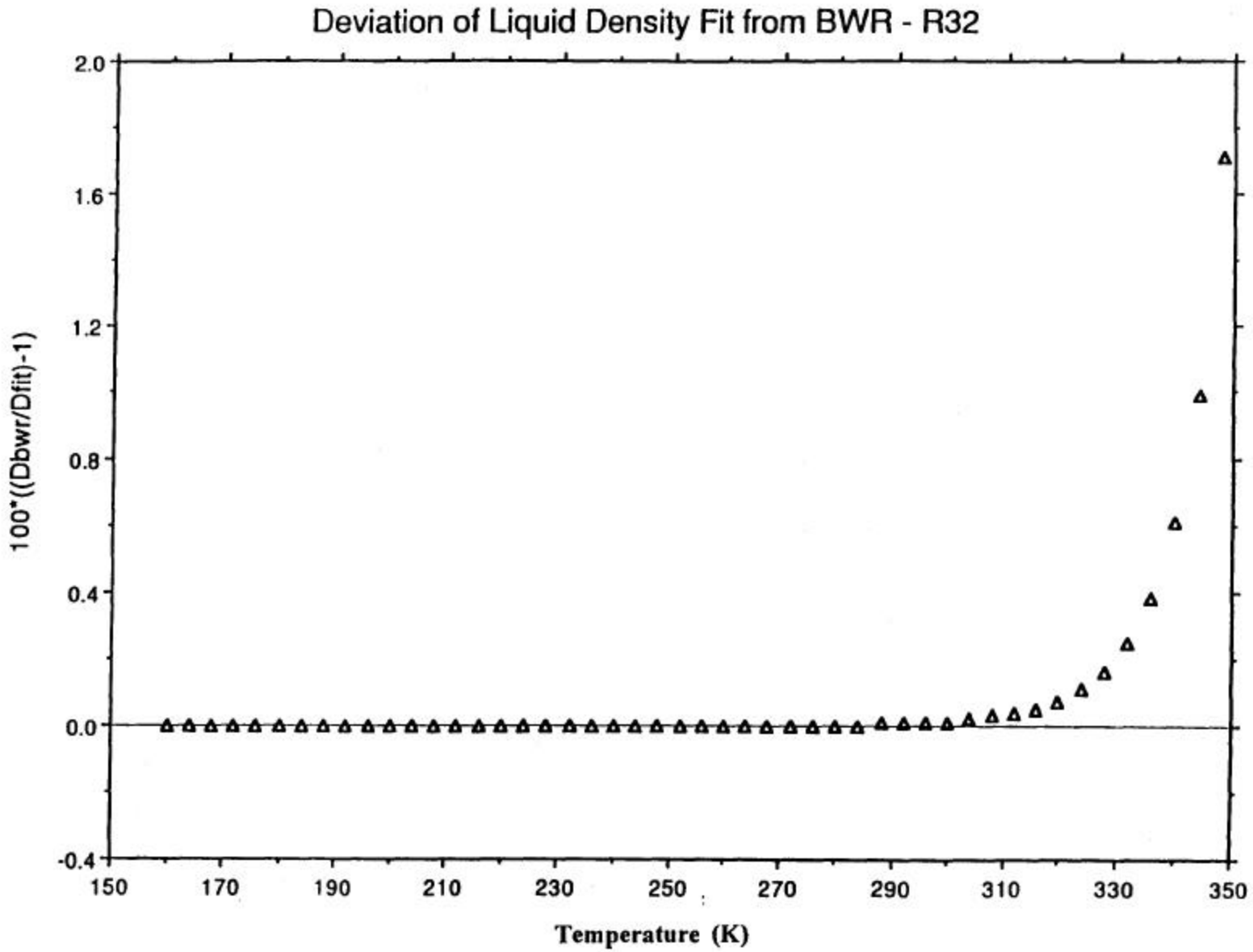

Figure 8. Deviations of the values of saturated-liquid density calculated from the MBWR equation of state for HFC-32 from a correlation of the experimental values of saturated liquid density used in the fit.

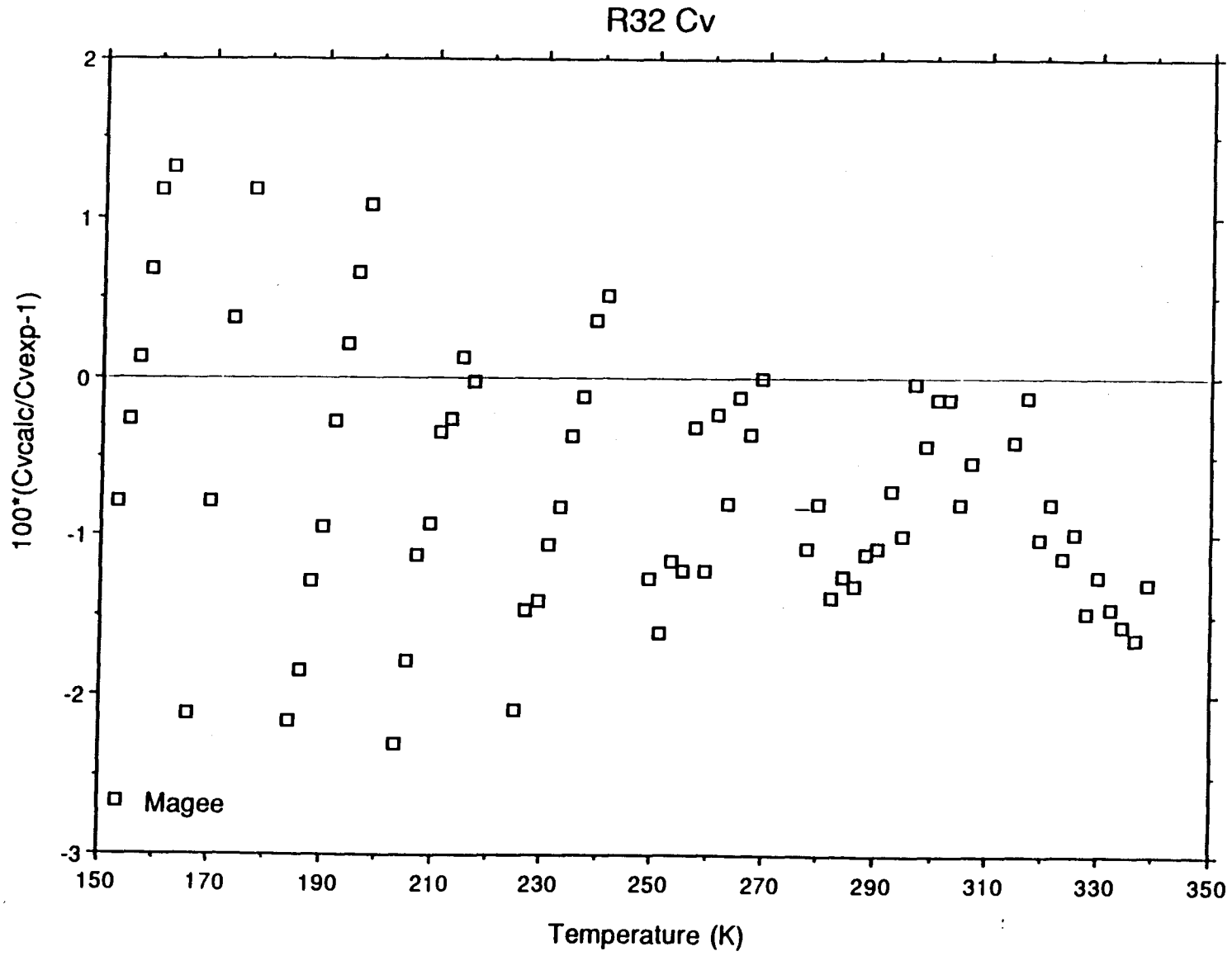

Figure 9. Deviations of the values of single-phase-liquid isochoric heat capacity calculated from the MBWR equation of state for HFC-32 from experimental data used in the fit.

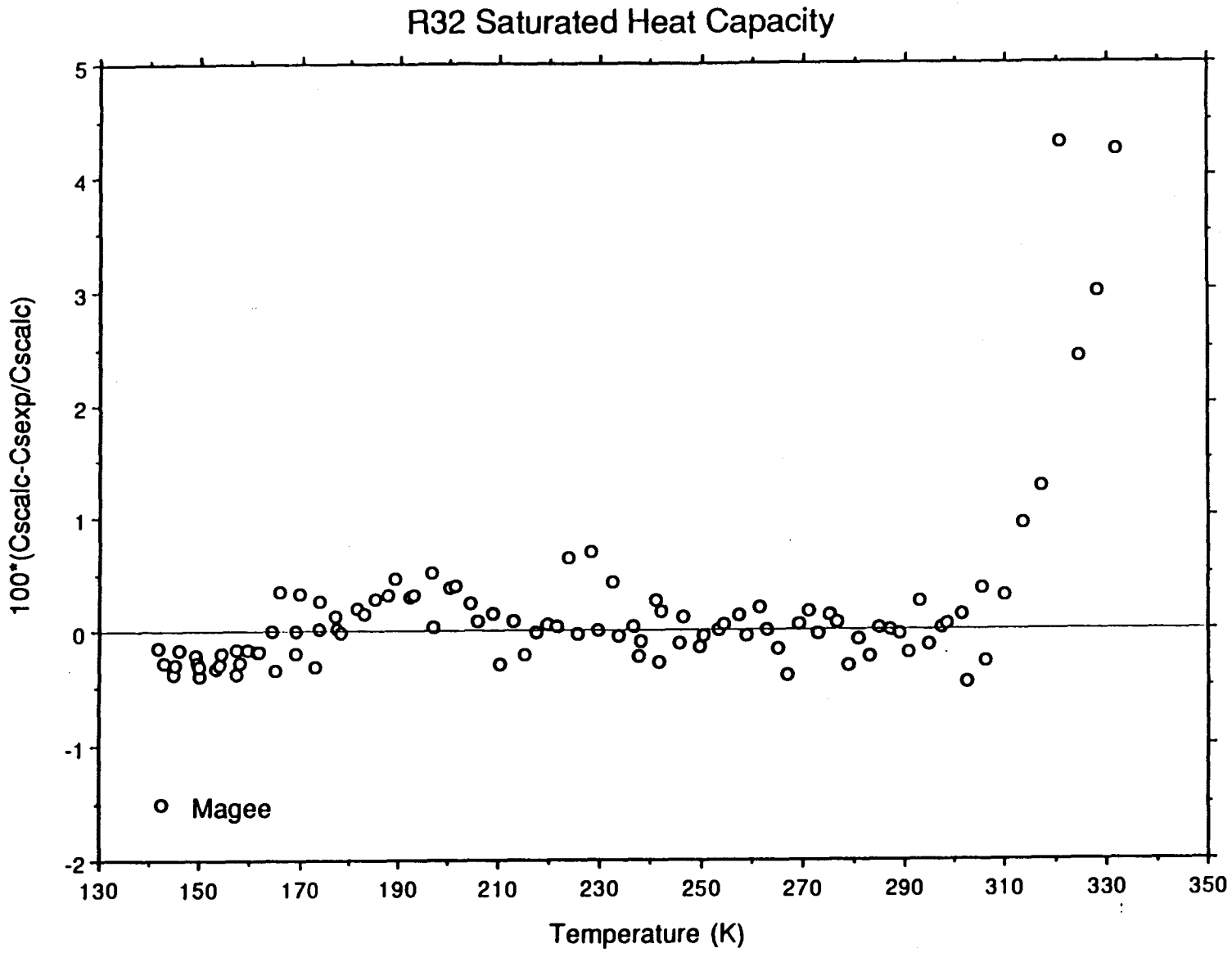

Figure 10. Deviations of the values of saturated-liquid isochoric heat capacity calculated from the MBWR equation of state for HFC-32 from experimental data used in the fit.

R32 Thermal Conductivity Data

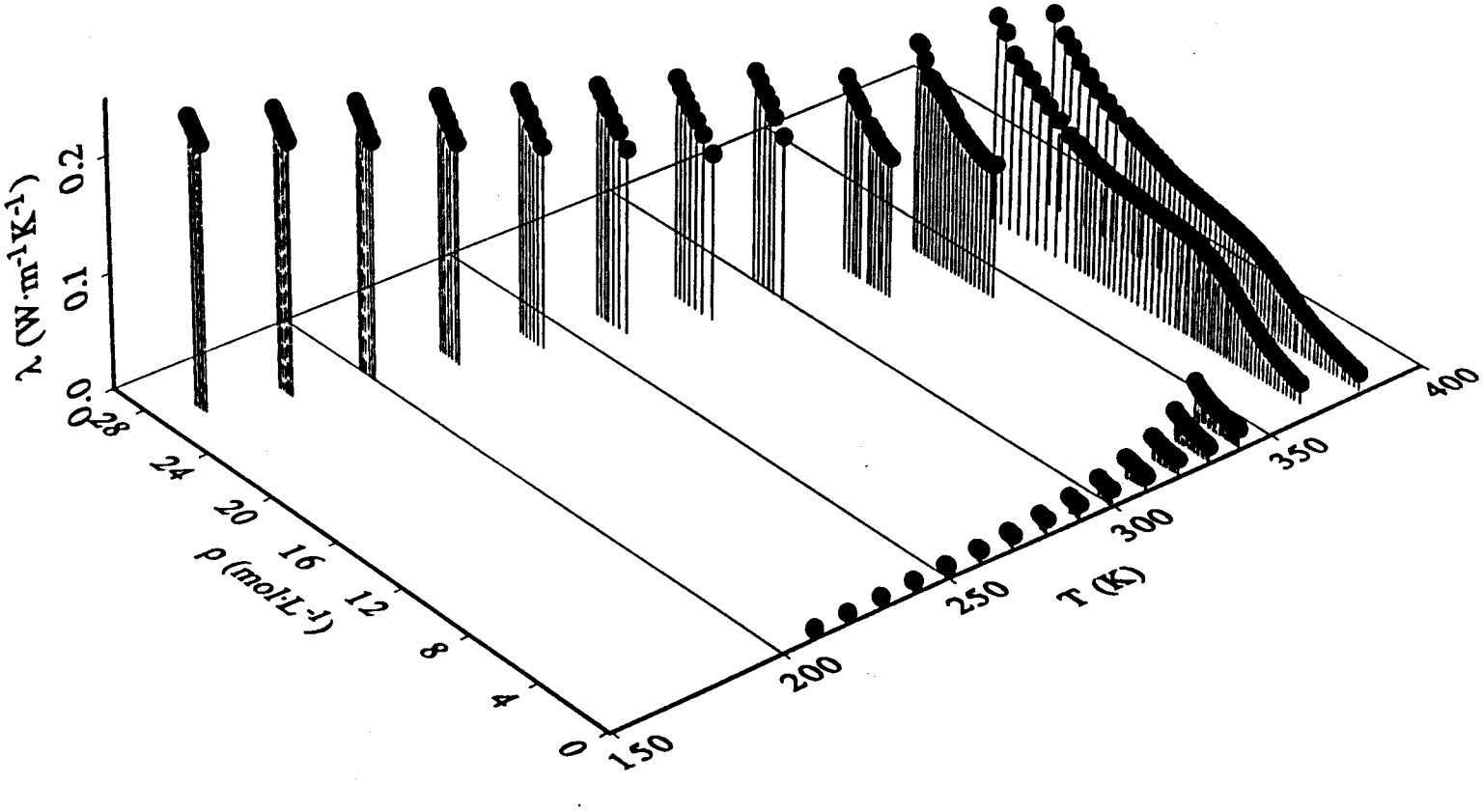

Figure 11. Thermal conductivity surface for HFC-32.

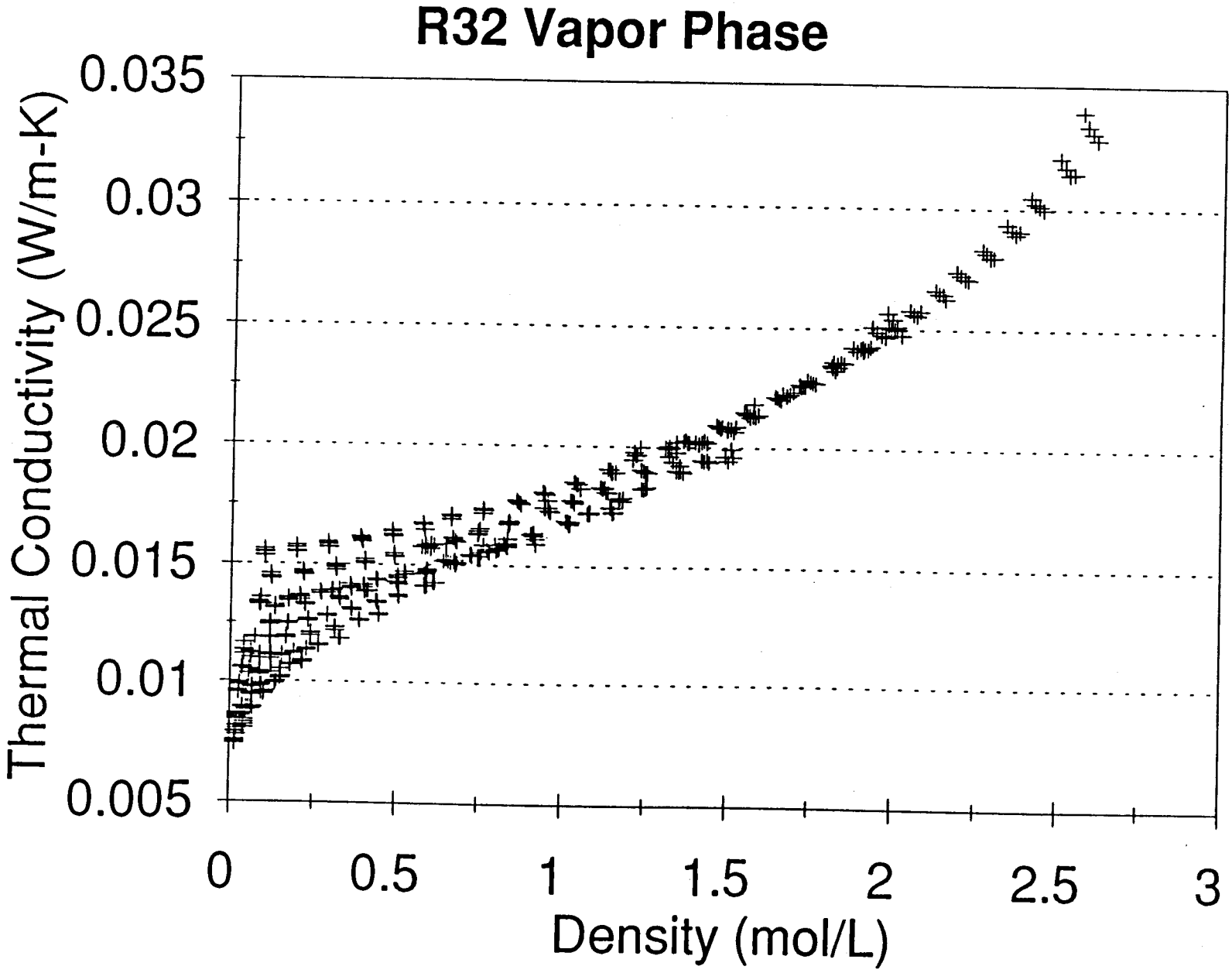

Figure 12. Vapor-phase thermal conductivity of HFC-32.

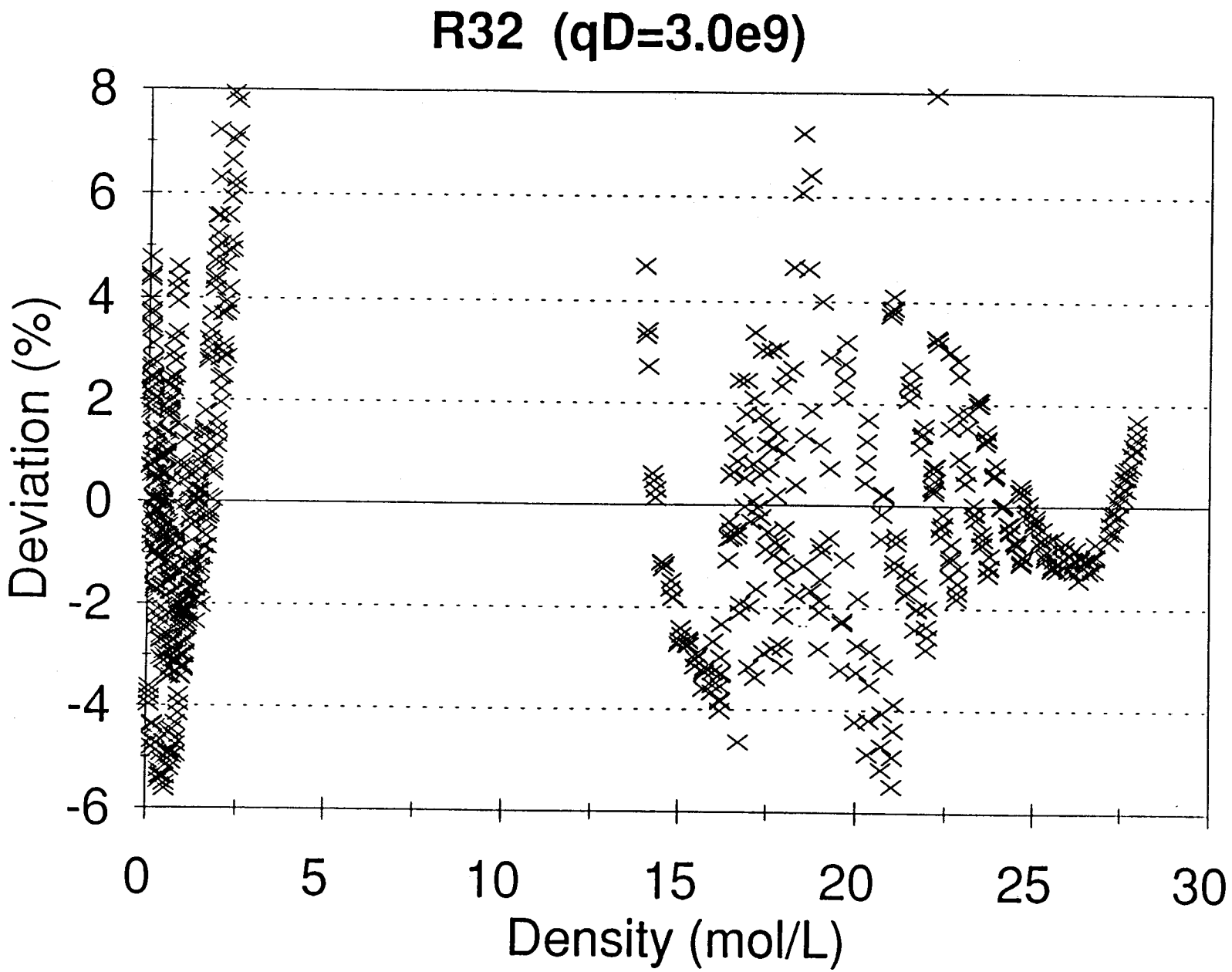

Figure 13. Deviations of the values of thermal conductivity calculated from the thermal conductivity correlation for HFC-32 from experimental data used in the fit.

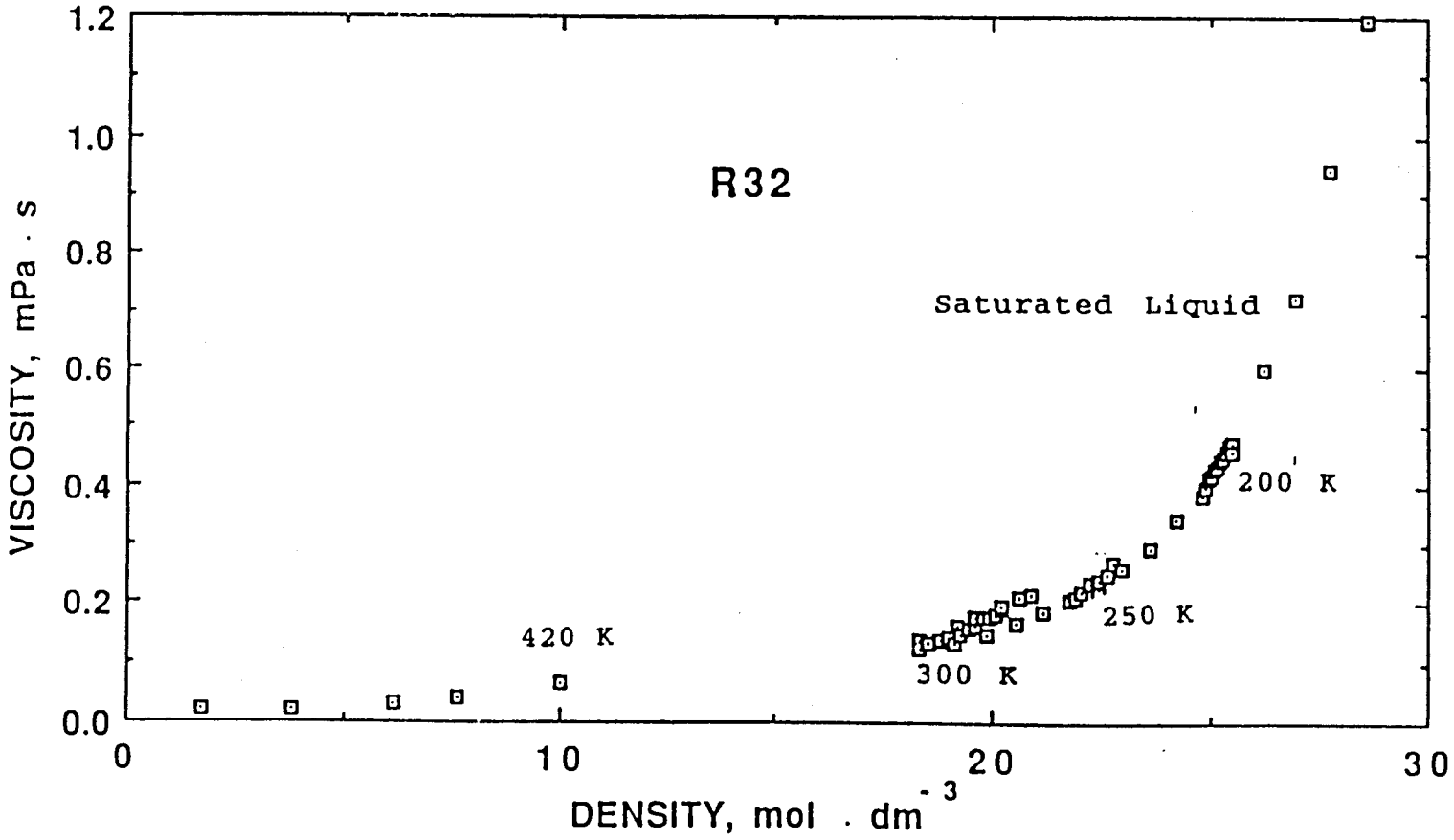

Figure 14. Dependence of the viscosity of saturated and compressed fluid HFC-32 on density.

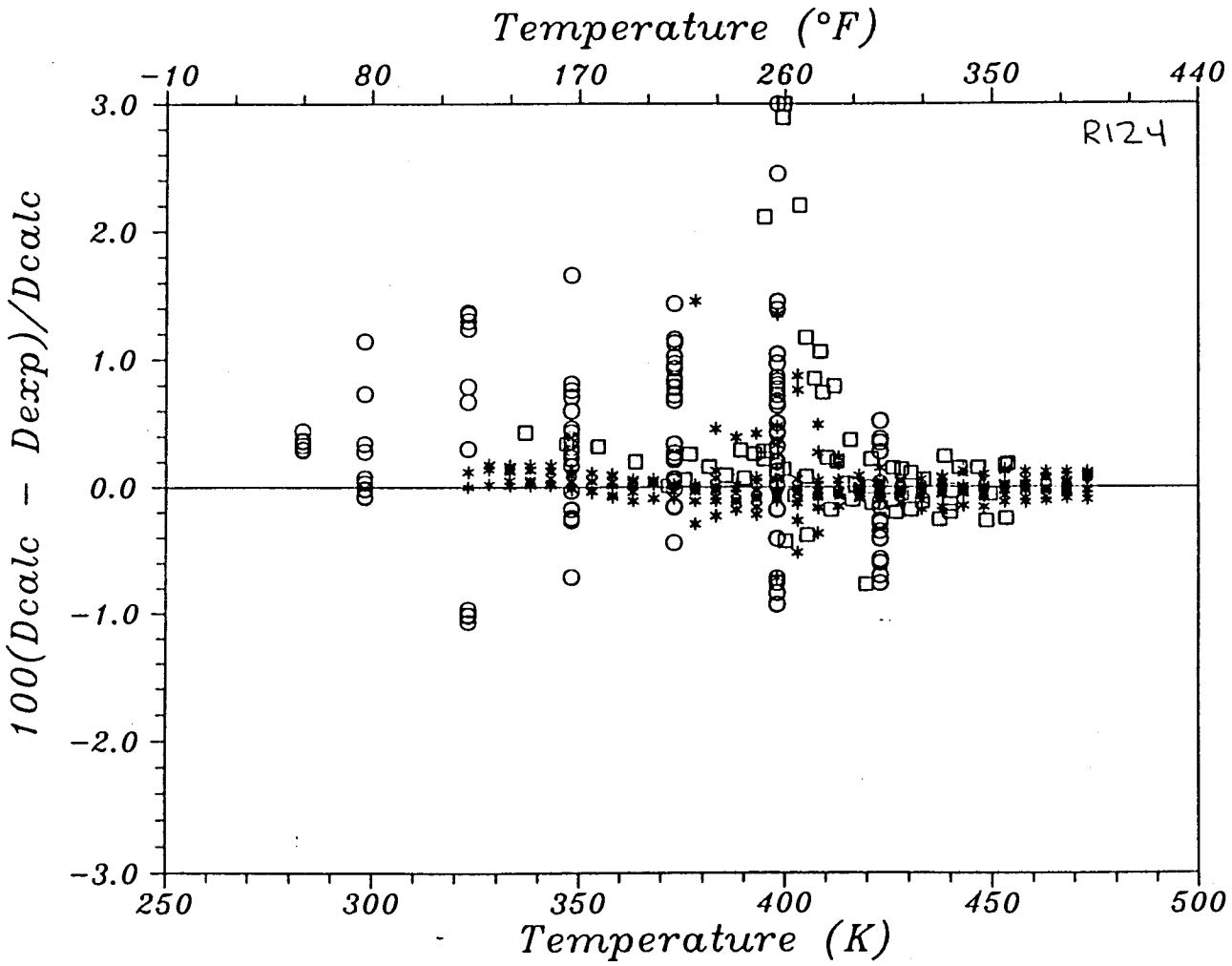

Figure 15. Deviations of the values of density calculated from the MBWR equation of state for HCFC-124 from the experimental densities of Sandarusi (*), Kubota (circles), and Shankland (squares).

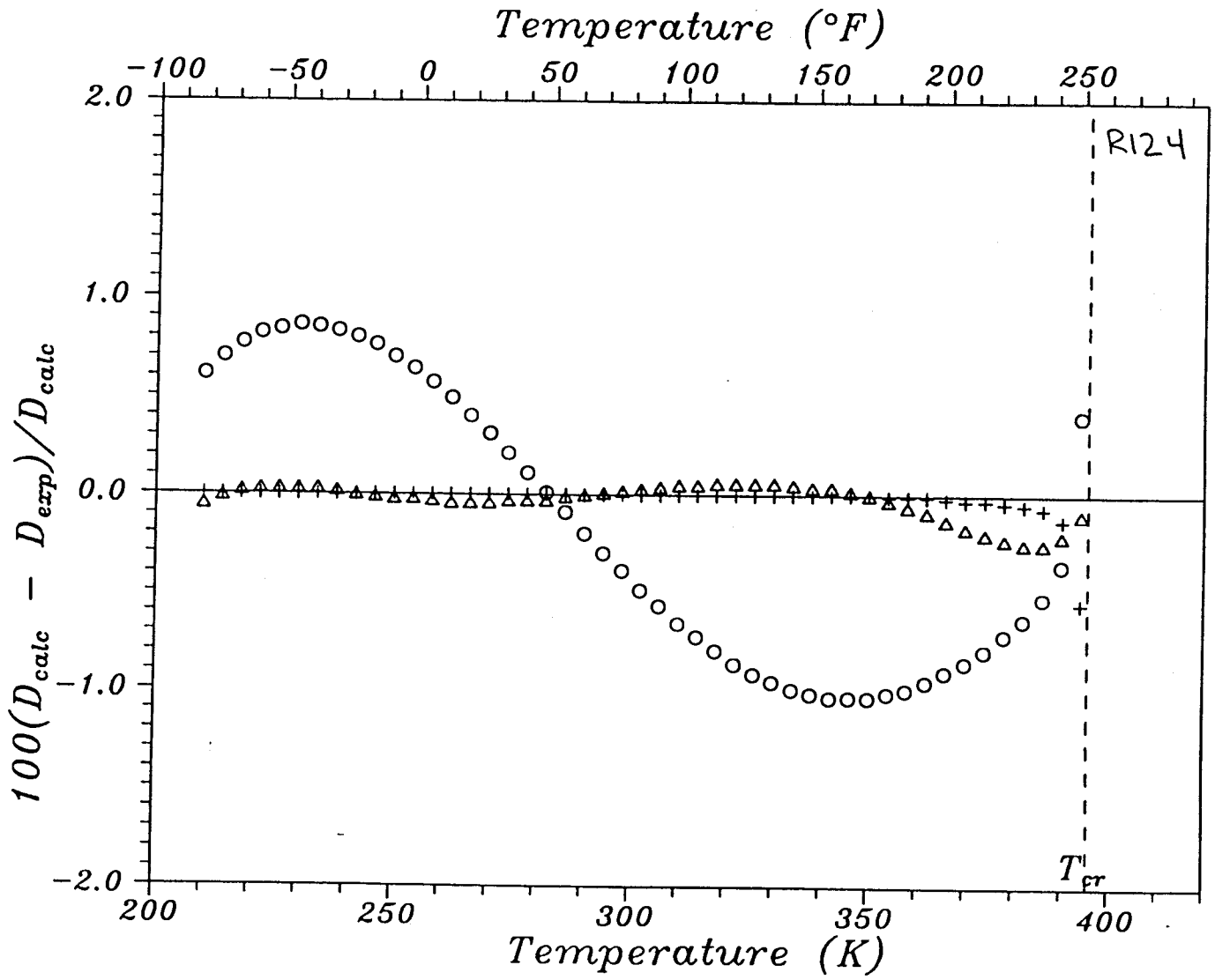

Figure 16. Deviations of the values of vapor pressure (triangles), saturated liquid density (+), and saturated vapor density (circles) calculated from the MBWR equation of state for HCFC-124 from correlations of data for these properties.

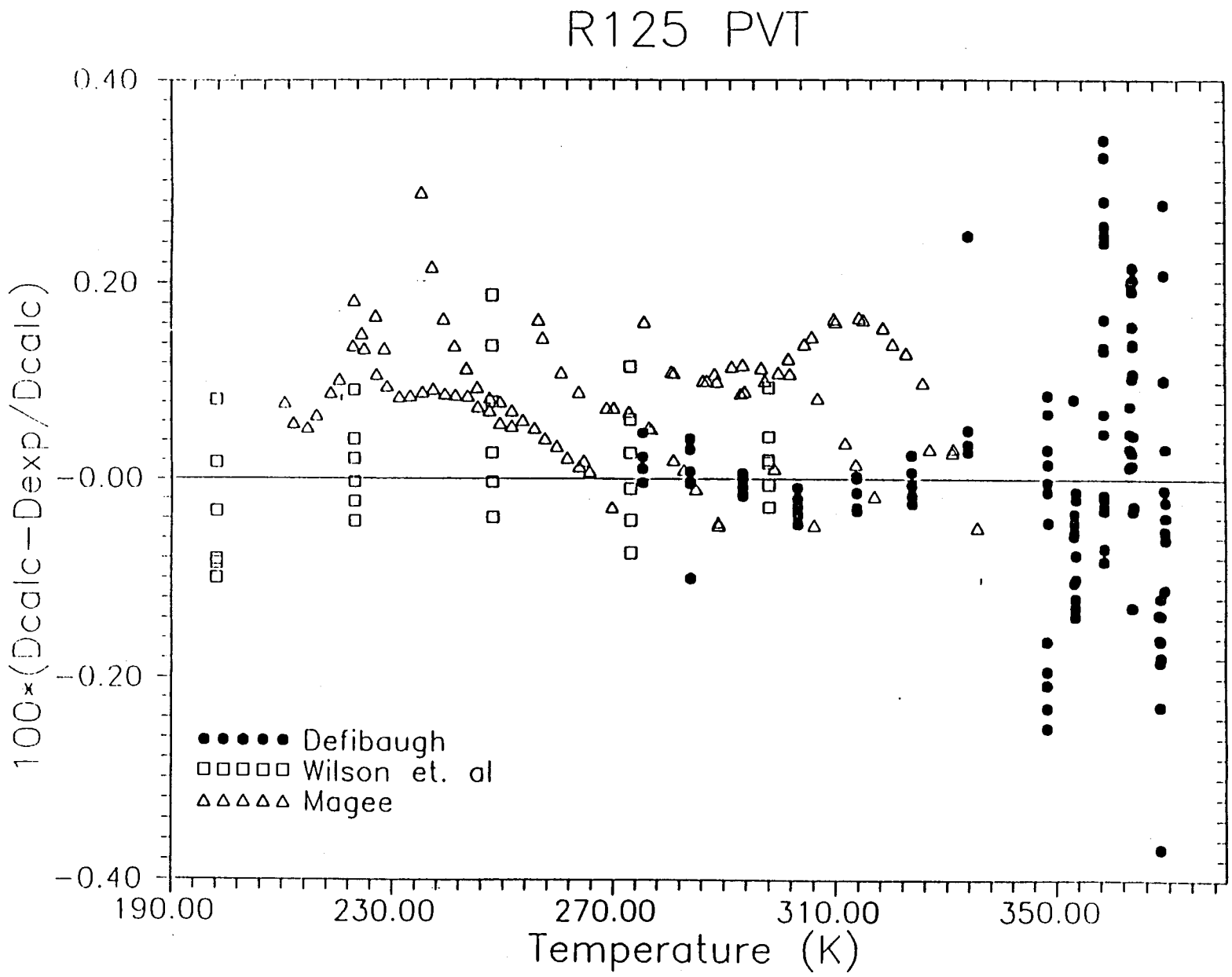

Figure 17. Deviations of the values of density calculated from the MBWR equation of state for HFC-125 from experimental data used in the fit.

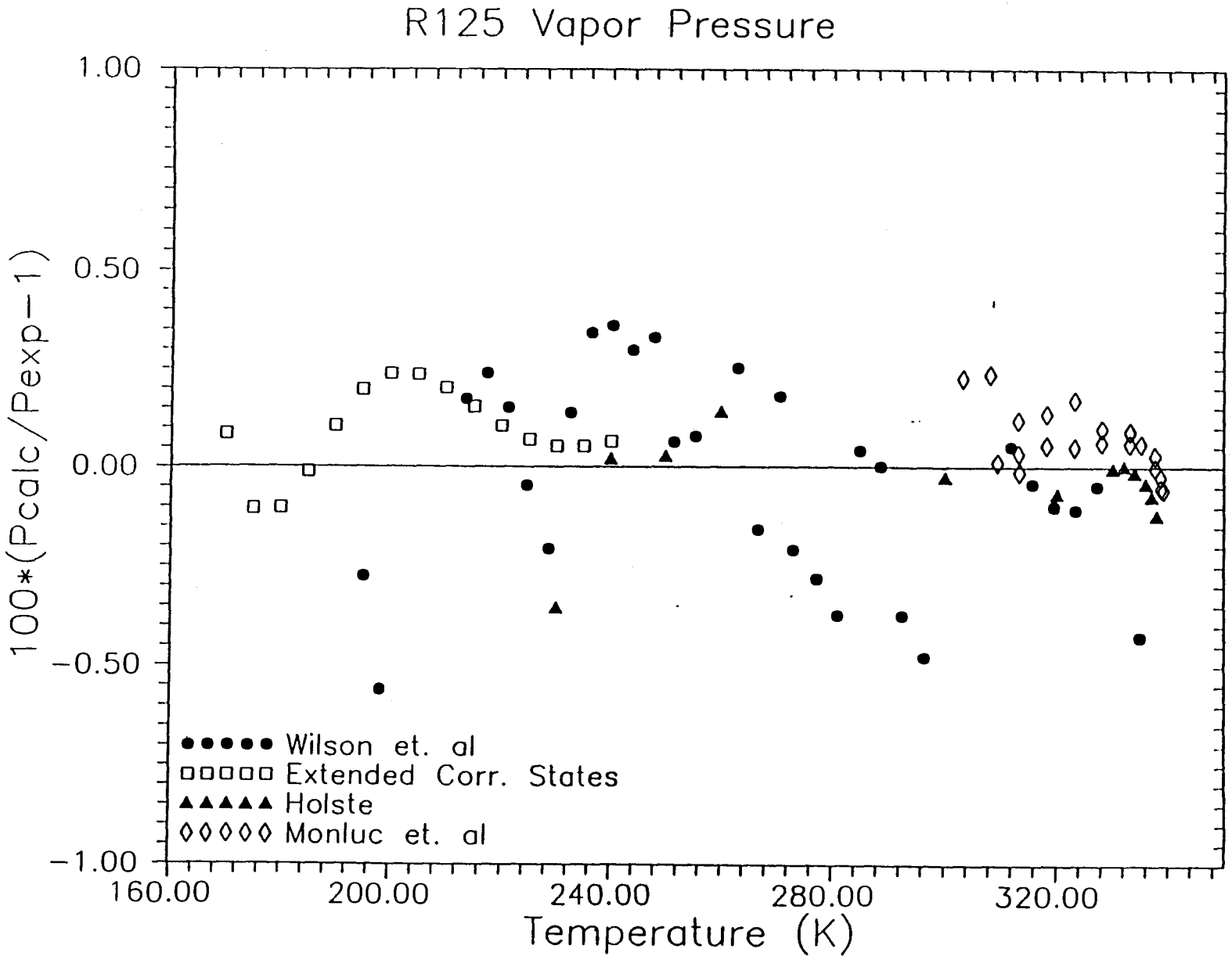

Figure 18. Deviations of the values of vapor pressure calculated from the MBWR equation of state for HFC-125 from experimental data used in the fit.

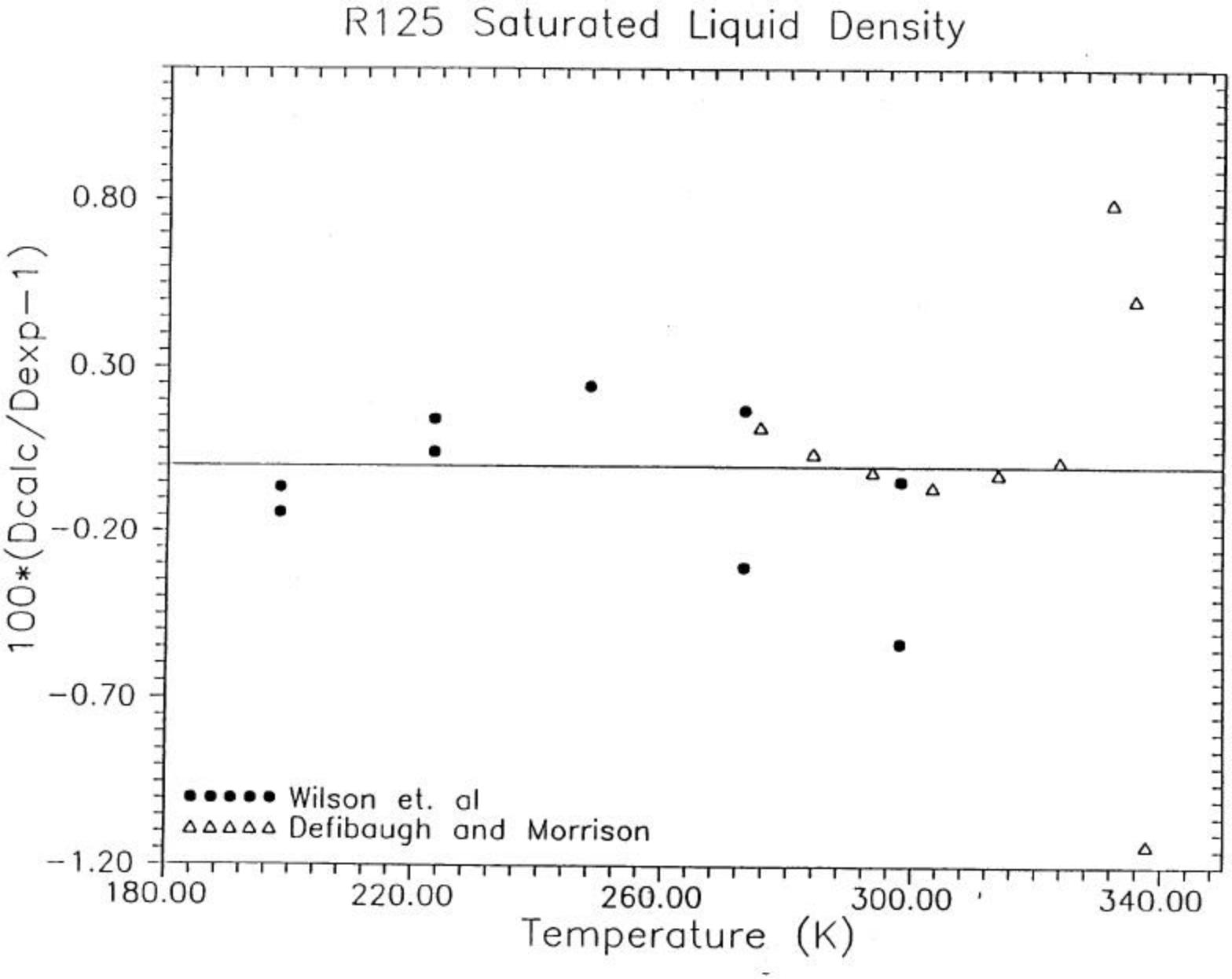

Figure 19. Deviations of the values of saturated-liquid density calculated from the MBWR equation of state for HFC-125 from experimental data used in the fit.

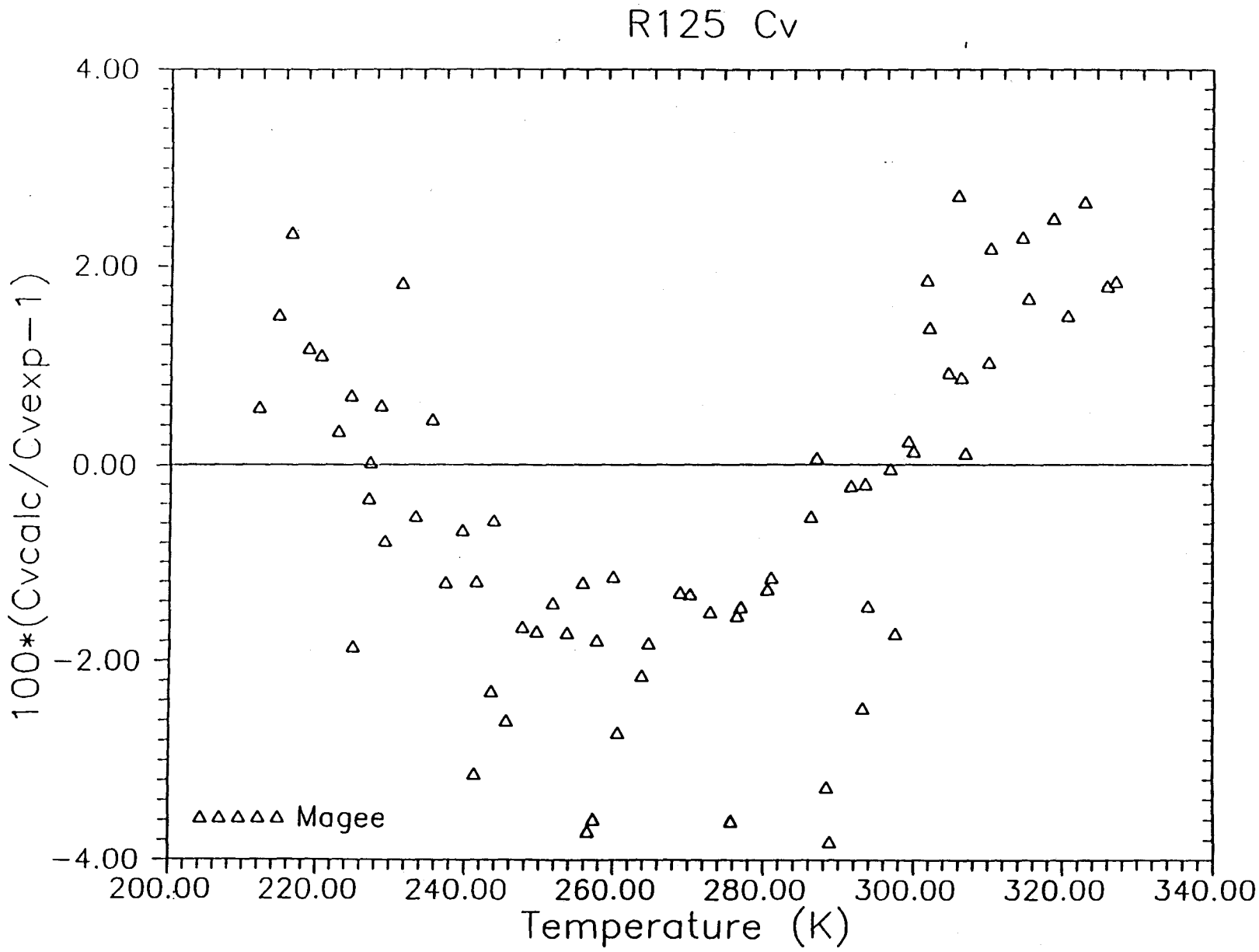

Figure 20. Deviations of the values of single-phase-liquid isochoric heat capacity calculated from the MBWR equation of state for HFC-125 from experimental data used in the fit.

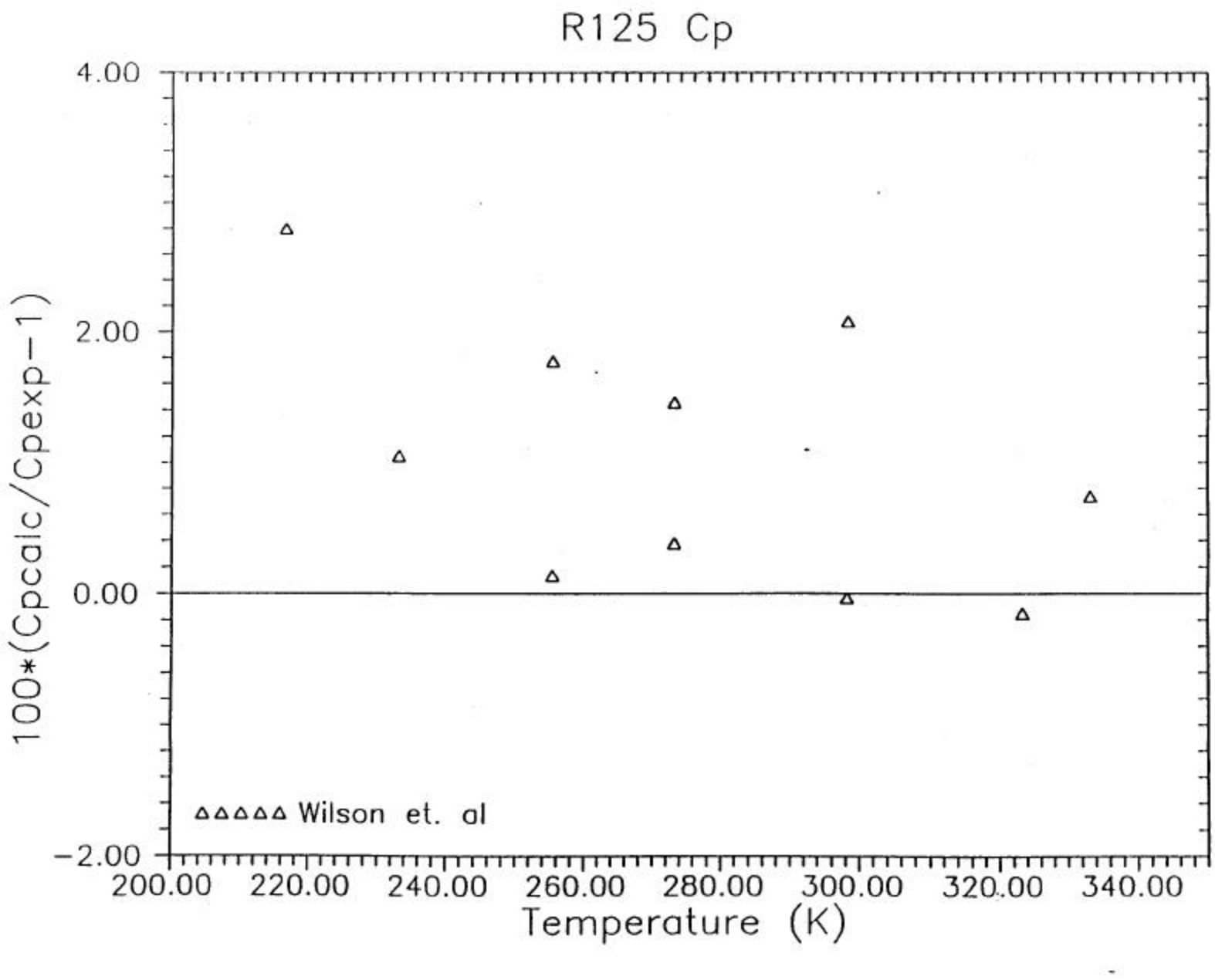

Figure 21. Deviations of the values of single-phase isobaric heat capacity calculated from the MBWR equation of state for HFC-125 from experimental data used in the fit.

R123 Thermal Conductivity Data

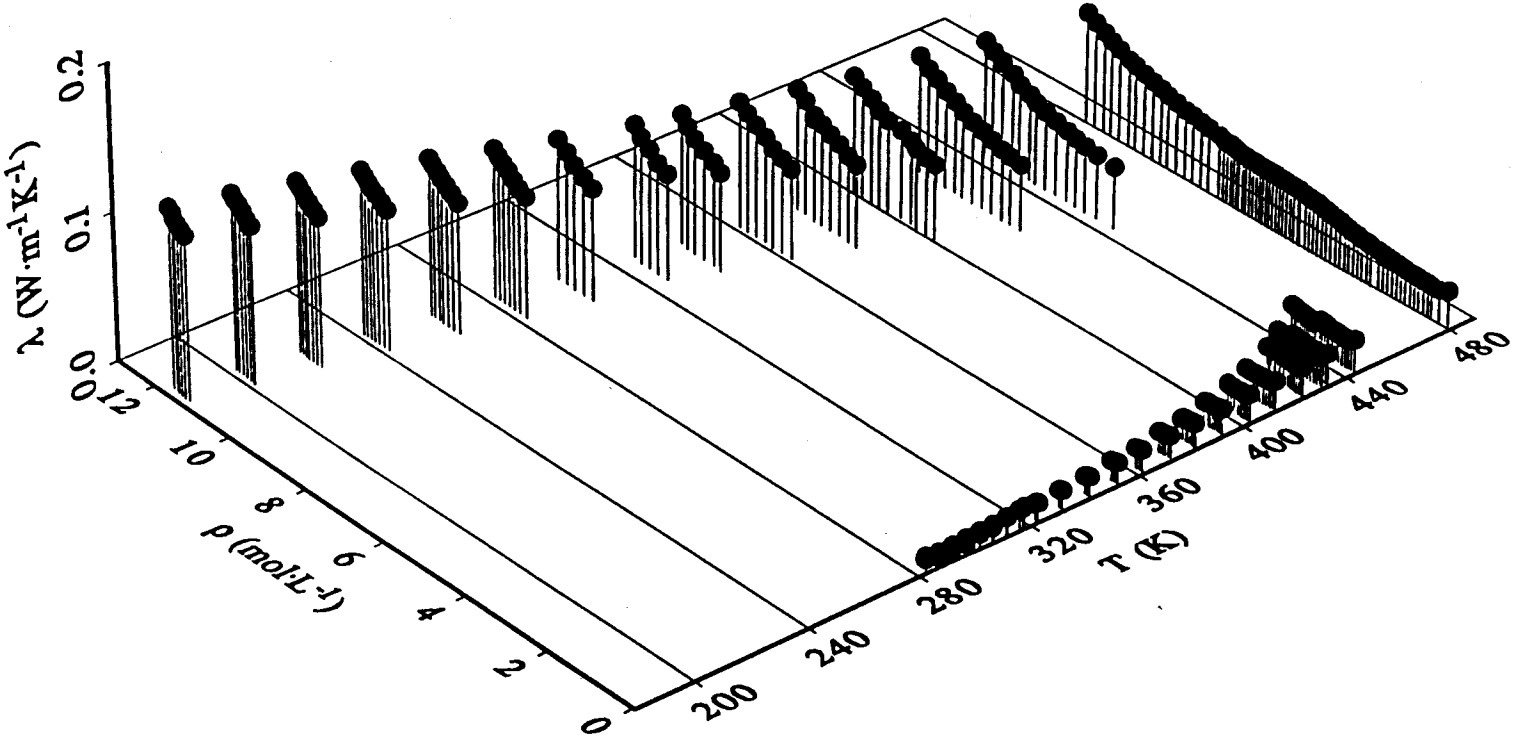

Figure 22. Thermal conductivity surface for HCFC-123.

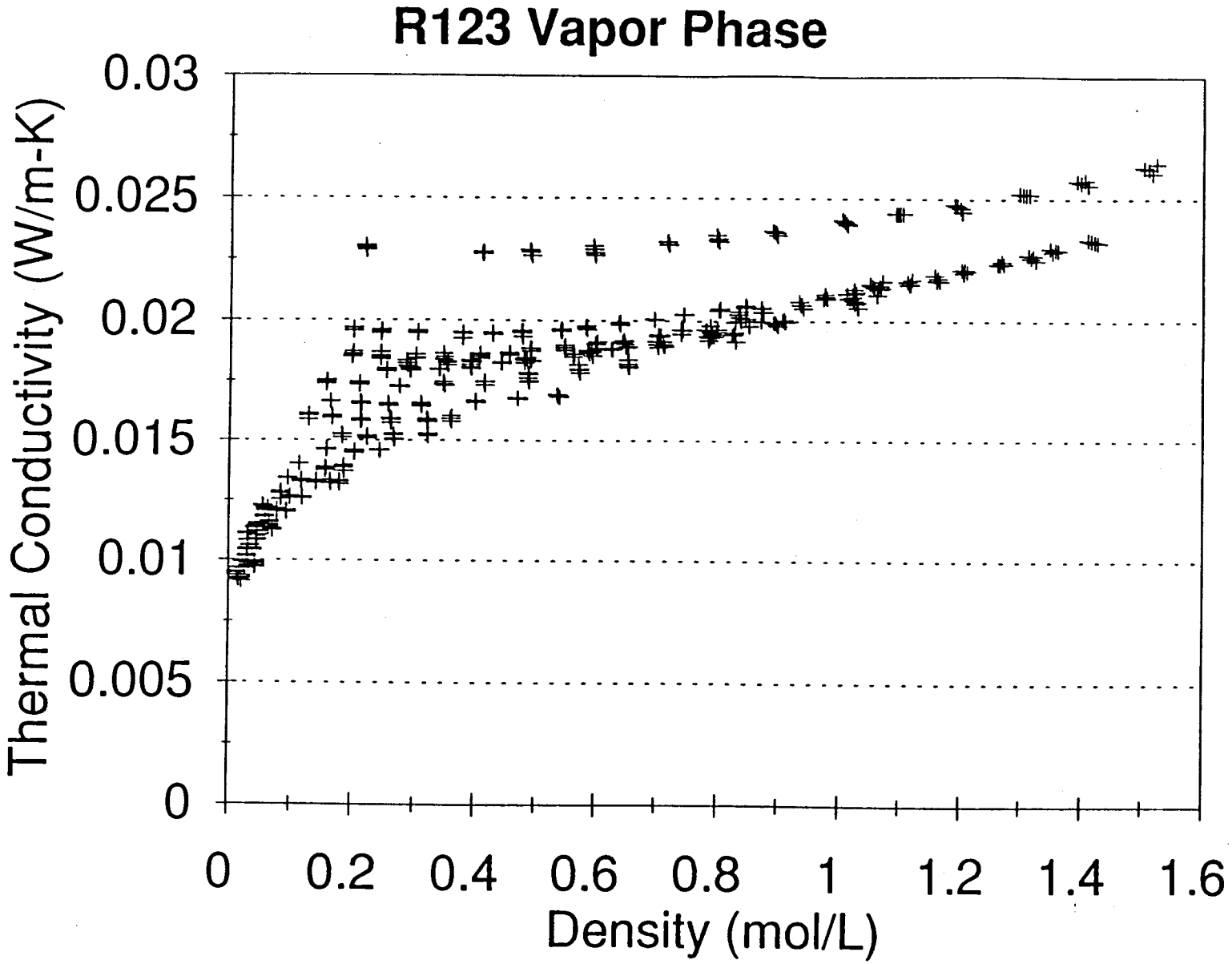

Figure 23. Vapor-phase thermal conductivity of HCFC-123.

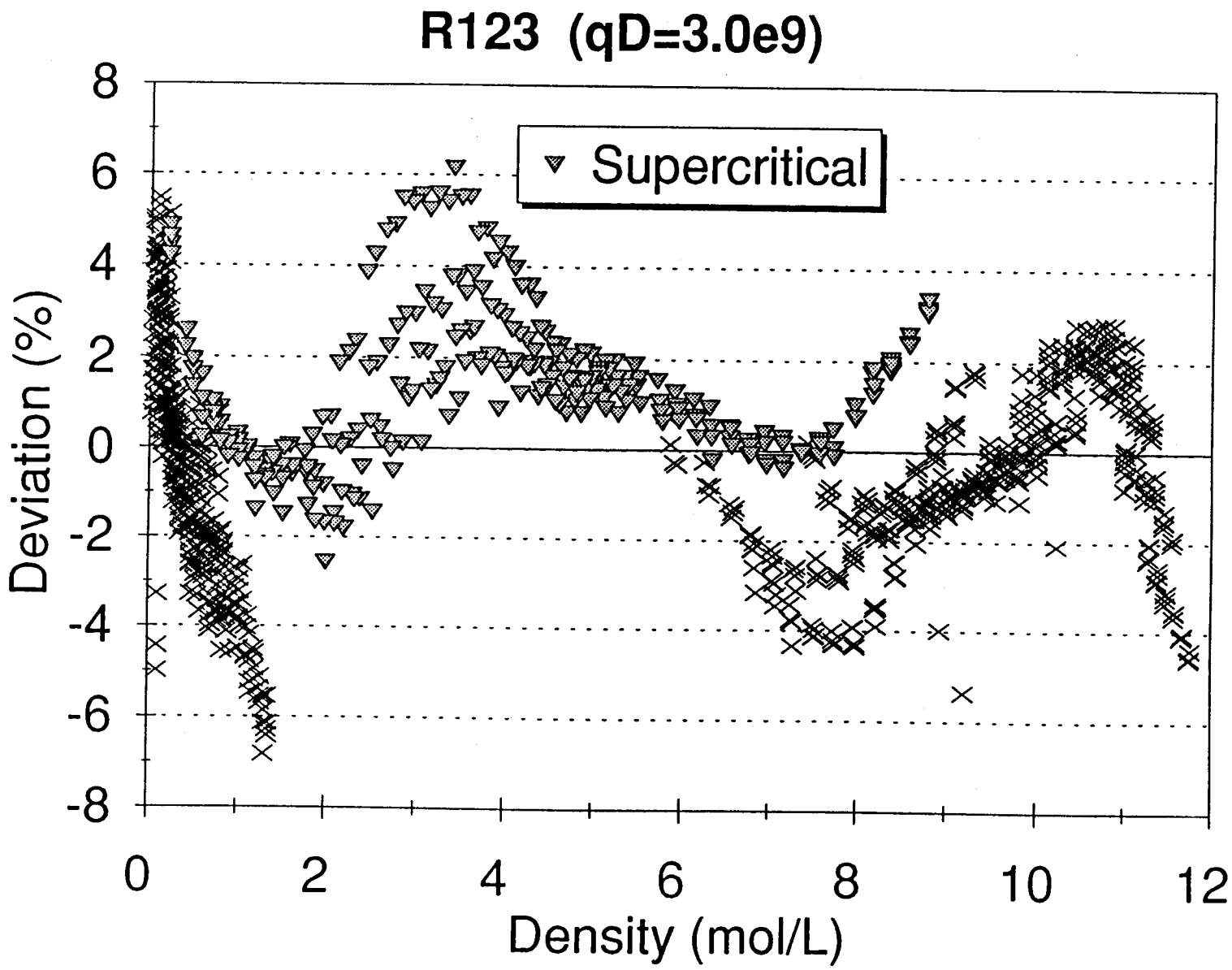

Figure 24. Deviations of the values of thermal conductivity calculated from the thermal conductivity correlation for HCFC-123 from experimental data used in the fit.

APPENDIX A:

TABLES OF THERMOPHYSICAL PROPERTIES

Table 1a. Burnett vapor-phase PVT measurements for BFC-32 (SI units)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
353.110	0.55188	6145.1	372.446	0.07469	3509.6	268.916	0.01325	512.1
358.089	0.55176	7014.0	308.164	0.05484	1994.0	268.834	0.01325	511.8
363.132	0.55164	7921.3	313.138	0.05483	2055.9	273.143	0.01325	522.6
368.149	0.55153	8842.1	318.131	0.05482	2116.9	278.129	0.01325	534.9
373.131	0.55141	9769.8	323.145	0.05481	2177.3	283.164	0.01325	547.2
353.111	0.30979	5930.6	328.145	0.05480	2236.6	288.191	0.01324	559.4
358.095	0.30973	6387.2	333.148	0.05479	2295.2	293.167	0.01324	571.3
363.135	0.30966	6840.9	338.150	0.05477	2353.1	298.122	0.01324	583.1
368.142	0.30960	7286.7	343.109	0.05476	2409.9	303.138	0.01324	594.9
373.145	0.30953	7728.8	348.136	0.05475	2466.8	308.156	0.01323	606.7
343.151	0.17391	4724.2	353.108	0.05474	2522.6	313.161	0.01323	618.4
348.130	0.17388	4964.3	358.138	0.05473	2578.6	318.138	0.01323	630.0
353.117	0.17384	5199.1	363.131	0.05472	2633.8	322.930	0.01322	641.2
358.101	0.17380	5429.6	368.139	0.05470	2688.7	328.063	0.01322	653.1
363.135	0.17377	5658.7	373.141	0.05469	2743.1	333.121	0.01322	664.7
368.142	0.17373	5883.7	308.177	0.04202	1645.0	338.129	0.01322	676.1
373.086	0.17369	6103.1	313.168	0.04201	1689.5	343.140	0.01321	687.5
338.104	0.13323	4090.3	318.143	0.04201	1733.2	348.155	0.01321	698.9
343.118	0.13320	4265.1	323.084	0.04200	1776.2	353.133	0.01321	710.2
348.125	0.13318	4436.5	323.135	0.04200	1776.4	358.133	0.01321	721.4
353.095	0.13315	4603.9	328.057	0.04199	1818.8	363.170	0.01320	732.8
358.084	0.13312	4769.3	333.165	0.04198	1862.2	368.110	0.01320	743.8
363.129	0.13309	4934.4	338.134	0.04197	1904.0	268.133	0.00744	299.7
363.143	0.13309	4934.9	343.100	0.04196	1945.3	268.530	0.00744	300.2
363.119	0.13309	4934.1	348.163	0.04195	1987.3	273.158	0.00744	306.3
368.129	0.13306	5096.1	353.127	0.04194	2028.0	278.146	0.00744	312.8
373.143	0.13304	5256.4	358.120	0.04194	2068.6	283.161	0.00743	319.2
328.222	0.09765	3255.4	363.115	0.04193	2108.9	288.154	0.00743	325.5
333.082	0.09763	3373.7	368.109	0.04192	2149.1	293.144	0.00743	331.9
338.103	0.09761	3493.4	278.145	0.02361	882.3	298.176	0.00743	338.3
343.124	0.09759	3611.0	281.187	0.02361	897.1	303.133	0.00743	344.6
348.141	0.09757	3726.9	283.166	0.02361	907.1	308.155	0.00743	350.9
353.120	0.09755	3840.4	288.132	0.02360	930.7	313.112	0.00742	357.2
358.145	0.09753	3953.5	293.172	0.02360	954.2	318.110	0.00742	363.4
363.133	0.09751	4064.4	298.125	0.02359	977.1	323.155	0.00742	369.8
368.140	0.09749	4174.7	303.140	0.02359	1000.0	323.130	0.00742	369.9
373.142	0.09747	4283.8	308.158	0.02358	1022.7	323.175	0.00742	369.8
318.099	0.07486	2602.6	313.101	0.02358	1044.8	323.148	0.00742	369.8
323.130	0.07484	2692.8	318.156	0.02357	1067.2	323.150	0.00742	369.8
333.119	0.07481	2866.8	323.155	0.02357	1089.2	328.116	0.00742	376.1
338.132	0.07479	2952.1	323.186	0.02357	1089.4	333.070	0.00742	382.3
343.139	0.07478	3036.1	328.073	0.02356	1110.4	338.080	0.00742	388.5
348.159	0.07476	3119.3	333.118	0.02356	1132.2	343.157	0.00741	394.8
353.128	0.07475	3200.7	338.128	0.02355	1154.5	348.126	0.00741	400.9
358.124	0.07473	3281.8	343.144	0.02355	1175.4	353.146	0.00741	407.0
363.121	0.07472	3361.9	348.152	0.02354	1196.8	358.130	0.00741	413.1
368.103	0.07470	3441.3	353.130	0.02354	1217.9	363.120	0.00741	419.3
372.442	0.07469	3509.6	358.128	0.02353	1239.0	368.109	0.00741	425.4

Table 1b. Burnett vapor-phase PVT measurements for HFC-32 (PI units)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
175.928	34.452	891.27	95.025	3.424	289.21	24.379	0.827	74.27
184.890	34.445	1017.30	103.978	3.423	298.18	24.231	0.827	74.24
193.968	34.438	1148.89	112.966	3.422	307.04	31.987	0.827	75.79
202.998	34.431	1282.43	121.991	3.422	315.80	40.962	0.827	77.58
211.966	34.424	1416.99	130.991	3.421	324.39	50.025	0.827	79.37
175.930	19.340	860.17	139.996	3.420	332.89	59.074	0.827	81.13
184.901	19.336	926.39	149.000	3.419	341.29	68.031	0.827	82.86
193.973	19.332	992.19	157.926	3.419	349.52	76.950	0.826	84.57
202.986	19.327	1056.85	166.975	3.418	357.78	85.977	0.826	86.28
211.991	19.323	1120.96	175.924	3.417	365.88	95.011	0.826	88.00
158.002	10.857	685.19	184.978	3.417	373.99	104.020	0.826	89.70
166.964	10.855	720.02	193.966	3.416	381.99	112.978	0.826	91.37
175.941	10.853	754.07	202.980	3.415	389.96	121.604	0.826	93.00
184.912	10.850	787.50	211.984	3.414	397.85	130.843	0.825	94.72
193.973	10.848	820.72	95.0490	2.623	238.59	139.948	0.825	96.40
202.986	10.846	853.35	104.032	2.623	245.04	148.962	0.825	98.06
211.885	10.843	885.18	112.987	2.622	251.37	157.982	0.825	99.72
148.917	8.317	593.25	121.881	2.622	257.62	167.009	0.825	101.37
157.942	8.316	618.61	121.973	2.622	257.65	175.969	0.825	103.00
166.955	8.314	643.47	130.833	2.621	263.80	184.969	0.824	104.63
175.901	8.312	667.74	140.027	2.621	270.09	194.036	0.824	106.28
184.881	8.310	691.73	148.971	2.620	276.15	202.928	0.824	107.88
193.962	8.309	715.68	157.910	2.620	282.15	22.969	0.464	43.47
193.987	8.309	715.74	167.023	2.619	288.23	23.684	0.464	43.55
193.944	8.309	715.63	175.959	2.618	294.14	32.014	0.464	44.43
202.962	8.307	739.13	184.946	2.618	300.03	40.993	0.464	45.37
211.987	8.305	762.38	193.937	2.617	305.88	50.02	0.464	46.29
131.130	6.096	472.16	202.926	2.617	311.70	59.007	0.464	47.21
139.878	6.095	489.31	40.991	1.474	127.96	67.989	0.464	48.13
148.915	6.094	506.67	46.467	1.474	130.12	77.047	0.464	49.07
157.953	6.092	523.74	50.029	1.474	131.56	85.969	0.464	49.97
166.984	6.091	540.54	58.968	1.473	134.98	95.009	0.464	50.90
175.946	6.090	557.00	68.040	1.473	138.40	103.932	0.463	51.80
184.991	6.088	573.40	76.955	1.473	141.71	112.928	0.463	52.71
193.969	6.087	589.49	85.982	1.472	145.03	122.009	0.463	53.63
202.982	6.086	605.49	95.014	1.472	148.32	121.964	0.463	53.65
211.986	6.085	621.31	103.912	1.472	151.53	122.045	0.463	53.64
112.908	4.673	377.48	113.011	1.472	154.79	121.996	0.463	53.63
121.964	4.672	390.56	122.009	1.471	157.98	122.000	0.463	53.64
139.944	4.67	415.79	122.065	1.471	158.00	130.939	0.463	54.55
148.968	4.669	428.16	130.861	1.471	161.06	139.856	0.463	55.44
157.980	4.668	440.34	139.942	1.471	164.20	148.874	0.463	56.35
167.016	4.667	452.41	148.960	1.470	167.44	158.013	0.463	57.26
175.960	4.666	464.23	157.989	1.470	170.47	166.957	0.463	58.14
184.953	4.665	475.98	167.004	1.470	173.58	175.993	0.463	59.04
193.948	4.664	487.61	175.964	1.469	176.64	184.964	0.463	59.92
202.915	4.663	499.12	184.960	1.469	179.70	193.946	0.463	60.81
210.726	4.663	509.03	193.946	1.469	182.73	202.926	0.462	61.70

Table 2a. Vibrating-tube compressed-liquid-density measurements for HFC-32 (SI units)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
242.593	1.1572	1999.3	259.779	1.1113	4502.3	283.647	1.0243	2500.3
242.596	1.1583	2499.3	259.790	1.1126	5002.9	283.647	1.0264	3001.5
242.583	1.1594	3001.3	259.799	1.1139	5503.2	283.647	1.0286	3501.6
242.584	1.1605	3501.1	259.798	1.1152	6003.0	283.647	1.0307	4001.3
242.583	1.1616	4001.1	259.806	1.1165	6503.9	283.643	1.0328	4502.3
242.588	1.1626	4502.0	264.488	1.0891	2000.5	283.642	1.0348	5003.0
242.586	1.1637	5002.4	264.488	1.0906	2500.5	283.643	1.0368	5503.4
242.594	1.1647	5502.3	264.501	1.0921	3000.9	283.643	1.0387	6003.3
242.588	1.1657	6002.1	264.507	1.0936	3501.5	283.643	1.0406	6504.1
242.592	1.1667	6503.0	264.529	1.0950	4001.1	288.527	1.0033	2000.6
246.019	1.1470	2000.8	264.505	1.0966	4502.0	288.530	1.0057	2500.5
246.023	1.1481	2500.0	264.520	1.0980	5002.6	288.533	1.0081	3001.5
246.033	1.1492	3000.9	264.518	1.0994	5503.0	288.526	1.0105	3501.5
246.053	1.1503	3501.2	264.511	1.1008	6002.9	288.529	1.0128	4001.2
246.062	1.1514	4000.9	264.524	1.1022	6503.9	288.530	1.0151	4502.2
246.064	1.1525	4502.1	269.378	1.0728	2000.4	288.531	1.0173	5003.0
246.077	1.1535	5003.0	269.382	1.0745	2500.8	288.530	1.0195	5503.5
246.091	1.1546	5503.3	269.382	1.0761	3000.9	288.532	1.0217	6003.3
246.108	1.1556	6003.1	269.388	1.0778	3501.1	288.532	1.0238	6504.2
246.102	1.1567	6503.9	269.397	1.0793	4001.2	293.459	0.9833	2000.5
250.555	1.1333	2000.6	269.398	1.0809	4502.2	293.460	0.9861	2500.4
250.570	1.1344	2500.8	269.398	1.0825	5003.0	293.460	0.9888	3001.5
250.568	1.1356	3000.9	269.401	1.0840	5503.1	293.459	0.9915	3501.5
250.578	1.1368	3501.2	269.394	1.0856	6003.1	293.465	0.9941	4001.3
250.581	1.1380	4001.2	269.397	1.0871	6503.9	293.463	0.9966	4502.2
250.581	1.1392	4502.0	274.000	1.0569	2000.4	293.462	0.9991	5003.1
250.572	1.1404	5002.9	274.003	1.0587	2500.6	293.458	1.0015	5503.4
250.582	1.1415	5503.3	274.003	1.0605	3001.0	293.461	1.0039	6003.3
250.587	1.1426	6003.0	274.005	1.0623	3501.6	293.461	1.0062	6504.3
250.572	1.1438	6503.9	274.009	1.0640	4001.3	298.407	0.9622	2000.5
255.116	1.1191	2000.5	274.008	1.0657	4502.2	298.410	0.9653	2500.4
255.120	1.1204	2500.8	274.010	1.0674	5003.0	298.419	0.9684	3001.4
255.125	1.1217	3001.1	274.005	1.0691	5503.4	298.415	0.9714	3501.4
255.130	1.1230	3501.3	274.009	1.0707	6003.2	298.417	0.9743	4001.4
255.135	1.1242	4000.9	274.011	1.0724	6504.0	298.419	0.9771	4502.3
255.136	1.1255	4501.9	278.813	1.0398	2000.3	298.426	0.9799	5003.2
255.141	1.1267	5002.7	278.813	1.0419	2500.7	298.425	0.9826	5503.4
255.142	1.1280	5503.2	278.817	1.0438	3001.0	298.427	0.9852	6003.2
255.146	1.1292	6003.2	278.828	1.0457	3501.7	303.425	0.9428	2501.4
255.133	1.1304	6504.0	278.827	1.0476	4001.4	303.428	0.9464	3001.4
259.752	1.1045	2000.7	278.834	1.0495	4502.2	303.425	0.9499	3501.6
259.754	1.1059	2500.8	278.836	1.0513	5002.9	303.423	0.9532	4001.5
259.766	1.1072	3001.0	278.828	1.0532	5503.2	303.421	0.9564	4502.4
259.771	1.1086	3501.3	278.823	1.0550	6003.0	303.420	0.9596	5003.2
259.771	1.1100	4001.1	278.816	1.0568	6504.0	303.418	0.9626	5503.5

Table 2a. Vibrating-tube compressed-liquid-density measurements for HFC-32 (Sl units) (continued)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
303.347	0.9687	6504.2	337.792	0.7594	5003.4
308.304	0.9194	2501.2	337.793	0.7724	5503.7
308.288	0.9235	3001.3	337.791	0.7835	6003.6
308.254	0.9277	3501.6	337.793	0.7933	6504.5
308.253	0.9316	4001.5	347.638	0.7057	6504.4
308.255	0.9352	4502.4	347.675	0.6524	5604.4
308.262	0.9388	5003.2	347.702	0.6673	5803.9
308.269	0.9422	5503.4	347.683	0.6801	6003.4
308.267	0.9455	6003.3	347.659	0.6912	6203.9
308.248	0.9488	6504.2	347.604	0.7009	6404.0
313.123	0.8989	3001.8	347.562	0.7057	6504.6
313.118	0.9036	3501.7	348.531	0.6059	5303.7
313.127	0.9081	4001.4	348.538	0.6104	5353.7
313.131	0.9124	4502.4	348.568	0.6073	5403.5
313.134	0.9165	5003.1	348.569	0.6143	5453.4
313.144	0.9204	5503.5	348.592	0.6204	5503.3
313.156	0.9242	6003.3	348.608	0.6260	5553.7
313.148	0.9279	6504.2	348.602	0.6317	5603.6
318.251	0.8756	3502.4	348.599	0.6370	5653.5
318.255	0.8811	4001.7	348.601	0.6420	5703.4
318.255	0.8863	4502.7	348.605	0.6466	5753.2
318.255	0.8912	5003.6	348.622	0.6509	5803.8
318.253	0.8959	5503.8	348.630	0.6547	5853.7
318.253	0.9004	6003.7	348.567	0.6592	5903.5
318.252	0.9046	6504.5	348.579	0.6632	5953.2
323.108	0.8457	3502.4	348.568	0.6668	6003.0
323.111	0.8526	4001.8	348.569	0.6701	6053.6
323.111	0.8590	4502.7	348.578	0.6731	6103.5
323.110	0.8650	5003.5	348.584	0.6760	6153.4
323.109	0.8706	5503.8	348.602	0.6786	6203.4
323.111	0.8758	6003.7	348.612	0.6812	6253.5
323.112	0.8808	6504.6	348.609	0.6839	6304.1
327.961	0.8162	3802.6	348.608	0.6864	6354.0
327.962	0.8197	4001.9	348.596	0.6890	6403.9
327.963	0.8281	4502.7	348.605	0.6914	6454.0
327.964	0.8356	5003.5	348.595	0.6937	6504.0
327.964	0.8426	5503.9			
327.969	0.8490	6003.7			
327.965	0.8550	6504.5			
332.789	0.7850	4202.4			
332.796	0.7918	4502.8			
332.800	0.8020	5003.5			
332.800	0.8110	5503.8			
332.800	0.8191	6003.6			
332.801	0.8266	6504.5			
337.789	0.7435	4503.0			

Table 2b. Vibrating-tube compressed-liquid-density measurements for HFC-32 (PI units)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
-23.002	72.242	289.97	7.933	69.377	653.00	50.895	63.942	362.64
-22.997	72.311	362.50	7.952	69.459	725.61	50.896	64.079	435.33
-23.021	72.382	435.31	7.969	69.541	798.17	50.895	64.212	507.86
-23.018	72.448	507.79	7.966	69.623	870.66	50.895	64.343	580.34
-23.021	72.515	580.30	7.981	69.702	943.32	50.887	64.473	653.00
-23.011	72.580	652.97	16.408	67.992	290.15	50.886	64.599	725.62
-23.015	72.646	725.53	16.408	68.087	362.67	50.888	64.723	798.19
-23.001	72.709	798.04	16.433	68.179	435.24	50.887	64.844	870.70
-23.012	72.774	870.53	16.443	68.272	507.85	50.888	64.964	943.35
-23.004	72.838	943.19	16.482	68.361	580.31	59.679	62.632	290.17
-16.836	71.605	290.20	16.439	68.456	652.96	59.685	62.786	362.66
-16.829	71.675	362.59	16.467	68.544	725.56	59.690	62.937	435.33
-16.810	71.744	435.25	16.463	68.633	798.14	59.677	63.086	507.85
-16.774	71.810	507.81	16.450	68.722	870.65	59.683	63.230	580.33
-16.759	71.878	580.28	16.473	68.807	943.31	59.684	63.372	652.99
-16.754	71.947	652.98	25.211	66.975	290.13	59.686	63.511	725.63
-16.730	72.014	725.62	25.218	67.078	362.70	59.684	63.647	798.22
-16.706	72.079	798.18	25.217	67.181	435.25	59.688	63.780	870.71
-16.675	72.144	870.68	25.227	67.282	507.79	59.687	63.911	943.36
-16.686	72.211	943.31	25.245	67.381	580.32	68.556	61.388	290.14
-8.672	70.747	290.17	25.247	67.479	652.98	68.558	61.561	362.65
-8.645	70.819	362.70	25.246	67.577	725.63	68.558	61.731	435.33
-8.647	70.896	435.24	25.251	67.674	798.15	68.557	61.897	507.85
-8.629	70.969	507.80	25.239	67.770	870.68	68.567	62.058	580.34
-8.623	71.043	580.33	25.244	67.864	943.31	68.564	62.216	653.00
-8.625	71.117	652.96	33.529	65.977	290.13	68.562	62.371	725.63
-8.640	71.191	725.61	33.536	66.091	362.69	68.555	62.522	798.21
-8.623	71.261	798.18	33.536	66.204	435.26	68.560	62.669	870.71
-8.613	71.332	870.67	33.538	66.314	507.87	68.561	62.814	943.36
-8.640	71.405	943.32	33.546	66.423	580.34	77.463	60.066	290.14
-0.461	69.865	290.14	33.544	66.530	652.99	77.467	60.264	362.66
-0.454	69.946	362.71	33.549	66.636	725.63	77.484	60.455	435.32
-0.445	70.026	435.28	33.539	66.741	798.20	77.477	60.643	507.84
-0.436	70.106	507.81	33.545	66.844	870.69	77.481	60.824	580.35
-0.428	70.184	580.28	33.550	66.945	943.33	77.484	61.001	653.01
-0.425	70.263	652.95	42.193	64.915	290.12	77.497	61.172	725.65
-0.416	70.340	725.58	42.194	65.041	362.70	77.495	61.340	798.20
-0.414	70.417	798.17	42.200	65.163	435.26	77.498	61.504	870.70
-0.407	70.493	870.69	42.220	65.282	507.87	86.495	58.858	362.80
-0.431	70.570	943.32	42.219	65.401	580.35	86.500	59.081	435.32
7.884	68.950	290.18	42.231	65.516	652.98	86.495	59.298	507.87
7.886	69.037	362.71	42.234	65.632	725.61	86.491	59.506	580.37
7.909	69.123	435.26	42.221	65.746	798.17	86.488	59.707	653.02
7.918	69.208	507.82	42.211	65.859	870.67	86.486	59.903	725.65
7.917	69.294	580.31	42.198	65.971	943.33	86.483	60.093	798.22

Table 2b. Vibrating-tube compressed-liquid-density measurements for HFC-32 (PI units) (continued)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
86.355	60.473	943.36	148.356	47.407	725.68
95.277	57.393	362.77	148.358	48.219	798.25
95.248	57.655	435.31	148.354	48.912	870.75
95.186	57.912	507.86	148.357	49.522	943.39
95.185	58.155	580.37	166.079	44.053	943.39
95.189	58.385	653.02	166.145	40.729	812.84
95.200	58.606	725.65	166.193	41.658	841.78
95.214	58.819	798.21	166.159	42.459	870.71
95.211	59.026	870.71	166.117	43.149	899.80
95.177	59.234	943.36	166.017	43.758	928.82
103.952	56.115	435.37	165.942	44.055	943.41
103.943	56.410	507.87	167.685	37.824	769.24
103.958	56.690	580.35	167.698	38.108	776.48
103.966	56.958	653.01	167.753	37.912	783.71
103.971	57.215	725.65	167.755	38.349	790.96
103.989	57.459	798.22	167.796	38.727	798.18
104.012	57.694	870.71	167.825	39.079	805.50
103.997	57.924	943.36	167.814	39.434	812.74
113.183	54.664	507.97	167.809	39.768	819.97
113.190	55.006	580.40	167.812	40.078	827.20
113.190	55.330	653.06	167.820	40.368	834.43
113.189	55.637	725.71	167.850	40.632	841.77
113.186	55.929	798.26	167.864	40.869	849.00
113.186	56.208	870.77	167.751	41.156	856.23
113.183	56.474	943.40	167.772	41.401	863.44
121.924	52.793	507.98	167.752	41.627	870.66
121.929	53.224	580.41	167.754	41.832	878.00
121.929	53.624	653.07	167.770	42.019	885.23
121.928	53.997	725.70	167.781	42.203	892.47
121.927	54.347	798.26	167.813	42.363	899.73
121.930	54.676	870.76	167.831	42.525	906.99
121.931	54.988	943.41	167.827	42.693	914.34
130.659	50.954	551.52	167.824	42.850	921.57
130.662	51.175	580.42	167.803	43.014	928.81
130.663	51.695	653.06	167.819	43.160	936.07
130.665	52.166	725.70	167.802	43.308	943.32
130.665	52.599	798.27			
130.673	52.999	870.76			
130.667	53.375	943.40			
139.351	49.006	609.50			
139.362	49.429	653.07			
139.371	50.065	725.69			
139.369	50.628	798.26			
139.370	51.135	870.75			
139.371	51.600	943.40			
148.350	46.414	653.11			

Table 3a. Liquid PVT Data (Isochoric Apparatus) for HFC-32 1/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
139.999	3.599795	27.34983
142.000	5.493646	27.28596
144.000	10.929410	27.27603
145.999	16.440620	27.26752
148.000	21.961470	27.25969
149.999	27.462020	27.25223
151.999	32.947380	27.24504
151.999	3.871711	26.80698
153.999	5.964355	26.74380
155.999	10.954690	26.73466
158.000	16.001890	26.72670
159.999	21.048190	26.71929
161.998	26.088490	26.71226
163.999	31.102130	26.70546
160.000	4.299190	26.43650
161.999	8.984807	26.42690
164.000	13.772330	26.41888
166.000	18.566270	26.41154
168.000	23.358450	26.40461
169.999	28.138910	26.39793
171.999	32.886910	26.39142
170.000	3.822186	25.96166
172.000	5.465584	25.89905
174.000	9.802387	25.89055
175.999	14.187370	25.88314
177.999	18.583860	25.87628
180.000	22.973660	25.86975
181.999	27.341580	25.86345
183.999	31.697920	25.85728
180.999	2.610451	25.41364
181.999	3.896742	25.40689
183.999	5.946145	25.34396
186.000	9.919708	25.33614
187.999	13.930580	25.32920
190.000	17.946990	25.32273
192.000	21.951480	25.31655
194.000	25.945820	25.31054
196.000	29.920680	25.30471
198.000	33.885620	25.29898
195.999	3.870242	24.73041
198.001	5.686683	24.66777
199.999	9.252136	24.66041
202.000	12.849070	24.65383

Table 3a. Liquid PVT Data (Isochoric Apparatus) for HFC-32 2/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
203.999	16.440610	24.64769
206.000	20.034010	24.64184
208.000	23.610620	24.63616
210.000	27.177690	24.63064
212.001	30.734910	24.62522
213.998	34.276340	24.61990
209.999	4.247910	24.03935
212.000	7.448832	24.03186
214.002	10.694400	24.02541
216.000	13.934370	24.01945
217.999	17.181560	24.01380
220.000	20.423960	24.00835
222.001	23.653610	24.00305
224.000	26.877640	23.99786
226.000	30.092390	23.99272
228.000	33.291480	23.98769
224.000	4.227700	23.32497
226.002	7.088737	23.31799
228.001	9.979462	23.31192
229.999	12.871100	23.30631
232.000	15.764870	23.30095
234.000	18.655440	23.29579
235.998	21.537230	23.29078
238.000	24.418200	23.28585
239.999	27.288600	23.28099
242.000	30.152620	23.27621
244.002	33.008000	23.27148
236.999	3.886813	22.63185
238.002	4.141327	22.57333
239.999	6.679945	22.56679
242.001	9.248424	22.56107
243.999	11.818840	22.55577
246.000	14.382920	22.55073
248.000	16.951710	22.54584
250.001	19.515250	22.54109
251.999	22.070080	22.53641
254.000	24.623070	22.53182
256.000	27.169940	22.52731
257.999	29.711770	22.52281
260.001	32.247880	22.51836
262.000	34.774180	22.51396
251.999	3.937722	21.77402
254.002	5.883227	21.76836
256.000	8.135592	21.76291

Table 3a. Liquid PVT Data (Isochoric Apparatus) for HFC-32 3/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
258.002	10.396070	21.75786
260.001	12.657880	21.75305
262.000	14.918920	21.74842
263.999	17.171580	21.74392
266.000	19.427090	21.73949
268.000	21.677810	21.73514
270.001	23.922150	21.73085
272.000	26.161900	21.72661
274.001	28.400710	21.72237
276.000	30.632190	21.71820
277.999	32.859150	21.71405
279.998	35.076280	21.70992
269.998	3.891322	20.70803
273.998	6.888521	20.64186
277.998	10.665470	20.63267
282.000	14.445850	20.62416
285.999	18.214180	20.61601
290.001	21.980450	20.60807
294.000	25.732000	20.60029
297.999	29.473310	20.59259
302.001	33.200290	20.58497
285.999	3.956490	19.64137
290.001	7.118600	19.63194
294.000	10.329430	19.62361
298.001	13.545260	19.61576
302.002	16.761990	19.60821
306.002	19.973720	19.60082
310.000	23.179760	19.59358
314.001	26.368710	19.58659
318.001	29.570930	19.57926
321.999	32.748360	19.57225
309.999	5.248634	17.92306
313.999	7.672132	17.91547
317.999	10.108430	17.90840
322.001	12.550710	17.90160
326.001	14.991910	17.89498
329.999	17.439090	17.88849
334.001	19.887430	17.88205
338.001	22.331830	17.87572
342.002	24.776830	17.86935
346.001	27.217430	17.86303
350.001	29.641780	17.85696
354.000	32.072860	17.85112
358.000	34.505350	17.84499

Table 3a. Liquid PVT Data (Isochoric Apparatus) for HFC-32 4/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
348.002	6.815193	13.66408
351.999	8.001572	13.65927
356.001	9.202769	13.65454
360.000	10.415380	13.64985
364.000	11.637560	13.64516
368.000	12.867150	13.64053
372.000	14.103340	13.63592
376.001	15.345020	13.63132
379.999	16.591050	13.62673
384.001	17.841610	13.62213
388.000	19.094890	13.61754
392.000	20.350410	13.61291
395.999	21.606800	13.60831

Table 3b. Liquid PVT Data (Isochoric Apparatus) for HFC-32 1/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-207.67	522.107	88.825
-204.07	796.787	88.618
-200.47	1585.180	88.585
-196.87	2384.515	88.558
-193.27	3185.248	88.532
-189.67	3983.036	88.508
-186.07	4778.622	88.485
-186.07	561.545	87.062
-182.47	865.058	86.857
-178.87	1588.846	86.827
-175.27	2320.882	86.801
-171.67	3052.787	86.777
-168.07	3783.822	86.754
-164.47	4510.991	86.732
-171.67	623.546	85.859
-168.07	1303.138	85.828
-164.47	1997.511	85.801
-160.87	2692.815	85.778
-157.27	3387.863	85.755
-153.67	4081.211	85.733
-150.07	4769.851	85.712
-153.67	554.362	84.317
-150.07	792.717	84.113
-146.47	1421.719	84.086
-142.87	2057.708	84.062
-139.27	2695.366	84.039
-135.67	3332.054	84.018
-132.07	3965.568	83.998
-128.47	4597.403	83.978
-133.87	378.615	82.537
-132.07	565.176	82.515
-128.47	862.417	82.310
-124.87	1438.735	82.285
-121.27	2020.463	82.262
-117.67	2602.995	82.241
-114.07	3183.799	82.221
-110.47	3763.130	82.202
-106.87	4339.635	82.183
-103.27	4914.702	82.164
-106.87	561.332	80.318
-103.27	824.785	80.114
-99.67	1341.911	80.090
-96.07	1863.603	80.069

Table 3b. Liquid PVT Data (Isochoric Apparatus) for HFC-32 2/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-92.47	2384.513	80.049
-88.87	2905.693	80.030
-85.27	3424.437	80.012
-81.67	3941.798	79.994
-78.07	4457.730	79.976
-74.47	4971.372	79.959
-81.67	616.108	78.073
-78.07	1080.364	78.049
-74.47	1551.094	78.028
-70.87	2021.013	78.009
-67.27	2491.979	77.990
-63.67	2962.250	77.973
-60.07	3430.672	77.956
-56.47	3898.279	77.939
-52.87	4364.540	77.922
-49.27	4828.529	77.906
-56.47	613.177	75.753
-52.87	1028.136	75.731
-49.27	1447.401	75.711
-45.67	1866.799	75.693
-42.07	2286.505	75.675
-38.47	2705.748	75.659
-34.87	3123.717	75.642
-31.27	3541.567	75.626
-27.67	3957.884	75.610
-24.07	4373.276	75.595
-20.47	4787.414	75.580
-33.07	563.736	73.502
-31.27	600.650	73.312
-27.67	968.846	73.291
-24.07	1341.373	73.272
-20.47	1714.181	73.255
-16.87	2086.070	73.239
-13.27	2458.642	73.223
-9.67	2830.453	73.207
-6.07	3201.000	73.192
-2.47	3571.281	73.177
1.13	3940.674	73.163
4.73	4309.336	73.148
8.33	4677.168	73.134
11.93	5043.577	73.119
-6.07	571.119	70.716
-2.47	853.291	70.698
1.13	1179.970	70.680
4.73	1507.825	70.664

Table 3b. Liquid PVT Data (Isochoric Apparatus) for HFC-32 3/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
8.33	1835.874	70.648
11.93	2163.810	70.633
15.53	2490.532	70.618
19.13	2817.666	70.604
22.73	3144.106	70.590
26.33	3469.621	70.576
29.93	3794.470	70.562
33.53	4119.182	70.548
37.13	4442.831	70.535
40.73	4765.825	70.521
44.33	5087.393	70.508
26.33	564.390	67.254
33.53	999.097	67.039
40.73	1546.898	67.009
47.93	2095.197	66.982
55.13	2641.748	66.955
62.33	3188.000	66.930
69.53	3732.118	66.904
76.73	4274.750	66.879
83.93	4815.303	66.854
55.13	573.841	63.790
62.33	1032.467	63.759
69.53	1498.160	63.732
76.73	1964.577	63.707
83.93	2431.125	63.682
91.13	2896.948	63.658
98.33	3361.946	63.635
105.53	3824.465	63.612
112.73	4288.908	63.588
119.93	4749.756	63.565
98.33	761.251	58.209
105.53	1112.751	58.185
112.73	1466.106	58.162
119.93	1820.330	58.140
127.13	2174.397	58.118
134.33	2529.331	58.097
141.53	2884.433	58.076
148.73	3238.964	58.056
155.93	3593.582	58.035
163.13	3947.561	58.014
170.33	4299.184	57.995
177.53	4651.783	57.976
184.73	5004.587	57.956
166.73	988.462	44.377
173.93	1160.532	44.362

Table 3b. Liquid PVT Data (Isochoric Apparatus) for HFC-32 4/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
181.13	1334.751	44.346
188.33	1510.626	44.331
195.53	1687.888	44.316
202.73	1866.226	44.301
209.93	2045.520	44.286
217.13	2225.611	44.271
224.33	2406.333	44.256
231.53	2587.711	44.241
238.73	2769.485	44.226
245.93	2951.583	44.211
253.13	3133.807	44.196

Table 4. Vapor pressures of HFC-32 obtained using the NIST Burnett apparatus

T/K	P/kPa	T/F	P/psia
268.154	690.56	23.007	100.15
273.163	813.62	32.023	118.00
278.137	951.22	40.976	137.96
283.184	1108.22	50.061	160.73
288.129	1280.21	58.962	185.67
293.121	1473.50	67.947	213.71
298.174	1690.81	77.043	245.23
303.122	1926.26	85.949	279.38
308.143	2189.50	94.987	317.56
313.122	2476.63	103.949	359.20
318.154	2794.65	113.007	405.32
318.169	2795.42	113.034	405.44
323.161	3140.65	122.019	455.51
328.202	3522.52	131.093	510.89
333.105	3927.61	139.919	569.65
338.150	4382.59	149.000	635.64
343.110	4871.98	157.928	706.62
348.081	5409.01	166.875	784.51

Table 5. Vapor pressures of HFC-32 obtained using the NIST ebulliometer

T/K	P/kPa	T/F	P/psia
208.357	49.434	-84.627	7.170
208.650	50.260	-84.100	7.290
209.314	52.312	-82.904	7.587
209.933	54.206	-81.790	7.862
210.318	55.400	-81.097	8.035
210.350	55.530	-81.039	8.054
211.812	60.305	-78.408	8.747
213.306	65.582	-75.719	9.512
214.697	70.762	-73.215	10.263
215.477	73.835	-71.811	10.709
217.018	80.287	-69.037	11.645
217.067	80.504	-68.949	11.676
218.323	85.961	-66.688	12.468
219.303	90.560	-64.924	13.135
220.256	95.099	-63.209	13.793
221.371	100.691	-61.202	14.604
223.331	111.147	-57.674	16.121
224.944	120.413	-54.770	17.464
226.732	131.412	-51.552	19.060
228.109	140.395	-49.073	20.363
229.618	150.769	-46.357	21.867
231.030	161.017	-43.815	23.354
232.024	168.561	-42.026	24.448
233.598	181.069	-39.193	26.262
234.757	190.739	-37.107	27.664
236.369	204.848	-34.205	29.711
237.380	214.096	-32.385	31.052

Table 6. Saturated vapor densities for HFC-32 (NIST Burnett apparatus + ebulliometer)

T/K	P/Bar	ρ/mol/L	T/F	P/psia	ρ/lbs/ft^3
219	0.890	0.0509	-65.469	12.921	0.1653
224	1.149	0.0647	-56.469	16.669	0.2101
229	1.464	0.0813	-47.469	21.234	0.2640
234	1.843	0.1010	-38.469	26.737	0.3280
239	2.296	0.1244	-29.469	33.303	0.4040
244	2.831	0.1519	-20.469	41.067	0.4933
249	3.459	0.1840	-11.469	50.170	0.5975
254	4.189	0.2214	-2.469	60.760	0.7190
259	5.032	0.2645	6.530	72.993	0.8590
264	6.000	0.3142	15.530	87.029	1.0204
269	7.104	0.3713	24.530	103.037	1.2058
274	8.355	0.4367	33.530	121.190	1.4182
279	9.767	0.5114	42.530	141.668	1.6608
284	11.352	0.5967	51.530	164.646	1.9378
289	13.124	0.6941	60.530	190.347	2.2542
294	15.097	0.8054	69.530	218.963	2.6156
299	17.284	0.9326	78.530	250.683	3.0287
304	19.702	1.0785	87.530	285.753	3.5026
309	22.367	1.2466	96.530	324.405	4.0485
314	25.296	1.4414	105.530	366.887	4.6812
319	28.508	1.6690	114.530	413.473	5.4203
324	32.023	1.9385	123.530	464.454	6.2956
329	35.865	2.2631	132.530	520.177	7.3498
334	40.059	2.6649	141.530	581.006	8.6547
336	41.843	2.8552	145.130	606.881	9.2728
339	44.639	3.1841	150.530	647.434	10.3409
340	45.604	3.3084	152.330	661.430	10.7446
343	48.604	3.7403	157.730	704.941	12.1473

Table 7. Saturated liquid densities for HFC-32 (NIST Burnett apparatus + ebulliometer)

T/K	P/Bar	ρ/mol/L	T/F	P/psia	ρ/lbs/ft^3
242.589	2.671	22.168	-23.009	38.739	71.994
246.063	3.079	21.974	-16.756	44.650	71.364
250.574	3.677	21.706	-8.636	53.330	70.494
255.132	4.370	21.433	-0.432	63.381	69.607
259.778	5.175	21.148	7.930	75.057	68.682
264.509	6.106	20.853	16.446	88.560	67.724
269.391	7.197	20.539	25.233	104.383	66.704
274.006	8.357	20.231	33.540	121.208	65.704
278.823	9.715	19.908	42.211	140.904	64.655
283.645	11.234	19.568	50.890	162.935	63.550
288.530	12.950	19.216	59.684	187.823	62.407
293.461	14.874	18.845	68.559	215.729	61.202
298.418	17.018	18.457	77.482	246.825	59.942
303.414	19.407	18.044	86.475	281.474	58.601
308.266	21.960	17.620	95.208	318.502	57.224
313.135	24.770	17.178	103.973	359.258	55.788
318.253	28.010	16.670	113.185	406.250	54.139
323.110	31.374	16.147	121.928	455.041	52.440
327.963	35.041	15.582	130.663	508.226	50.605
332.797	39.017	14.955	139.364	565.893	48.569
337.791	43.494	14.175	148.353	630.827	46.036

Table 8a. Vapor Pressures (Static Method) for HFC-32

Temperature K	Pressure MPa
140.00	0.0000889
150.00	0.0003294
160.00	0.0011685
170.00	0.0030297
180.00	0.0071181
190.00	0.0152322
200.00	0.0299572
210.00	0.0547286
215.00	0.0721023
220.00	0.0939875
225.00	0.1208910
230.00	0.1536646
235.00	0.1931371
225.00	0.1209475
230.00	0.1537230
235.00	0.1931801
240.00	0.2399032
250.00	0.3599517
260.00	0.5216263
270.00	0.7338014
280.00	1.005735
290.00	1.348668
300.00	1.772857
310.00	2.29115
320.00	2.91673
330.00	3.66563
340.00	4.55863

Table 8b. Vapor Pressures (Static Method) for HFC-32

Temperature °F	Pressure psia
-207.67	0.01290
-189.67	0.04778
-171.67	0.16947
-153.67	0.43942
-135.67	1.03239
-117.67	2.20925
-99.67	4.34493
-81.67	7.93771
-72.67	10.45756
-63.67	13.63173
-54.67	17.53375
-45.67	22.28717
-36.67	28.01217
-54.67	17.54195
-45.67	22.29563
-36.67	28.01840
-27.67	34.79502
-9.67	52.20658
8.33	75.6555
26.33	106.4289
44.33	145.86955
62.33	195.6077
80.33	257.1311
98.33	332.303
116.33	423.036
134.33	531.654
152.33	661.174

Table 9(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
201.4668	0.0031	24.463	0.023	5.477	0.107	52.76	0.20	0.39	a
203.1891	0.0031	24.451	0.025	8.169	0.107	49.77	0.17	0.34	b
205.3522	0.0031	24.437	0.028	11.744	0.107	49.68	0.14	0.28	a
207.1265	0.0033	24.424	0.031	14.723	0.107	49.51	0.13	0.26	b
209.2809	0.0031	24.409	0.035	18.306	0.107	49.62	0.12	0.24	a
211.0429	0.0030	24.397	0.037	21.173	0.107	49.52	0.11	0.23	b
213.1814	0.0031	24.383	0.040	24.573	0.107	49.72	0.11	0.22	a
214.9430	0.0031	24.371	0.043	27.330	0.107	49.73	0.11	0.22	b
217.0617	0.0031	24.357	0.046	30.654	0.107	50.07	0.11	0.21	a

Table 9(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-97.030	0.006	79.45	0.07	794.3	15.6	0.24239	0.00094	0.39	a
-93.930	0.006	79.41	0.08	1184.8	15.6	0.22864	0.00077	0.34	b
-90.036	0.005	79.36	0.09	1703.3	15.6	0.22822	0.00063	0.28	a
-86.842	0.006	79.32	0.10	2135.4	15.6	0.22747	0.00058	0.26	b
-82.964	0.006	79.28	0.11	2655.1	15.6	0.22797	0.00054	0.24	a
-79.793	0.005	79.24	0.12	3070.9	15.6	0.22749	0.00053	0.23	b
-75.944	0.006	79.19	0.13	3564.0	15.6	0.22843	0.00051	0.22	a
-72.773	0.006	79.15	0.14	3963.9	15.6	0.22848	0.00051	0.22	b
-68.959	0.006	79.11	0.15	4446.0	15.6	0.23001	0.00049	0.21	a

Table 10(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
223.0399	0.0031	23.372	0.021	5.067	0.059	52.53	0.20	0.39	a
225.1392	0.0032	23.360	0.024	7.844	0.059	48.98	0.15	0.32	b
226.9877	0.0031	23.349	0.026	10.421	0.059	48.78	0.13	0.27	a
229.1349	0.0034	23.336	0.029	13.473	0.059	48.90	0.12	0.24	b
231.0003	0.0032	23.325	0.031	16.121	0.059	48.87	0.11	0.22	a
233.1008	0.0033	23.312	0.034	19.063	0.059	48.93	0.11	0.22	b
234.9878	0.0032	23.301	0.036	21.658	0.059	48.88	0.10	0.21	a
237.0561	0.0033	23.289	0.038	24.455	0.059	48.96	0.10	0.21	b
238.9540	0.0032	23.278	0.041	26.999	0.059	48.92	0.10	0.20	a
240.9935	0.0034	23.266	0.043	29.745	0.059	49.06	0.10	0.20	b

Table 10(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-58.198	0.006	75.90	0.07	734.9	8.5	0.24133	0.00094	0.39	a
-54.419	0.006	75.87	0.08	1137.7	8.5	0.22503	0.00071	0.32	b
-51.092	0.006	75.83	0.08	1511.4	8.5	0.22409	0.00060	0.27	a
-47.227	0.006	75.79	0.09	1954.1	8.5	0.22465	0.00054	0.24	b
-43.869	0.006	75.75	0.10	2338.2	8.5	0.22450	0.00050	0.22	a
-40.088	0.006	75.71	0.11	2764.9	8.5	0.22478	0.00048	0.22	b
-36.692	0.006	75.68	0.12	3141.2	8.5	0.22457	0.00047	0.21	a
-32.969	0.006	75.64	0.12	3546.9	8.5	0.22493	0.00046	0.21	b
-29.553	0.006	75.60	0.13	3916.0	8.5	0.22476	0.00045	0.20	a
-25.882	0.006	75.56	0.14	4314.2	8.5	0.22539	0.00045	0.20	b

Table 11(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
247.0969	0.0031	22.066	0.019	3.950	0.054	52.43	0.21	0.40	a
249.1753	0.0032	22.056	0.021	6.199	0.054	48.46	0.15	0.31	b
251.1224	0.0031	22.047	0.023	8.420	0.054	48.69	0.12	0.25	a
253.2549	0.0035	22.036	0.025	10.911	0.054	48.56	0.11	0.23	b
255.1851	0.0031	22.026	0.027	13.175	0.054	48.69	0.10	0.21	a
257.3175	0.0032	22.016	0.029	15.653	0.054	48.37	0.09	0.20	b
259.2450	0.0031	22.006	0.031	17.859	0.054	48.94	0.09	0.19	a
261.3647	0.0033	21.996	0.033	20.243	0.054	48.61	0.09	0.18	b
263.2759	0.0031	21.987	0.035	22.361	0.054	49.04	0.09	0.18	a
265.3986	0.0032	21.977	0.037	24.696	0.054	48.88	0.09	0.18	b
267.3116	0.0032	21.968	0.038	26.807	0.054	49.17	0.09	0.18	a
269.4156	0.0033	21.957	0.040	29.167	0.054	49.19	0.09	0.18	b

Table 11(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-14.896	0.006	71.67	0.06	572.9	7.8	0.24089	0.00096	0.40	a
-11.154	0.006	71.63	0.07	899.1	7.8	0.22264	0.00070	0.31	b
-7.650	0.006	71.60	0.07	1221.3	7.8	0.22370	0.00057	0.25	a
-3.811	0.006	71.57	0.08	1582.5	7.8	0.22309	0.00050	0.23	b
-0.337	0.006	71.54	0.09	1910.8	7.8	0.22370	0.00046	0.21	a
3.502	0.006	71.50	0.09	2270.3	7.8	0.22220	0.00044	0.20	b
6.971	0.006	71.47	0.10	2590.2	7.8	0.22483	0.00042	0.19	a
10.786	0.006	71.44	0.11	2936.0	7.8	0.22333	0.00041	0.18	b
14.227	0.006	71.41	0.11	3243.2	7.8	0.22530	0.00040	0.18	a
18.047	0.006	71.38	0.12	3581.9	7.8	0.22457	0.00040	0.18	b
21.491	0.006	71.35	0.12	3888.0	7.8	0.22589	0.00040	0.18	a
25.278	0.006	71.31	0.13	4230.3	7.8	0.22600	0.00040	0.18	b

Table 12(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
275.8475	0.0034	20.321	0.018	4.042	0.040	52.42	0.21	0.39	a
277.9247	0.0033	20.314	0.019	5.795	0.040	49.05	0.15	0.30	b
279.9747	0.0035	20.306	0.021	7.567	0.040	48.91	0.12	0.24	a
282.0959	0.0033	20.298	0.022	9.429	0.040	49.22	0.10	0.20	b
284.1547	0.0033	20.290	0.023	11.251	0.040	49.19	0.09	0.18	a
286.2690	0.0033	20.282	0.025	13.126	0.040	49.27	0.09	0.17	b
288.3385	0.0032	20.274	0.026	14.959	0.040	49.24	0.08	0.16	a
290.4273	0.0032	20.266	0.028	16.801	0.040	49.31	0.08	0.16	b
292.5119	0.0031	20.258	0.029	18.627	0.040	49.22	0.08	0.15	a
294.5814	0.0032	20.250	0.030	20.428	0.040	49.47	0.08	0.15	b
296.6696	0.0033	20.242	0.032	22.232	0.040	49.12	0.07	0.15	a
298.7243	0.0034	20.235	0.033	23.996	0.040	49.44	0.08	0.15	b
300.8062	0.0032	20.227	0.034	25.776	0.040	49.43	0.07	0.15	a
302.8544	0.0032	20.219	0.036	27.524	0.040	49.58	0.07	0.15	b
304.9452	0.0035	20.211	0.037	29.309	0.040	50.07	0.08	0.15	a
306.9722	0.0034	20.203	0.038	31.047	0.040	50.10	0.07	0.15	b

Table 12(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
36.855	0.006	66.00	0.06	586.3	5.8	0.24084	0.00094	0.39	a
40.594	0.006	65.97	0.06	840.5	5.8	0.22532	0.00067	0.30	b
44.285	0.006	65.95	0.07	1097.5	5.8	0.22468	0.00053	0.24	a
48.103	0.006	65.92	0.07	1367.6	5.8	0.22611	0.00046	0.20	b
51.808	0.006	65.90	0.08	1631.8	5.8	0.22598	0.00042	0.18	a
55.614	0.006	65.87	0.08	1903.8	5.8	0.22635	0.00039	0.17	b
59.339	0.006	65.84	0.09	2169.6	5.8	0.22621	0.00037	0.16	a
63.099	0.006	65.82	0.09	2436.7	5.8	0.22652	0.00036	0.16	b
66.851	0.006	65.79	0.09	2701.6	5.8	0.22612	0.00035	0.15	a
70.577	0.006	65.77	0.10	2962.8	5.8	0.22726	0.00035	0.15	b
74.335	0.006	65.74	0.10	3224.5	5.8	0.22568	0.00034	0.15	a
78.034	0.006	65.72	0.11	3480.4	5.8	0.22715	0.00034	0.15	b
81.781	0.006	65.69	0.11	3738.6	5.8	0.22710	0.00034	0.15	a
85.468	0.006	65.67	0.12	3992.0	5.8	0.22778	0.00034	0.15	b
89.231	0.006	65.64	0.12	4251.0	5.8	0.23001	0.00035	0.15	a
92.880	0.006	65.62	0.12	4503.0	5.8	0.23017	0.00034	0.15	b

Table 13(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
312.5690	0.0035	17.508	0.016	4.054	0.012	53.52	0.16	0.29	b
314.7177	0.0035	17.502	0.016	5.241	0.012	50.89	0.12	0.23	a
316.9402	0.0038	17.497	0.017	6.484	0.012	50.63	0.10	0.19	b
319.1431	0.0033	17.491	0.018	7.726	0.012	51.00	0.08	0.16	a
321.3493	0.0035	17.486	0.019	8.975	0.012	50.81	0.08	0.15	b
323.5644	0.0034	17.480	0.020	10.231	0.012	50.94	0.07	0.14	a
325.7710	0.0035	17.475	0.020	11.483	0.012	50.82	0.07	0.14	b
327.9769	0.0036	17.469	0.021	12.733	0.012	51.06	0.07	0.13	a
330.1818	0.0035	17.464	0.022	13.980	0.012	50.94	0.07	0.13	b
332.3890	0.0035	17.458	0.023	15.227	0.012	51.05	0.07	0.13	a
334.5961	0.0039	17.453	0.024	16.471	0.012	51.13	0.07	0.13	b
336.8003	0.0033	17.447	0.024	17.713	0.012	51.21	0.06	0.12	a
339.0053	0.0035	17.442	0.025	18.956	0.012	51.08	0.06	0.13	b
341.2046	0.0034	17.436	0.026	20.198	0.012	51.26	0.06	0.12	a

Table 13(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
102.954	0.006	56.86	0.05	587.9	1.7	0.24587	0.00071	0.29	b
106.822	0.006	56.84	0.05	760.2	1.7	0.23379	0.00054	0.23	a
110.822	0.007	56.83	0.06	940.5	1.7	0.23260	0.00045	0.19	b
114.788	0.006	56.81	0.06	1120.6	1.7	0.23430	0.00038	0.16	a
118.759	0.006	56.79	0.06	1301.7	1.7	0.23342	0.00036	0.15	b
122.746	0.006	56.77	0.06	1484.0	1.7	0.23403	0.00033	0.14	a
126.718	0.006	56.75	0.07	1665.5	1.7	0.23348	0.00032	0.14	b
130.688	0.006	56.74	0.07	1846.8	1.7	0.23456	0.00031	0.13	a
134.657	0.006	56.72	0.07	2027.7	1.7	0.23403	0.00030	0.13	b
138.630	0.006	56.70	0.07	2208.4	1.7	0.23452	0.00030	0.13	a
142.603	0.007	56.68	0.08	2388.9	1.7	0.23492	0.00031	0.13	b
146.570	0.006	56.67	0.08	2569.0	1.7	0.23527	0.00029	0.12	a
150.539	0.006	56.65	0.08	2749.3	1.7	0.23469	0.00029	0.13	b
154.498	0.006	56.63	0.08	2929.5	1.7	0.23549	0.00029	0.12	a

Table 14(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
152.9366	0.0029	26.811	0.028	8.918	0.029	53.60	0.19	0.35	a
154.9359	0.0029	26.793	0.033	13.597	0.029	53.40	0.16	0.30	b
156.7176	0.0030	26.776	0.037	17.743	0.029	53.31	0.15	0.28	a
158.7148	0.0029	26.758	0.042	22.343	0.029	53.21	0.14	0.26	b
160.4805	0.0030	26.742	0.046	26.357	0.029	53.16	0.14	0.26	a
162.4557	0.0030	26.724	0.051	30.788	0.029	53.34	0.13	0.25	c

Table 14(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-184.384	0.005	87.08	0.09	1293.5	4.3	0.24624	0.00086	0.35	a
-180.785	0.005	87.02	0.11	1972.1	4.3	0.24531	0.00073	0.30	b
-177.578	0.005	86.96	0.12	2573.4	4.3	0.24490	0.00068	0.28	a
-173.983	0.005	86.90	0.14	3240.6	4.3	0.24445	0.00064	0.26	b
-170.805	0.005	86.85	0.15	3822.8	4.3	0.24420	0.00062	0.26	a
-167.250	0.005	86.79	0.16	4465.4	4.3	0.24505	0.00061	0.25	c

Table 15(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
166.0437	0.0030	26.184	0.026	7.359	0.009	52.34	0.20	0.39	a
169.8697	0.0029	26.151	0.034	15.507	0.009	51.99	0.15	0.28	a
173.6822	0.0030	26.119	0.042	23.506	0.009	51.86	0.13	0.26	a
177.4754	0.0029	26.087	0.050	31.315	0.009	51.99	0.13	0.24	a

Table 15(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-160.791	0.005	85.04	0.08	1067.3	1.3	0.24047	0.00093	0.39	a
-153.904	0.005	84.93	0.11	2249.0	1.3	0.23886	0.00067	0.28	a
-147.042	0.005	84.83	0.14	3409.2	1.3	0.23826	0.00061	0.26	a
-140.214	0.005	84.72	0.16	4541.8	1.3	0.23886	0.00058	0.24	a

Table 16(a). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
184.3432	0.0030	25.322	0.025	6.772	0.010	50.68	0.20	0.40	a
186.3054	0.0030	25.307	0.028	10.466	0.010	50.69	0.16	0.31	b
188.2313	0.0030	25.292	0.032	14.071	0.010	50.60	0.14	0.28	a
190.1865	0.0030	25.277	0.035	17.707	0.010	50.64	0.13	0.26	b
192.1069	0.0030	25.262	0.039	21.252	0.010	50.53	0.12	0.25	a
194.0462	0.0031	25.248	0.042	24.802	0.010	50.53	0.12	0.24	b
195.9596	0.0030	25.233	0.045	28.274	0.010	50.56	0.12	0.23	a
197.8910	0.0031	25.219	0.049	31.747	0.010	50.61	0.12	0.23	b

Table 16(b). Experimental liquid heat capacity data for HFC-32.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-127.852	0.005	82.24	0.08	982.2	1.5	0.23285	0.00092	0.40	a
-124.320	0.005	82.19	0.09	1517.9	1.5	0.23288	0.00073	0.31	b
-120.854	0.005	82.14	0.10	2040.9	1.5	0.23248	0.00064	0.28	a
-117.334	0.005	82.09	0.11	2568.2	1.5	0.23265	0.00060	0.26	b
-113.878	0.005	82.05	0.13	3082.4	1.5	0.23215	0.00057	0.25	a
-110.387	0.006	82.00	0.14	3597.3	1.5	0.23216	0.00056	0.24	b
-106.943	0.005	81.95	0.15	4100.8	1.5	0.23230	0.00055	0.23	a
-103.466	0.006	81.90	0.16	4604.5	1.5	0.23249	0.00054	0.23	b

Table 17(a). Experimental two-phase heat capacity data for HFC-32.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
141.7357	0.0030	27.556	0.0001	82.41	0.06	0.08	82.41	0.06	0.08	a
145.8061	0.0029	27.313	0.0002	82.07	0.06	0.07	82.06	0.06	0.07	a
149.8458	0.0029	27.075	0.0003	82.03	0.06	0.08	82.02	0.06	0.08	a
153.8710	0.0030	26.841	0.0005	81.83	0.06	0.08	81.81	0.06	0.08	a
157.8716	0.0029	26.611	0.0008	81.75	0.06	0.08	81.72	0.06	0.08	a
161.8533	0.0029	26.386	0.0012	81.61	0.06	0.08	81.58	0.06	0.08	a
165.8155	0.0030	26.164	0.0018	81.16	0.06	0.08	81.12	0.06	0.08	a
169.7495	0.0030	25.946	0.0026	81.18	0.06	0.08	81.12	0.07	0.08	a
173.6717	0.0029	25.730	0.0038	81.23	0.06	0.08	81.15	0.07	0.08	a
177.5690	0.0030	25.518	0.0053	81.45	0.06	0.08	81.35	0.07	0.09	a
181.4505	0.0030	25.308	0.0074	81.33	0.07	0.08	81.21	0.07	0.09	a
185.3072	0.0030	25.100	0.0101	81.29	0.07	0.08	81.15	0.08	0.10	a
189.1516	0.0030	24.895	0.0135	81.20	0.06	0.08	81.03	0.09	0.11	a
192.9702	0.0029	24.691	0.0179	81.39	0.06	0.08	81.19	0.09	0.11	a
196.7737	0.0030	24.489	0.0233	81.33	0.07	0.08	81.09	0.10	0.13	a
200.5483	0.0030	24.288	0.0299	81.55	0.07	0.08	81.27	0.11	0.14	a
204.5556	0.0030	24.076	0.0385	81.80	0.06	0.07	81.48	0.12	0.15	a
208.7849	0.0030	23.852	0.0498	82.07	0.06	0.07	81.71	0.14	0.17	a
212.9828	0.0030	23.629	0.0635	82.34	0.06	0.07	81.92	0.16	0.19	a
217.1603	0.0030	23.406	0.0799	82.66	0.06	0.07	82.20	0.17	0.21	a
221.3115	0.0030	23.184	0.0995	82.91	0.06	0.08	82.40	0.19	0.24	a
225.4342	0.0031	22.963	0.1226	83.27	0.06	0.08	82.72	0.21	0.26	a
229.5376	0.0031	22.741	0.1496	83.58	0.07	0.08	82.99	0.23	0.28	a
233.6094	0.0031	22.519	0.1808	84.01	0.07	0.08	83.37	0.26	0.31	a
237.6613	0.0030	22.297	0.2167	84.57	0.07	0.08	83.90	0.28	0.33	a
241.6846	0.0030	22.074	0.2577	85.05	0.07	0.08	84.36	0.30	0.35	a
245.6850	0.0031	21.849	0.3042	85.38	0.07	0.08	84.68	0.31	0.37	a
249.6596	0.0031	21.624	0.3566	85.90	0.07	0.08	85.20	0.33	0.39	a
253.6128	0.0030	21.397	0.4153	86.31	0.07	0.08	85.63	0.35	0.41	a
257.5429	0.0030	21.168	0.4807	86.74	0.07	0.08	86.10	0.36	0.42	a
261.4430	0.0031	20.938	0.5532	87.28	0.07	0.08	86.69	0.38	0.43	a
265.3195	0.0032	20.705	0.6332	88.21	0.07	0.08	87.70	0.39	0.44	a
269.1857	0.0030	20.469	0.7215	88.67	0.07	0.08	88.27	0.39	0.44	a
273.0159	0.0033	20.230	0.8178	89.41	0.08	0.09	89.16	0.39	0.44	a
276.8306	0.0032	19.988	0.9230	90.05	0.08	0.09	89.97	0.39	0.44	a
280.6208	0.0030	19.741	1.0374	90.93	0.08	0.08	91.07	0.39	0.43	a
284.6251	0.0030	19.475	1.1694	91.68	0.07	0.08	92.11	0.38	0.41	a
288.8352	0.0031	19.187	1.3213	92.66	0.07	0.08	93.47	0.36	0.39	a
293.0161	0.0031	18.893	1.4863	93.41	0.07	0.08	94.68	0.34	0.36	a
297.1666	0.0030	18.591	1.6648	94.70	0.08	0.08	96.54	0.31	0.32	a
301.2947	0.0031	18.280	1.8577	95.73	0.08	0.08	98.28	0.28	0.29	a
305.3859	0.0030	17.960	2.0648	96.80	0.08	0.08	100.15	0.28	0.28	a

Table 17(b). Experimental two-phase heat capacity data for HFC-32.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
-204.546	0.005	89.50	0.01	0.37860	0.00029	0.08	0.37858	0.00029	0.08	a
-197.219	0.005	88.71	0.02	0.37705	0.00028	0.07	0.37701	0.00028	0.07	a
-189.947	0.005	87.93	0.04	0.37685	0.00029	0.08	0.37680	0.00029	0.08	a
-182.702	0.005	87.17	0.07	0.37593	0.00029	0.08	0.37586	0.00030	0.08	a
-175.501	0.005	86.43	0.11	0.37555	0.00029	0.08	0.37545	0.00029	0.08	a
-168.334	0.005	85.69	0.17	0.37494	0.00029	0.08	0.37479	0.00029	0.08	a
-161.202	0.005	84.97	0.26	0.37287	0.00029	0.08	0.37267	0.00030	0.08	a
-154.121	0.005	84.27	0.38	0.37293	0.00029	0.08	0.37267	0.00030	0.08	a
-147.061	0.005	83.57	0.55	0.37317	0.00029	0.08	0.37284	0.00031	0.08	a
-140.046	0.005	82.88	0.77	0.37417	0.00030	0.08	0.37375	0.00033	0.09	a
-133.059	0.005	82.19	1.07	0.37363	0.00030	0.08	0.37310	0.00034	0.09	a
-126.117	0.005	81.52	1.46	0.37345	0.00030	0.08	0.37280	0.00037	0.10	a
-119.197	0.005	80.85	1.96	0.37304	0.00030	0.08	0.37225	0.00039	0.11	a
-112.324	0.005	80.19	2.59	0.37391	0.00030	0.08	0.37298	0.00043	0.11	a
-105.477	0.005	79.53	3.37	0.37362	0.00030	0.08	0.37253	0.00047	0.13	a
-98.683	0.005	78.88	4.34	0.37465	0.00031	0.08	0.37339	0.00052	0.14	a
-91.470	0.005	78.19	5.59	0.37581	0.00028	0.07	0.37435	0.00056	0.15	a
-83.857	0.005	77.46	7.22	0.37706	0.00028	0.07	0.37538	0.00064	0.17	a
-76.301	0.005	76.74	9.21	0.37826	0.00028	0.07	0.37636	0.00072	0.19	a
-68.781	0.005	76.02	11.59	0.37975	0.00028	0.07	0.37762	0.00080	0.21	a
-61.309	0.005	75.30	14.43	0.38090	0.00029	0.08	0.37856	0.00089	0.24	a
-53.888	0.006	74.58	17.78	0.38257	0.00030	0.08	0.38001	0.00098	0.26	a
-46.502	0.006	73.86	21.70	0.38400	0.00030	0.08	0.38125	0.00108	0.28	a
-39.173	0.006	73.14	26.22	0.38594	0.00030	0.08	0.38301	0.00117	0.31	a
-31.880	0.005	72.41	31.43	0.38852	0.00030	0.08	0.38545	0.00126	0.33	a
-24.638	0.005	71.69	37.38	0.39072	0.00030	0.08	0.38755	0.00136	0.35	a
-17.437	0.005	70.96	44.12	0.39223	0.00031	0.08	0.38901	0.00144	0.37	a
-10.283	0.006	70.23	51.71	0.39464	0.00032	0.08	0.39144	0.00153	0.39	a
-3.167	0.005	69.49	60.23	0.39651	0.00031	0.08	0.39338	0.00160	0.41	a
3.907	0.005	68.75	69.73	0.39851	0.00032	0.08	0.39555	0.00167	0.42	a
10.927	0.006	68.00	80.24	0.40098	0.00033	0.08	0.39828	0.00172	0.43	a
17.905	0.006	67.24	91.84	0.40524	0.00034	0.08	0.40291	0.00177	0.44	a
24.864	0.005	66.48	104.64	0.40736	0.00033	0.08	0.40553	0.00180	0.44	a
31.759	0.006	65.70	118.61	0.41078	0.00036	0.09	0.40960	0.00181	0.44	a
38.625	0.006	64.91	133.88	0.41371	0.00036	0.09	0.41335	0.00181	0.44	a
45.447	0.005	64.12	150.46	0.41775	0.00035	0.08	0.41841	0.00178	0.43	a
52.655	0.005	63.25	169.60	0.42118	0.00032	0.08	0.42317	0.00173	0.41	a
60.233	0.006	62.32	191.64	0.42569	0.00034	0.08	0.42941	0.00165	0.39	a
67.759	0.006	61.36	215.56	0.42914	0.00034	0.08	0.43497	0.00155	0.36	a
75.230	0.005	60.38	241.45	0.43509	0.00035	0.08	0.44350	0.00144	0.32	a
82.660	0.006	59.37	269.43	0.43980	0.00036	0.08	0.45152	0.00130	0.29	a
90.025	0.005	58.33	299.48	0.44472	0.00036	0.08	0.46009	0.00127	0.28	a

Table 18(a). Experimental two-phase heat capacity data for HFC-32.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
141.1591	0.0030	27.591	0.0001	82.53	0.06	0.08	82.53	0.06	0.08	d
142.8524	0.0029	27.489	0.0001	82.39	0.04	0.05	82.39	0.04	0.05	c
145.2086	0.0029	27.348	0.0002	82.20	0.06	0.07	82.20	0.06	0.07	d
149.2430	0.0029	27.110	0.0003	81.90	0.06	0.07	81.90	0.06	0.07	d
150.0449	0.0030	27.063	0.0003	81.95	0.04	0.05	81.95	0.04	0.05	c
153.2491	0.0030	26.877	0.0004	81.85	0.06	0.08	81.85	0.06	0.08	d
157.1710	0.0029	26.651	0.0007	81.81	0.04	0.05	81.81	0.04	0.05	c
157.2459	0.0030	26.647	0.0007	81.64	0.06	0.08	81.63	0.06	0.08	d
161.2209	0.0031	26.421	0.0011	81.59	0.06	0.08	81.59	0.06	0.08	d
165.1870	0.0030	26.199	0.0017	81.70	0.06	0.08	81.69	0.06	0.08	d
169.1335	0.0029	25.980	0.0025	81.55	0.06	0.08	81.55	0.06	0.08	d
173.0592	0.0030	25.764	0.0036	81.63	0.06	0.08	81.63	0.06	0.08	d
176.9858	0.0030	25.550	0.0051	81.26	0.06	0.08	81.26	0.06	0.08	d

Table 18(b). Experimental two-phase heat capacity data for HFC-32.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
-205.584	0.005	89.61	0.01	0.37916	0.00029	0.08	0.37915	0.00029	0.08	d
-202.536	0.005	89.28	0.02	0.37850	0.00017	0.05	0.37850	0.00017	0.05	c
-198.294	0.005	88.82	0.02	0.37764	0.00028	0.07	0.37763	0.00028	0.07	d
-191.033	0.005	88.05	0.04	0.37628	0.00028	0.07	0.37628	0.00028	0.07	d
-189.589	0.005	87.89	0.04	0.37649	0.00017	0.05	0.37649	0.00017	0.05	c
-183.822	0.005	87.29	0.06	0.37602	0.00029	0.08	0.37602	0.00029	0.08	d
-176.762	0.005	86.56	0.10	0.37585	0.00017	0.05	0.37584	0.00017	0.05	c
-176.627	0.005	86.54	0.10	0.37505	0.00029	0.08	0.37504	0.00029	0.08	d
-169.472	0.005	85.81	0.16	0.37484	0.00030	0.08	0.37483	0.00030	0.08	d
-162.333	0.005	85.09	0.24	0.37532	0.00029	0.08	0.37532	0.00029	0.08	d
-155.230	0.005	84.38	0.36	0.37466	0.00029	0.08	0.37466	0.00029	0.08	d
-148.164	0.005	83.67	0.52	0.37503	0.00029	0.08	0.37504	0.00029	0.08	d
-141.096	0.005	82.98	0.74	0.37331	0.00029	0.08	0.37333	0.00029	0.08	d

Table 19(a). Experimental two-phase heat capacity data for HFC-32.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
144.5737	0.0030	27.386	0.0001	82.33	0.05	0.07	82.32	0.05	0.07	a
149.5238	0.0030	27.094	0.0003	81.96	0.05	0.07	81.94	0.06	0.07	a
154.4251	0.0029	26.809	0.0005	81.76	0.05	0.07	81.72	0.06	0.07	a
159.2977	0.0030	26.530	0.0009	81.66	0.06	0.07	81.60	0.06	0.07	a
164.1292	0.0030	26.258	0.0015	81.51	0.06	0.07	81.42	0.06	0.08	a
168.9241	0.0030	25.991	0.0024	81.51	0.06	0.07	81.38	0.07	0.08	a
173.6834	0.0030	25.730	0.0038	81.54	0.06	0.07	81.36	0.08	0.10	a
178.4073	0.0030	25.472	0.0057	81.61	0.06	0.07	81.37	0.09	0.11	a
183.0937	0.0031	25.219	0.0085	81.56	0.06	0.07	81.25	0.11	0.14	a
187.7483	0.0031	24.970	0.0122	81.54	0.06	0.07	81.14	0.14	0.17	a
192.3683	0.0030	24.723	0.0171	81.71	0.06	0.07	81.20	0.17	0.21	a
196.9571	0.0030	24.479	0.0236	82.11	0.06	0.07	81.48	0.21	0.25	a
201.5127	0.0030	24.237	0.0318	82.06	0.06	0.07	81.29	0.25	0.30	a
206.0239	0.0030	23.998	0.0422	82.59	0.06	0.07	81.67	0.30	0.36	a
210.5109	0.0031	23.760	0.0551	83.23	0.06	0.07	82.13	0.35	0.43	a
214.9647	0.0031	23.523	0.0709	83.54	0.06	0.07	82.26	0.41	0.50	a
219.3819	0.0031	23.287	0.0900	83.75	0.06	0.08	82.27	0.47	0.58	a
223.7718	0.0032	23.052	0.1128	83.74	0.07	0.08	82.05	0.54	0.66	a
228.1108	0.0032	22.818	0.1397	84.23	0.07	0.08	82.32	0.62	0.75	a
232.4360	0.0031	22.583	0.1713	85.01	0.07	0.08	82.87	0.70	0.84	a
236.5785	0.0032	22.356	0.2066	85.94	0.07	0.08	83.58	0.78	0.93	b
237.8819	0.0031	22.284	0.2188	86.25	0.07	0.08	83.81	0.80	0.96	c
240.8376	0.0032	22.121	0.2486	86.41	0.07	0.08	83.81	0.86	1.03	b
242.1397	0.0031	22.048	0.2627	86.71	0.07	0.08	84.03	0.89	1.06	c
246.3710	0.0031	21.811	0.3128	87.50	0.07	0.08	84.57	0.98	1.16	c
250.5591	0.0032	21.573	0.3693	88.40	0.07	0.08	85.24	1.07	1.26	c
254.7161	0.0032	21.333	0.4329	89.13	0.07	0.08	85.74	1.16	1.36	c
258.8504	0.0032	21.092	0.5042	90.09	0.07	0.08	86.47	1.26	1.45	c
262.9482	0.0032	20.848	0.5833	90.95	0.08	0.08	87.12	1.35	1.55	c
267.0143	0.0032	20.602	0.6709	92.26	0.08	0.08	88.23	1.45	1.64	c
271.0637	0.0033	20.352	0.7676	92.76	0.08	0.09	88.56	1.54	1.74	c
275.0627	0.0032	20.101	0.8731	93.83	0.08	0.09	89.48	1.64	1.83	c
279.0430	0.0034	19.845	0.9886	95.33	0.09	0.09	90.87	1.73	1.90	c
282.9958	0.0032	19.584	1.1142	96.42	0.09	0.09	91.87	1.82	1.98	c
286.9244	0.0034	19.319	1.2506	97.41	0.09	0.09	92.83	1.91	2.06	c
290.8218	0.0032	19.049	1.3979	98.87	0.09	0.09	94.31	1.99	2.11	c
294.6918	0.0033	18.772	1.5565	100.14	0.09	0.09	95.67	2.07	2.17	c
298.5375	0.0031	18.489	1.7271	101.41	0.09	0.09	97.10	2.15	2.21	c
302.3528	0.0032	18.199	1.9097	103.37	0.10	0.09	99.38	2.20	2.21	c
306.1487	0.0034	17.899	2.1053	104.91	0.10	0.10	101.22	2.28	2.25	c
309.9108	0.0034	17.591	2.3134	106.05	0.11	0.10	102.92	2.32	2.25	c
313.6483	0.0034	17.271	2.5351	107.36	0.11	0.10	104.86	2.38	2.27	c
317.3440	0.0033	16.941	2.7696	109.16	0.12	0.11	107.54	2.41	2.25	c
320.9909	0.0033	16.598	3.0166	108.38	3.84	3.54	107.85	4.55	4.22	c
324.5868	0.0034	16.241	3.2760	113.01	0.12	0.11	114.03	2.45	2.14	c
328.2040	0.0036	15.859	3.5539	115.64	0.13	0.11	118.61	2.45	2.06	c
331.7698	0.0034	15.456	3.8451	118.15	0.13	0.11	123.73	2.42	1.96	c
335.2937	0.0036	15.025	4.1506	120.84	0.14	0.11	129.96	2.38	1.83	c
338.7664	0.0033	14.559	4.4700	123.92	0.14	0.11	138.00	2.34	1.70	c
342.1731	0.0032	14.048	4.8020	128.97	0.14	0.11	150.25	2.35	1.57	c

Table 19(b). Experimental two-phase heat capacity data for HFC-32.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
-199.437	0.005	88.94	0.02	0.37824	0.00025	0.07	0.37818	0.00025	0.07	a
-190.527	0.005	87.99	0.04	0.37655	0.00025	0.07	0.37644	0.00025	0.07	a
-181.705	0.005	87.07	0.07	0.37561	0.00025	0.07	0.37543	0.00026	0.07	a
-172.934	0.005	86.16	0.13	0.37514	0.00026	0.07	0.37487	0.00027	0.07	a
-164.237	0.005	85.28	0.22	0.37447	0.00026	0.07	0.37406	0.00029	0.08	a
-155.607	0.005	84.41	0.35	0.37447	0.00026	0.07	0.37389	0.00031	0.08	a
-147.040	0.005	83.56	0.55	0.37459	0.00026	0.07	0.37379	0.00036	0.10	a
-138.537	0.005	82.73	0.83	0.37491	0.00026	0.07	0.37382	0.00043	0.11	a
-130.101	0.006	81.91	1.23	0.37470	0.00027	0.07	0.37327	0.00052	0.14	a
-121.723	0.005	81.10	1.77	0.37461	0.00027	0.07	0.37276	0.00063	0.17	a
-113.407	0.005	80.29	2.48	0.37537	0.00027	0.07	0.37303	0.00077	0.21	a
-105.147	0.005	79.50	3.42	0.37721	0.00027	0.07	0.37431	0.00094	0.25	a
-96.947	0.005	78.72	4.61	0.37699	0.00027	0.07	0.37346	0.00114	0.30	a
-88.827	0.005	77.94	6.12	0.37943	0.00028	0.07	0.37519	0.00136	0.36	a
-80.750	0.006	77.17	7.99	0.38236	0.00028	0.07	0.37733	0.00161	0.43	a
-72.734	0.006	76.40	10.28	0.38381	0.00029	0.07	0.37793	0.00188	0.50	a
-64.783	0.006	75.63	13.05	0.38475	0.00029	0.08	0.37796	0.00218	0.58	a
-56.881	0.006	74.87	16.36	0.38473	0.00030	0.08	0.37697	0.00250	0.66	a
-49.071	0.006	74.11	20.26	0.38695	0.00031	0.08	0.37818	0.00284	0.75	a
-41.285	0.006	73.34	24.85	0.39056	0.00031	0.08	0.38073	0.00320	0.84	a
-33.829	0.006	72.61	29.97	0.39484	0.00031	0.08	0.38396	0.00357	0.93	b
-31.483	0.006	72.37	31.74	0.39625	0.00031	0.08	0.38504	0.00368	0.96	c
-26.162	0.006	71.84	36.06	0.39699	0.00032	0.08	0.38501	0.00396	1.03	b
-23.819	0.006	71.61	38.10	0.39836	0.00031	0.08	0.38605	0.00408	1.06	c
-16.202	0.006	70.84	45.36	0.40197	0.00032	0.08	0.38854	0.00450	1.16	c
-8.664	0.006	70.06	53.57	0.40614	0.00033	0.08	0.39161	0.00492	1.26	c
-1.181	0.006	69.29	62.79	0.40950	0.00034	0.08	0.39390	0.00534	1.36	c
6.261	0.006	68.50	73.13	0.41389	0.00034	0.08	0.39726	0.00578	1.45	c
13.637	0.006	67.71	84.60	0.41786	0.00035	0.08	0.40026	0.00622	1.55	c
20.956	0.006	66.91	97.30	0.42384	0.00036	0.08	0.40534	0.00666	1.64	c
28.245	0.006	66.10	111.33	0.42614	0.00037	0.09	0.40684	0.00709	1.74	c
35.443	0.006	65.28	126.63	0.43106	0.00037	0.09	0.41108	0.00752	1.83	c
42.607	0.006	64.45	143.38	0.43797	0.00040	0.09	0.41746	0.00795	1.90	c
49.722	0.006	63.60	161.61	0.44296	0.00039	0.09	0.42209	0.00836	1.98	c
56.794	0.006	62.74	181.39	0.44751	0.00042	0.09	0.42648	0.00877	2.06	c
63.809	0.006	61.87	202.74	0.45421	0.00041	0.09	0.43328	0.00915	2.11	c
70.775	0.006	60.97	225.75	0.46008	0.00043	0.09	0.43954	0.00952	2.17	c
77.697	0.006	60.05	250.49	0.46589	0.00042	0.09	0.44610	0.00986	2.21	c
84.565	0.006	59.11	276.98	0.47488	0.00044	0.09	0.45655	0.01010	2.21	c
91.398	0.006	58.13	305.34	0.48198	0.00048	0.10	0.46504	0.01048	2.25	c
98.169	0.006	57.13	335.54	0.48719	0.00049	0.10	0.47283	0.01065	2.25	c
104.897	0.006	56.09	367.69	0.49322	0.00051	0.10	0.48174	0.01093	2.27	c
111.549	0.006	55.02	401.70	0.50151	0.00053	0.11	0.49407	0.01109	2.25	c
118.114	0.006	53.91	437.53	0.49791	0.01764	3.54	0.49550	0.02092	4.22	c
124.586	0.006	52.75	475.15	0.51919	0.00055	0.11	0.52387	0.01124	2.14	c
131.097	0.006	51.51	515.45	0.53129	0.00060	0.11	0.54491	0.01124	2.06	c
137.516	0.006	50.20	557.68	0.54281	0.00059	0.11	0.56843	0.01113	1.96	c
143.859	0.006	48.80	602.00	0.55514	0.00063	0.11	0.59707	0.01096	1.83	c
150.110	0.006	47.28	648.32	0.56930	0.00062	0.11	0.63399	0.01077	1.70	c
156.242	0.006	45.62	696.48	0.59249	0.00064	0.11	0.69025	0.01081	1.57	c

Table 20. Coefficients to the MBWR equation of state for HFC-32 (units are K, bar, L, mol)

$$p = \sum_{n=1}^{9} a_n \rho^n + \exp(-\rho^2/\rho_c^2) \sum_{n=10}^{15} a_n \rho^{2n-17}$$

ρ_c = 8.1245 mol/L

$a_1 = RT$
$a_2 = b_1T + b_2T^{0.5} + b_3 + b_4/T + b_5/T^2$
$a_3 = b_6T + b_7 + b_8/T + b_9/T^2$
$a_4 = b_{10}T + b_{11} + b_{12}/T$
$a_5 = b_{13}$
$a_6 = b_{14}/T + b_{15}/T^2$
$a_7 = b_{16}/T$
$a_8 = b_{17}/T + b_{18}/T^2$
$a_9 = b_{19}/T^2$
$a_{10} = b_{20}/T^2 + b_{21}/T^3$
$a_{11} = b_{22}/T^2 + b_{23}/T^4$
$a_{12} = b_{24}/T^2 + b_{25}/T^3$
$a_{13} = b_{26}/T^2 + b_{27}/T^4$
$a_{14} = b_{28}/T^2 + b_{29}/T^3$
$a_{15} = b_{30}/T^2 + b_{31}/T^3 + b_{32}/T^4$

i	b_i
1	-0.184799147712E-01
2	0.199258716261E+01
3	-0.450818142855E+02
4	0.517320130169E+04
5	-0.770847082500E+06
6	-0.170184611963E-03
7	-0.143023459131E+01
8	0.606314008455E+03
9	0.192559574847E+06
10	-0.596044051707E-04
11	0.297147086969E+00
12	-0.104964078480E+03
13	-0.775008265186E-02
14	0.222564856042E+00
15	-0.330783818273E+02
16	-0.313533565119E-02

Table 20. Coefficients to the MBWR equation of state for HFC-32 (units are K, bar, L, mol) (continued)

17	-0.399464119357E-04
18	0.653548292730E-01
19	-0.119312200130E-02
20	-0.896057555372E+05
21	-0.218872108921E+08
22	-0.189705435851E+04
23	0.310718784685E+08
24	-0.126638710844E+02
25	0.246519270465E+04
26	-0.231516734828E-01
27	-0.438977929243E+04
28	-0.315318636002E-03
29	0.139459067806E+00
30	0.163298486259E-06
31	-0.326147254524E-03
32	0.342233333783E-01

Table 21a. Refrigerant 32 (difluoromethane) Properties of Saturated Liquid and Saturated Vapor (SI units)

Temp* (°C)	Pressure (MPa)	Density (kg/m**3)	Volume (m**3/kg)	Enthalpy (kJ/kg)		Entropy (kJ/kg.K)		Specific Heat, Cp (kJ/kg.K)		Cp/Cv	Vel of Sound (m/s)	
		liq	vap	liq	vap	liq	vap	liq	vap	vap	liq	vap
-136.15a	0.00005	1426.9	404.55129	-17.94	444.23	-0.0972	3.2763	1.598	0.661	1.319	1397.	170.
-130.00	0.00013	1412.4	171.58893	-8.17	448.29	-0.0274	3.1613	1.581	0.664	1.317	1399.	174.
-120.00	0.00048	1388.6	50.48351	7.58	454.92	0.0789	2.9998	1.570	0.670	1.315	1377.	179.
-110.00	0.00147	1364.4	17.70173	23.26	461.54	0.1781	2.8645	1.566	0.678	1.312	1336.	185.
-100.00	0.00385	1339.8	7.15728	38.91	468.14	0.2712	2.7501	1.564	0.688	1.310	1285.	190.
-90.00	0.00895	1314.8	3.25169	54.56	474.65	0.3590	2.6528	1.564	0.701	1.309	1228.	195.
-80.00	0.01878	1289.3	1.62608	70.21	481.04	0.4422	2.5692	1.566	0.717	1.309	1168.	199.
-70.00	0.03623	1263.3	0.88030	85.89	487.22	0.5213	2.4968	1.570	0.737	1.312	1107.	203.
-60.00	0.06514	1236.5	0.50898	101.64	493.13	0.5968	2.4335	1.578	0.762	1.318	1046.	206.
-51.68b	0.10133	1213.7	0.33653	114.82	497.77	0.6573	2.3865	1.587	0.787	1.325	996.	209.
-50.00	0.11028	1209.0	0.31083	117.49	498.68	0.6693	2.3776	1.589	0.792	1.327	986.	209.
-45.00	0.14070	1195.0	0.24722	125.46	501.29	0.7046	2.3518	1.596	0.809	1.333	956.	210.
-40.00	0.17742	1180.7	0.19867	133.48	503.78	0.7392	2.3274	1.605	0.829	1.341	926.	211.
-35.00	0.22129	1166.1	0.16117	141.54	506.14	0.7732	2.3042	1.615	0.850	1.350	897.	212.
-30.00	0.27323	1151.3	0.13188	149.66	508.35	0.8068	2.2820	1.626	0.873	1.361	867.	213.
-25.00	0.33422	1136.2	0.10876	157.85	510.40	0.8399	2.2606	1.639	0.898	1.373	838.	213.
-20.00	0.40527	1120.8	0.09034	166.10	512.28	0.8726	2.2401	1.654	0.925	1.388	809.	214.
-15.00	0.48746	1105.0	0.07552	174.43	513.97	0.9049	2.2202	1.671	0.956	1.405	780.	214.
-10.00	0.58192	1088.9	0.06351	182.85	515.46	0.9368	2.2008	1.690	0.990	1.424	751.	214.
-5.00	0.68981	1072.3	0.05368	191.37	516.73	0.9685	2.1819	1.711	1.027	1.447	722.	213.
0.00	0.81235	1055.3	0.04559	200.00	517.76	1.0000	2.1633	1.736	1.069	1.474	693.	213.
5.00	0.95081	1037.8	0.03888	208.75	518.53	1.0313	2.1450	1.764	1.116	1.505	664.	212.
10.00	1.10651	1019.7	0.03328	217.65	519.02	1.0624	2.1268	1.796	1.169	1.542	635.	211.
15.00	1.28080	1000.9	0.02857	226.70	519.21	1.0935	2.1086	1.833	1.230	1.585	606.	210.
20.00	1.47511	981.4	0.02460	235.93	519.05	1.1246	2.0904	1.877	1.300	1.636	576.	209.
25.00	1.69091	961.0	0.02122	245.36	518.52	1.1558	2.0719	1.928	1.381	1.697	547.	207.
30.00	1.92973	939.7	0.01833	255.04	517.58	1.1871	2.0531	1.989	1.476	1.771	517.	205.
35.00	2.19318	917.2	0.01584	264.98	516.16	1.2187	2.0338	2.063	1.592	1.862	487.	203.
40.00	2.48291	893.2	0.01369	275.25	514.20	1.2507	2.0138	2.155	1.733	1.976	457.	201.
45.00	2.80070	867.6	0.01182	285.90	511.62	1.2833	1.9928	2.271	1.912	2.123	426.	198.
50.00	3.14843	839.9	0.01019	297.03	508.28	1.3168	1.9705	2.425	2.147	2.319	395.	195.
55.00	3.52813	809.5	0.00874	308.77	504.01	1.3514	1.9464	2.638	2.471	2.594	363.	191.
60.00	3.94208	775.4	0.00745	321.32	498.52	1.3878	1.9196	2.958	2.955	3.008	329.	187.
65.00	4.39295	735.7	0.00627	335.04	491.28	1.4269	1.8889	3.500	3.771	3.711	293.	182.
70.00	4.88418	686.5	0.00516	350.76	481.14	1.4710	1.8509	4.668	5.501	5.210	254.	175.
75.00	5.42128	613.8	0.00400	371.28	464.18	1.5279	1.7948	9.454	12.320	11.108	207.	168.
78.21c	5.79700	422.7	0.00237	415.94	415.94	1.6594	1.6594	inf	inf	inf	0.	0.

*temperatures are on the ITS-90 scale
a triple point; b boiling point; c critical point

Table 21b. Refrigerant 32 (difluoromethane) Properties of Saturated Liquid and Saturated Vapor (PI units)

Temp* (°F)	Pressure (psia)	Density (lb/ft**3)	Volume (ft**3/lb)	Enthalpy (BTU/lb)		Entropy (BTU/lb.°F)		Specific Heat, Cp (BTU/lb.°F)		Cp/Cv	Vel of Sound (ft/s)	
		liq	vap	liq	vap	liq	vap	liq	vap	vap	liq	vap
-213.07a	0.008	89.08	6480.2897	-65.140	133.689	-0.19989	0.60639	0.3818	0.1580	1.3190	4584.	557.
-200.00	0.023	88.01	2375.6076	-60.182	135.753	-0.18030	0.57425	0.3775	0.1589	1.3171	4586.	572.
-180.00	0.091	86.35	631.8404	-52.662	138.919	-0.15240	0.53262	0.3750	0.1606	1.3141	4493.	592.
-160.00	0.298	84.67	206.6730	-45.172	142.083	-0.12653	0.49834	0.3741	0.1628	1.3113	4331.	612.
-140.00	0.824	82.95	79.6917	-37.692	145.225	-0.10237	0.46983	0.3738	0.1657	1.3093	4134.	630.
-120.00	1.981	81.20	35.0654	-30.214	148.313	-0.07969	0.44590	0.3740	0.1695	1.3090	3920.	646.
-100.00	4.257	79.41	17.1652	-22.724	151.310	-0.05828	0.42559	0.3748	0.1744	1.3110	3700.	661.
-90.00	6.021	78.50	12.4192	-18.970	152.761	-0.04800	0.41655	0.3756	0.1774	1.3132	3589.	668.
-80.00	8.339	77.57	9.1619	-15.207	154.173	-0.03797	0.40816	0.3766	0.1807	1.3163	3478.	674.
-70.00	11.330	76.63	6.8787	-11.431	155.540	-0.02817	0.40032	0.3778	0.1843	1.3204	3367.	680.
-61.02b	14.696	75.77	5.3908	-8.029	156.724	-0.01956	0.39372	0.3793	0.1880	1.3252	3268.	684.
-60.00	15.126	75.67	5.2469	-7.640	156.856	-0.01859	0.39299	0.3794	0.1884	1.3258	3257.	685.
-50.00	19.874	74.70	4.0599	-3.831	158.114	-0.00920	0.38610	0.3814	0.1930	1.3326	3148.	689.
-40.00	25.732	73.71	3.1824	0.000	159.308	0.00000	0.37960	0.3836	0.1980	1.3409	3039.	693.
-30.00	32.872	72.70	2.5238	3.857	160.431	0.00904	0.37344	0.3863	0.2036	1.3511	2931.	696.
-20.00	41.476	71.67	2.0226	7.743	161.475	0.01793	0.36758	0.3894	0.2098	1.3632	2824.	698.
-10.00	51.739	70.61	1.6365	11.663	162.433	0.02669	0.36198	0.3930	0.2167	1.3777	2717.	700.
0.00	63.869	69.53	1.3353	15.622	163.298	0.03532	0.35659	0.3971	0.2244	1.3949	2611.	701.
10.00	78.081	68.43	1.0980	19.626	164.059	0.04386	0.35138	0.4018	0.2329	1.4152	2505.	701.
20.00	94.605	67.29	0.9090	23.679	164.707	0.05230	0.34631	0.4073	0.2425	1.4392	2399.	700.
30.00	113.679	66.12	0.7570	27.789	165.233	0.06067	0.34136	0.4135	0.2533	1.4676	2294.	699.
40.00	135.552	64.91	0.6338	31.963	165.623	0.06898	0.33648	0.4208	0.2655	1.5013	2188.	697.
50.00	160.485	63.66	0.5331	36.210	165.866	0.07726	0.33165	0.4293	0.2795	1.5415	2082.	693.
60.00	188.748	62.35	0.4501	40.542	165.945	0.08551	0.32683	0.4392	0.2957	1.5898	1976.	689.
70.00	220.625	60.99	0.3812	44.969	165.842	0.09377	0.32197	0.4511	0.3146	1.6482	1869.	684.
80.00	256.410	59.56	0.3236	49.509	165.535	0.10206	0.31705	0.4653	0.3372	1.7197	1762.	678.
90.00	296.411	58.05	0.2751	54.181	164.998	0.11040	0.31201	0.4827	0.3644	1.8088	1654.	670.
100.00	340.952	56.44	0.2340	59.008	164.195	0.11884	0.30679	0.5046	0.3983	1.9219	1544.	662.
110.00	390.374	54.71	0.1989	64.025	163.082	0.12744	0.30132	0.5327	0.4415	2.0696	1433.	652.
120.00	445.043	52.83	0.1687	69.278	161.593	0.13625	0.29550	0.5704	0.4991	2.2702	1319.	641.
130.00	505.354	50.76	0.1424	74.836	159.633	0.14539	0.28919	0.6240	0.5806	2.5580	1202.	627.
140.00	571.750	48.40	0.1193	80.810	157.043	0.15501	0.28214	0.7070	0.7063	3.0078	1080.	612.
150.00	644.760	45.62	0.0984	87.414	153.519	0.16546	0.27389	0.8570	0.9318	3.8215	949.	594.
160.00	725.086	42.04	0.0787	95.172	148.317	0.17753	0.26329	1.2299	1.4819	5.8162	802.	571.
170.00	814.019	35.74	0.0562	106.756	137.779	0.19538	0.24465	4.3817	5.8117	21.4241	615.	538.
172.78c	840.784	26.39	0.0379	121.518	121.518	0.22168	0.22168	inf	inf	inf	0.	0.

* temperatures are on the ITS-90 scale

a triple point; b boiling point; c critical point

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
1001	162.295	65.155	0.24648	-167.539	9449.98	0.14251
1002	162.022	65.154	0.24693	-168.030	9449.83	0.14277
1003	161.770	65.160	0.24726	-168.484	9450.73	0.14296
1004	161.535	65.149	0.24772	-168.907	9449.10	0.14323
1005	162.355	54.444	0.24401	-167.431	7896.47	0.14108
1006	162.077	54.444	0.24449	-167.931	7896.47	0.14136
1007	161.819	54.433	0.24447	-168.396	7894.88	0.14135
1008	161.576	54.411	0.24487	-168.833	7891.73	0.14158
1009	162.402	42.614	0.24081	-167.346	6180.71	0.13923
1010	162.117	42.598	0.24134	-167.859	6178.27	0.13954
1011	161.859	42.580	0.24160	-168.324	6175.71	0.13969
1012	161.619	42.609	0.24174	-168.756	6179.88	0.13977
1013	161.950	31.583	0.23833	-168.160	4580.71	0.13780
1014	161.693	31.579	0.23877	-168.623	4580.14	0.13805
1015	161.453	31.574	0.23925	-169.055	4579.41	0.13833
1016	161.244	31.572	0.23960	-169.431	4579.20	0.13853
1017	161.994	21.269	0.23540	-168.081	3084.86	0.13610
1018	161.736	21.283	0.23597	-168.545	3086.92	0.13643
1019	161.473	21.284	0.23644	-169.019	3087.00	0.13670
1020	161.254	21.295	0.23686	-169.413	3088.65	0.13695
1021	161.997	11.839	0.23259	-168.075	1717.07	0.13448
1022	161.745	11.843	0.23324	-168.529	1717.70	0.13485
1023	161.498	11.850	0.23359	-168.974	1718.72	0.13506
1024	161.271	11.861	0.23413	-169.382	1720.31	0.13537
1025	162.046	1.765	0.22980	-167.987	255.94	0.13287
1026	161.786	1.765	0.23025	-168.455	256.04	0.13313
1027	161.539	1.759	0.23068	-168.900	255.06	0.13337
1028	161.316	1.758	0.23122	-169.301	254.94	0.13369
2001	182.783	65.593	0.23898	-130.661	9513.46	0.13817
2002	182.461	65.570	0.23966	-131.240	9510.16	0.13857
2003	182.159	65.563	0.23987	-131.784	9509.18	0.13869
2004	181.884	65.556	0.24049	-132.279	9508.08	0.13905
2005	182.853	54.418	0.23583	-130.535	7892.63	0.13635
2006	182.523	54.423	0.23636	-131.129	7893.45	0.13666
2007	182.221	54.432	0.23665	-131.672	7894.67	0.13683
2008	181.940	54.440	0.23681	-132.178	7895.89	0.13692
2009	182.631	42.987	0.23275	-130.934	6234.70	0.13457
2010	182.316	43.015	0.23316	-131.501	6238.77	0.13481
2011	182.025	43.024	0.23335	-132.025	6240.07	0.13492
2012	181.761	43.035	0.23338	-132.500	6241.74	0.13494
2013	182.702	31.577	0.22850	-130.806	4579.93	0.13211
2014	182.381	31.579	0.22909	-131.384	4580.10	0.13246
2015	182.089	31.592	0.22938	-131.910	4582.12	0.13262
2016	181.806	31.589	0.22993	-132.419	4581.65	0.13294
2017	182.460	21.233	0.22549	-131.242	3079.64	0.13037
2018	182.157	21.239	0.22603	-131.787	3080.51	0.13069
2019	181.869	21.254	0.22630	-132.306	3082.68	0.13084
2020	181.609	21.265	0.22696	-132.774	3084.17	0.13122
2021	182.476	11.514	0.22203	-131.213	1669.91	0.12837

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
2022	182.165	11.518	0.22253	-131.773	1670.62	0.12866
2023	181.877	11.528	0.22304	-132.291	1672.06	0.12896
2024	181.609	11.517	0.22321	-132.774	1670.40	0.12906
2025	182.520	1.718	0.21865	-131.134	249.24	0.12642
2026	182.200	1.717	0.21886	-131.710	249.06	0.12654
2027	181.912	1.719	0.21949	-132.228	249.26	0.12690
2028	181.637	1.717	0.21993	-132.723	249.07	0.12716
3001	202.724	66.681	0.23047	-94.767	9671.29	0.13325
3002	202.364	66.680	0.23085	-95.415	9671.20	0.13347
3003	202.031	66.673	0.23116	-96.014	9670.13	0.13365
3004	201.724	66.664	0.23197	-96.567	9668.81	0.13412
3005	202.767	56.361	0.22669	-94.689	8174.43	0.13107
3006	200.167	56.363	0.24185	-99.369	8174.81	0.13983
3007	199.839	56.372	0.26476	-99.960	8176.13	0.15308
3009	202.763	56.369	0.22665	-94.697	8175.69	0.13104
3010	202.404	56.372	0.22703	-95.343	8176.07	0.13126
3011	202.067	56.373	0.22745	-95.949	8176.17	0.13151
3012	201.750	56.381	0.22860	-96.520	8177.38	0.13217
3013	202.775	43.982	0.22221	-94.675	6379.13	0.12848
3014	202.406	43.984	0.22260	-95.339	6379.39	0.12870
3015	202.066	43.984	0.22298	-95.951	6379.42	0.12892
3016	201.748	44.006	0.22367	-96.524	6382.55	0.12932
3017	202.493	33.201	0.21838	-95.183	4815.46	0.12626
3018	202.137	33.216	0.21882	-95.823	4817.65	0.12652
3019	201.810	33.215	0.21913	-96.412	4817.49	0.12670
3020	201.506	33.222	0.21977	-96.959	4818.48	0.12707
3021	202.531	22.349	0.21412	-95.114	3241.47	0.12380
3022	202.172	22.366	0.21457	-95.760	3243.89	0.12406
3023	201.837	22.367	0.21495	-96.363	3244.00	0.12428
3024	201.532	22.377	0.21536	-96.912	3245.48	0.12452
3025	202.570	11.345	0.20912	-95.044	1645.50	0.12091
3026	202.203	11.352	0.20965	-95.705	1646.43	0.12122
3027	201.863	11.315	0.20997	-96.317	1641.07	0.12140
3028	201.548	11.318	0.21051	-96.884	1641.52	0.12171
3029	202.598	1.759	0.20500	-94.994	255.17	0.11853
3030	202.222	1.758	0.20556	-95.670	255.01	0.11885
3031	201.882	1.756	0.20566	-96.282	254.69	0.11891
3032	201.562	1.750	0.20579	-96.858	253.85	0.11898
10003	212.786	0.039	0.00778	-76.655	5.59	0.00450
10004	212.457	0.039	0.00760	-77.247	5.59	0.00439
10005	212.152	0.039	0.00733	-77.796	5.61	0.00424
10006	211.865	0.039	0.00705	-78.313	5.59	0.00408
10007	211.597	0.039	0.00682	-78.795	5.59	0.00394
10008	212.798	0.036	0.00815	-76.634	5.25	0.00471
10009	212.464	0.036	0.00814	-77.235	5.25	0.00471
10010	212.157	0.036	0.00815	-77.787	5.25	0.00471
10011	211.872	0.036	0.00812	-78.300	5.27	0.00469
10012	211.611	0.036	0.00803	-78.770	5.28	0.00464
10013	212.829	0.031	0.00790	-76.578	4.51	0.00457

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
10014	212.489	0.031	0.00794	-77.190	4.53	0.00459
10015	212.182	0.032	0.00791	-77.742	4.58	0.00457
10016	211.887	0.032	0.00792	-78.273	4.59	0.00458
10017	211.618	0.032	0.00791	-78.758	4.63	0.00457
10018	212.450	0.027	0.00757	-77.260	3.94	0.00438
10019	212.155	0.027	0.00752	-77.791	3.93	0.00435
10020	211.862	0.027	0.00752	-78.318	3.90	0.00435
10021	211.583	0.027	0.00744	-78.821	3.87	0.00430
10022	211.317	0.027	0.00740	-79.299	3.86	0.00428
4001	223.147	65.496	0.21851	-58.005	9499.49	0.12634
4002	222.749	65.497	0.21883	-58.722	9499.58	0.12652
4003	222.386	65.492	0.21922	-59.375	9498.90	0.12675
4004	222.043	65.494	0.21952	-59.993	9499.11	0.12692
4005	223.179	55.074	0.21470	-57.948	7987.87	0.12414
4006	222.781	55.082	0.21492	-58.664	7988.98	0.12426
4007	222.410	55.084	0.21502	-59.332	7989.34	0.12432
4008	222.065	55.088	0.21537	-59.953	7989.85	0.12452
4009	223.209	44.988	0.21052	-57.894	6524.93	0.12172
4010	222.806	44.997	0.21052	-58.619	6526.32	0.12172
4011	222.434	44.998	0.21068	-59.289	6526.40	0.12181
4012	222.086	45.000	0.21124	-59.915	6526.67	0.12213
4013	223.249	34.030	0.20548	-57.822	4935.69	0.11880
4014	222.831	34.035	0.20577	-58.574	4936.41	0.11897
4015	222.444	34.038	0.20608	-59.271	4936.78	0.11915
4016	222.099	34.044	0.20640	-59.892	4937.61	0.11934
4018	222.937	22.298	0.20024	-58.383	3234.11	0.11577
4019	222.534	22.295	0.20065	-59.109	3233.58	0.11601
4020	222.171	22.291	0.20094	-59.762	3233.11	0.11618
4021	221.830	22.299	0.20160	-60.376	3234.15	0.11656
4022	222.975	10.963	0.19447	-58.315	1590.07	0.11244
4023	222.562	10.971	0.19528	-59.058	1591.22	0.11291
4024	222.187	10.970	0.19529	-59.733	1591.04	0.11291
4025	221.838	10.979	0.19565	-60.362	1592.37	0.11312
4026	223.009	1.713	0.18974	-58.254	248.51	0.10970
4027	222.591	1.715	0.18994	-59.006	248.80	0.10982
4028	222.206	1.717	0.19030	-59.699	248.96	0.11003
4029	221.853	1.718	0.19079	-60.335	249.15	0.11031
11001	222.899	0.034	0.00811	-58.452	4.92	0.00469
11002	220.500	0.034	0.00789	-62.770	4.92	0.00456
11003	220.084	0.034	0.00644	-63.519	4.91	0.00372
11004	221.822	0.034	0.00794	-60.390	4.90	0.00459
11005	225.449	0.034	0.00819	-53.862	4.90	0.00474
11006	223.555	0.041	0.00858	-57.271	6.00	0.00496
11007	223.137	0.040	0.00852	-58.023	5.84	0.00493
11008	222.748	0.039	0.00844	-58.724	5.70	0.00488
11009	222.373	0.039	0.00840	-59.399	5.59	0.00486
11011	223.054	0.076	0.00841	-58.173	11.09	0.00486
11012	222.666	0.076	0.00830	-58.871	11.09	0.00480
11013	222.311	0.076	0.00819	-59.510	11.08	0.00474

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
11014	221.977	0.076	0.00806	-60.111	11.08	0.00466
11015	222.968	0.059	0.00865	-58.328	8.49	0.00500
11016	222.581	0.059	0.00857	-59.024	8.52	0.00496
11017	222.211	0.059	0.00859	-59.690	8.54	0.00497
11018	221.901	0.059	0.00857	-60.248	8.52	0.00496
12001	233.092	0.127	0.00895	-40.104	18.35	0.00517
12002	232.683	0.126	0.00890	-40.841	18.33	0.00515
12003	232.309	0.126	0.00890	-41.514	18.34	0.00515
12004	231.976	0.126	0.00889	-42.113	18.33	0.00514
12005	233.119	0.117	0.00892	-40.056	16.93	0.00516
12006	232.693	0.116	0.00890	-40.823	16.86	0.00515
12007	232.317	0.116	0.00890	-41.499	16.82	0.00515
12008	231.974	0.116	0.00885	-42.117	16.79	0.00512
12009	233.180	0.105	0.00895	-39.946	15.21	0.00517
12010	232.757	0.105	0.00891	-40.707	15.21	0.00515
12011	232.379	0.105	0.00889	-41.388	15.21	0.00514
12012	232.031	0.105	0.00887	-42.014	15.20	0.00513
12013	233.206	0.094	0.00894	-39.899	13.70	0.00517
12014	232.781	0.095	0.00893	-40.664	13.73	0.00516
12015	232.405	0.095	0.00889	-41.341	13.73	0.00514
12016	232.050	0.095	0.00883	-41.980	13.75	0.00511
12017	233.275	0.072	0.00898	-39.775	10.39	0.00519
12018	232.836	0.072	0.00894	-40.565	10.44	0.00517
12019	232.449	0.072	0.00890	-41.262	10.48	0.00515
12020	232.081	0.073	0.00892	-41.924	10.53	0.00516
12021	233.409	0.043	0.00870	-39.534	6.17	0.00503
12022	232.962	0.042	0.00865	-40.338	6.14	0.00500
12023	232.549	0.042	0.00865	-41.082	6.11	0.00500
12024	232.157	0.042	0.00861	-41.787	6.10	0.00498
12025	231.813	0.042	0.00860	-42.407	6.09	0.00497
5001	243.398	66.849	0.20715	-21.554	9695.72	0.11977
5002	242.975	66.848	0.20767	-22.315	9695.47	0.12007
5003	242.591	66.841	0.20790	-23.006	9694.49	0.12020
5004	242.231	66.848	0.20853	-23.654	9695.54	0.12057
5005	243.450	56.194	0.20279	-21.460	8150.33	0.11725
5006	243.015	56.182	0.20350	-22.243	8148.56	0.11766
5007	242.618	56.211	0.20328	-22.958	8152.77	0.11753
5008	242.251	56.192	0.20371	-23.618	8149.95	0.11778
5009	243.474	45.386	0.19798	-21.417	6582.67	0.11447
5010	243.029	45.397	0.19859	-22.218	6584.23	0.11482
5011	242.628	45.394	0.19851	-22.940	6583.81	0.11477
5012	242.255	45.412	0.19850	-23.611	6586.51	0.11477
5013	243.123	34.152	0.19258	-22.049	4953.35	0.11135
5014	242.688	34.172	0.19329	-22.832	4956.18	0.11176
5015	242.299	34.160	0.19528	-23.532	4954.56	0.11291
5016	241.951	34.154	0.19605	-24.158	4953.61	0.11335
5017	243.133	24.483	0.18882	-22.031	3551.01	0.10917
5018	242.691	24.473	0.19113	-22.826	3549.45	0.11051
5019	242.310	24.472	0.19083	-23.512	3549.33	0.11033

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
5020	241.968	24.495	0.18795	-24.128	3552.78	0.10867
5021	243.149	14.148	0.18501	-22.002	2052.05	0.10697
5022	242.689	14.147	0.18948	-22.830	2051.84	0.10955
5023	242.322	14.153	0.18417	-23.490	2052.75	0.10648
5024	241.963	14.154	0.18165	-24.137	2052.92	0.10503
5026	243.211	1.802	0.18262	-21.890	261.36	0.10559
5027	242.786	1.804	0.17420	-22.655	261.68	0.10072
5028	242.347	1.798	0.17451	-23.445	260.76	0.10090
5029	241.961	1.802	0.17469	-24.140	261.42	0.10100
13001	245.033	0.184	0.00953	-18.611	26.63	0.00551
13002	244.559	0.181	0.00958	-19.464	26.32	0.00554
13003	244.102	0.180	0.00956	-20.286	26.15	0.00553
13004	243.660	0.179	0.00958	-21.082	26.01	0.00554
13005	245.025	0.201	0.00964	-18.625	29.08	0.00557
13006	244.544	0.198	0.00959	-19.491	28.72	0.00554
13007	244.098	0.196	0.00956	-20.294	28.40	0.00553
13008	243.655	0.194	0.00949	-21.091	28.11	0.00549
13009	245.414	0.131	0.00955	-17.925	18.97	0.00552
13010	244.901	0.130	0.00951	-18.848	18.80	0.00550
13011	244.411	0.129	0.00949	-19.730	18.67	0.00549
13012	243.943	0.128	0.00946	-20.573	18.51	0.00547
13013	243.495	0.127	0.00943	-21.379	18.36	0.00545
13014	243.085	0.126	0.00942	-22.117	18.23	0.00545
13015	244.335	0.053	0.00965	-19.867	7.72	0.00558
13016	243.846	0.053	0.00960	-20.747	7.71	0.00555
13017	243.387	0.053	0.00958	-21.573	7.70	0.00554
13018	242.952	0.053	0.00955	-22.356	7.71	0.00552
14001	255.208	0.303	0.01026	-0.296	43.99	0.00593
14002	254.754	0.301	0.01020	-1.113	43.63	0.00590
14003	254.306	0.298	0.01017	-1.919	43.26	0.00588
14004	253.881	0.296	0.01014	-2.684	42.91	0.00586
14005	253.040	0.276	0.01003	-4.198	40.04	0.00580
14006	252.677	0.272	0.01000	-4.851	39.47	0.00578
14007	252.328	0.269	0.00997	-5.480	38.95	0.00576
14008	252.000	0.265	0.00993	-6.070	38.48	0.00574
14009	253.193	0.192	0.00993	-3.923	27.84	0.00574
14010	252.816	0.189	0.00987	-4.601	27.48	0.00571
14011	252.444	0.187	0.00984	-5.271	27.10	0.00569
14012	252.094	0.185	0.00980	-5.901	26.76	0.00567
14013	253.326	0.140	0.00984	-3.683	20.31	0.00569
14014	252.927	0.138	0.00982	-4.401	19.97	0.00568
14015	252.534	0.135	0.00975	-5.109	19.65	0.00564
14016	252.174	0.133	0.00980	-5.757	19.32	0.00567
14017	253.705	0.061	0.00998	-3.001	8.85	0.00577
14018	253.254	0.060	0.00993	-3.813	8.68	0.00574
14019	252.830	0.059	0.00987	-4.576	8.51	0.00571
14020	252.442	0.057	0.00984	-5.274	8.33	0.00569
6001	263.141	67.169	0.19662	13.984	9742.08	0.11368
6002	262.685	67.171	0.19707	13.163	9742.33	0.11394

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
6003	262.261	67.177	0.19761	12.400	9743.18	0.11425
6004	261.880	67.178	0.19836	11.714	9743.36	0.11469
6005	263.243	57.133	0.19177	14.167	8286.47	0.11088
6006	262.768	57.138	0.19257	13.312	8287.25	0.11134
6007	262.341	57.140	0.19292	12.544	8287.46	0.11154
6008	261.954	57.146	0.19358	11.847	8288.42	0.11192
6009	263.290	46.867	0.18697	14.252	6797.50	0.10810
6010	262.819	46.873	0.18752	13.404	6798.37	0.10842
6011	262.387	46.874	0.18785	12.627	6798.46	0.10861
6012	261.987	46.886	0.18843	11.907	6800.23	0.10895
6013	262.838	36.467	0.18207	13.438	5289.10	0.10527
6014	262.386	36.478	0.18285	12.625	5290.77	0.10572
6015	261.968	36.479	0.18324	11.872	5290.85	0.10595
6016	261.596	36.505	0.18354	11.203	5294.67	0.10612
6017	262.892	25.459	0.17547	13.536	3692.51	0.10145
6018	262.430	25.465	0.17615	12.704	3693.33	0.10185
6019	262.006	25.467	0.17648	11.941	3693.70	0.10204
6020	261.626	25.469	0.17699	11.257	3693.96	0.10233
6021	262.984	14.826	0.16829	13.701	2150.38	0.09730
6022	262.505	14.830	0.16917	12.839	2150.92	0.09781
6023	262.065	14.835	0.16924	12.047	2151.61	0.09785
6024	261.673	14.839	0.17019	11.341	2152.24	0.09840
6025	263.066	2.029	0.15848	13.849	294.32	0.09163
6026	262.572	2.036	0.15900	12.960	295.23	0.09193
6027	262.107	2.033	0.15947	12.123	294.81	0.09220
6028	261.690	2.031	0.16017	11.372	294.51	0.09261
6029	262.758	38.075	0.18303	13.294	5522.35	0.10582
6030	262.306	38.057	0.18338	12.481	5519.72	0.10603
6031	261.901	38.059	0.18391	11.752	5520.00	0.10633
6032	261.522	38.064	0.18463	11.070	5520.67	0.10675
15001	263.200	0.441	0.01092	14.090	63.90	0.00631
15002	262.837	0.438	0.01090	13.437	63.52	0.00630
15003	262.552	0.435	0.01082	12.924	63.15	0.00626
15004	262.233	0.432	0.01086	12.349	62.71	0.00628
15005	263.424	0.369	0.01074	14.493	53.59	0.00621
15006	262.967	0.369	0.01075	13.671	53.56	0.00622
15007	262.618	0.369	0.01072	13.042	53.56	0.00620
15008	262.262	0.369	0.01069	12.402	53.54	0.00618
15009	263.907	0.311	0.01054	15.363	45.06	0.00609
15010	263.342	0.311	0.01054	14.346	45.10	0.00609
15011	262.733	0.311	0.01054	13.249	45.12	0.00609
15012	262.359	0.311	0.01054	12.576	45.15	0.00609
15013	263.950	0.255	0.01039	15.440	36.93	0.00601
15014	263.281	0.254	0.01040	14.236	36.91	0.00601
15015	262.933	0.254	0.01040	13.609	36.90	0.00601
15016	262.476	0.254	0.01040	12.787	36.88	0.00601
15017	264.102	0.189	0.01047	15.714	27.47	0.00605
15018	263.499	0.188	0.01042	14.628	27.33	0.00602
15019	262.973	0.187	0.01035	13.681	27.18	0.00598

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
15020	262.577	0.187	0.01030	12.969	27.10	0.00596
15021	264.386	0.125	0.01053	16.225	18.09	0.00609
15022	263.590	0.124	0.01055	14.792	17.99	0.00610
15023	263.115	0.123	0.01051	13.937	17.88	0.00608
15024	262.708	0.123	0.01035	13.204	17.79	0.00598
15025	264.367	0.081	0.01063	16.191	11.72	0.00615
15026	263.716	0.080	0.01064	15.019	11.63	0.00615
15027	263.234	0.079	0.01060	14.151	11.52	0.00613
15028	262.825	0.079	0.01056	13.415	11.46	0.00611
16001	272.887	0.671	0.01187	31.527	97.30	0.00686
16002	272.547	0.667	0.01184	30.915	96.80	0.00685
16003	272.229	0.664	0.01187	30.342	96.25	0.00686
16004	271.934	0.660	0.01186	29.811	95.73	0.00686
16005	272.959	0.550	0.01160	31.656	79.72	0.00671
16006	272.599	0.550	0.01158	31.008	79.71	0.00670
16007	272.291	0.550	0.01153	30.454	79.74	0.00667
16008	271.977	0.550	0.01155	29.889	79.74	0.00668
16009	273.107	0.479	0.01142	31.923	69.54	0.00660
16010	272.674	0.479	0.01141	31.143	69.51	0.00660
16011	272.362	0.479	0.01137	30.582	69.48	0.00657
16012	272.060	0.479	0.01135	30.038	69.48	0.00656
16013	273.166	0.408	0.01129	32.029	59.12	0.00653
16014	272.772	0.407	0.01127	31.320	59.04	0.00652
16015	272.445	0.407	0.01121	30.731	58.99	0.00648
16016	272.130	0.407	0.01121	30.164	58.96	0.00648
16017	273.331	0.333	0.01117	32.326	48.35	0.00646
16018	272.894	0.333	0.01112	31.539	48.28	0.00643
16019	272.539	0.332	0.01111	30.900	48.22	0.00642
16020	272.199	0.332	0.01108	30.288	48.18	0.00641
16021	273.412	0.265	0.01120	32.472	38.38	0.00648
16022	273.004	0.264	0.01116	31.737	38.26	0.00645
16023	272.634	0.263	0.01111	31.071	38.21	0.00642
16024	272.345	0.263	0.01097	30.551	38.17	0.00634
16025	273.557	0.197	0.01119	32.733	28.64	0.00647
16026	273.104	0.197	0.01111	31.917	28.57	0.00642
16027	272.730	0.196	0.01111	31.244	28.44	0.00642
16028	272.401	0.196	0.01098	30.652	28.37	0.00635
16029	273.656	0.141	0.01122	32.911	20.43	0.00649
16030	273.233	0.140	0.01126	32.149	20.29	0.00651
16031	272.868	0.139	0.01121	31.492	20.18	0.00648
16032	272.542	0.138	0.01101	30.906	20.07	0.00637
16033	273.776	0.094	0.01137	33.127	13.67	0.00657
16034	273.349	0.094	0.01165	32.358	13.63	0.00674
16035	272.944	0.094	0.01133	31.629	13.59	0.00655
16036	272.573	0.093	0.01117	30.961	13.52	0.00646
7001	282.873	67.315	0.18737	49.501	9763.30	0.10833
7002	282.428	67.305	0.18832	48.700	9761.79	0.10888
7003	282.025	67.304	0.18809	47.975	9761.68	0.10875
7004	281.640	67.303	0.18928	47.282	9761.52	0.10944

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
7005	282.886	55.555	0.18103	49.525	8057.60	0.10467
7006	282.419	55.553	0.18186	48.684	8057.35	0.10515
7007	282.001	55.558	0.18207	47.932	8058.04	0.10527
7008	281.622	55.560	0.18301	47.250	8058.28	0.10581
7009	282.877	45.226	0.17555	49.509	6559.43	0.10150
7010	282.414	45.229	0.17632	48.675	6559.96	0.10194
7011	281.987	45.233	0.17599	47.907	6560.50	0.10175
7012	281.596	45.233	0.17688	47.203	6560.55	0.10227
7013	282.895	34.958	0.16907	49.541	5070.28	0.09775
7014	282.421	34.964	0.16947	48.688	5071.14	0.09798
7015	281.965	34.971	0.17028	47.867	5072.14	0.09845
7016	281.563	34.972	0.17066	47.143	5072.35	0.09867
7017	282.611	24.274	0.16150	49.030	3520.69	0.09338
7018	282.139	24.277	0.16247	48.180	3521.10	0.09394
7019	281.712	24.277	0.16325	47.412	3521.07	0.09439
7020	281.326	24.284	0.16350	46.717	3522.08	0.09453
7021	282.621	13.595	0.15320	49.048	1971.85	0.08858
7022	282.134	13.593	0.15407	48.171	1971.46	0.08908
7023	281.692	13.593	0.15494	47.376	1971.49	0.08958
7024	281.291	13.596	0.15580	46.654	1971.88	0.09008
7025	282.813	1.920	0.14201	49.393	278.54	0.08211
7026	282.302	1.920	0.14285	48.474	278.48	0.08259
7027	281.826	1.919	0.14362	47.617	278.37	0.08304
7028	281.406	1.920	0.14454	46.861	278.43	0.08357
17001	283.270	0.915	0.01295	50.216	132.72	0.00749
17002	282.955	0.915	0.01292	49.649	132.69	0.00747
17003	282.664	0.914	0.01286	49.125	132.63	0.00744
17004	282.342	0.915	0.01294	48.546	132.72	0.00748
17005	283.390	0.810	0.01269	50.432	117.44	0.00734
17006	283.068	0.811	0.01263	49.852	117.58	0.00730
17007	282.748	0.811	0.01264	49.276	117.68	0.00731
17008	282.429	0.812	0.01260	48.702	117.72	0.00729
17009	283.514	0.672	0.01232	50.655	97.52	0.00712
17010	283.166	0.672	0.01235	50.029	97.46	0.00714
17011	282.847	0.672	0.01231	49.455	97.40	0.00712
17012	282.515	0.671	0.01221	48.857	97.36	0.00706
17013	283.528	0.529	0.01211	50.680	76.66	0.00700
17014	283.145	0.528	0.01212	49.991	76.59	0.00701
17015	282.807	0.527	0.01207	49.383	76.50	0.00698
17016	282.467	0.527	0.01198	48.771	76.43	0.00693
17017	283.707	0.375	0.01198	51.003	54.43	0.00693
17018	283.324	0.374	0.01196	50.313	54.19	0.00692
17019	282.961	0.373	0.01194	49.660	54.06	0.00690
17020	282.614	0.372	0.01187	49.035	53.92	0.00686
17021	283.993	0.273	0.01193	51.517	39.59	0.00690
17022	283.598	0.272	0.01186	50.806	39.43	0.00686
17023	283.196	0.270	0.01187	50.083	39.22	0.00686
17024	282.820	0.269	0.01185	49.406	39.06	0.00685
17025	283.740	0.174	0.01186	51.062	25.23	0.00686

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{o}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
17026	283.317	0.173	0.01192	50.301	25.14	0.00689
17027	282.930	0.173	0.01186	49.604	25.07	0.00686
17028	282.564	0.172	0.01190	48.945	24.98	0.00688
17029	283.379	0.117	0.01208	50.412	17.02	0.00698
17030	282.995	0.117	0.01205	49.721	16.99	0.00697
17031	282.615	0.117	0.01198	49.037	16.99	0.00693
17032	282.250	0.117	0.01206	48.380	16.96	0.00697
18001	293.104	1.264	0.01426	67.917	183.35	0.00824
18002	292.778	1.259	0.01425	67.330	182.64	0.00824
18003	292.485	1.255	0.01427	66.803	181.98	0.00825
18004	292.208	1.250	0.01427	66.304	181.31	0.00825
18005	293.064	1.222	0.01414	67.845	177.28	0.00818
18006	292.792	1.217	0.01411	67.356	176.54	0.00816
18007	292.489	1.212	0.01410	66.810	175.73	0.00815
18008	292.207	1.206	0.01411	66.303	174.93	0.00816
18009	293.367	1.070	0.01373	68.391	155.16	0.00794
18010	292.966	1.069	0.01376	67.669	155.10	0.00796
18011	292.692	1.069	0.01372	67.176	155.04	0.00793
18012	292.398	1.069	0.01365	66.646	155.03	0.00789
18013	293.417	0.948	0.01347	68.481	137.43	0.00779
18014	293.075	0.948	0.01346	67.865	137.55	0.00778
18015	292.760	0.949	0.01344	67.298	137.61	0.00777
18016	292.454	0.949	0.01336	66.747	137.62	0.00772
18017	293.638	0.800	0.01315	68.878	116.10	0.00760
18018	293.264	0.800	0.01314	68.205	116.10	0.00760
18019	292.933	0.801	0.01312	67.609	116.22	0.00759
18020	292.612	0.803	0.01307	67.032	116.49	0.00756
18021	293.391	0.653	0.01287	68.434	94.78	0.00744
18022	293.009	0.653	0.01289	67.746	94.72	0.00745
18023	292.672	0.653	0.01284	67.140	94.64	0.00742
18024	292.351	0.652	0.01280	66.562	94.61	0.00740
18025	293.123	0.532	0.01269	67.951	77.19	0.00734
18026	292.810	0.532	0.01267	67.388	77.15	0.00733
18027	292.493	0.532	0.01260	66.817	77.13	0.00729
18028	292.177	0.532	0.01259	66.249	77.09	0.00728
18029	293.354	0.401	0.01254	68.367	58.12	0.00725
18030	292.950	0.400	0.01252	67.640	58.02	0.00724
18031	292.609	0.400	0.01246	67.026	57.96	0.00720
18032	292.303	0.399	0.01245	66.475	57.91	0.00720
18033	293.064	0.281	0.01256	67.845	40.75	0.00726
18034	292.684	0.279	0.01252	67.161	40.49	0.00724
18035	292.360	0.278	0.01249	66.578	40.28	0.00722
18036	292.051	0.276	0.01241	66.022	40.06	0.00718
18037	293.240	0.180	0.01263	68.162	26.12	0.00730
18038	292.883	0.179	0.01256	67.519	26.03	0.00726
18039	292.524	0.179	0.01255	66.873	25.92	0.00726
18040	292.185	0.178	0.01256	66.263	25.81	0.00726
18041	293.413	0.098	0.01297	68.473	14.22	0.00750
18042	293.012	0.098	0.01294	67.752	14.15	0.00748

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
18043	292.649	0.097	0.01280	67.098	14.10	0.00740
18044	292.287	0.097	0.01282	66.447	14.04	0.00741
8001	303.054	65.111	0.17664	85.827	9443.64	0.10213
8002	302.588	65.110	0.17769	84.988	9443.47	0.10274
8003	302.143	65.113	0.17865	84.187	9443.92	0.10329
8004	301.764	65.113	0.17958	83.505	9443.93	0.10383
8005	303.041	54.392	0.17061	85.804	7888.95	0.09864
8006	302.544	54.389	0.17144	84.909	7888.47	0.09912
8007	302.098	54.403	0.17259	84.106	7890.53	0.09979
8008	301.712	54.401	0.17421	83.412	7890.20	0.10072
8009	303.054	43.225	0.16350	85.827	6269.23	0.09453
8010	302.527	43.225	0.16464	84.879	6269.25	0.09519
8011	302.072	43.230	0.16585	84.060	6269.98	0.09589
8012	301.672	43.230	0.16699	83.340	6269.98	0.09655
8013	302.860	33.917	0.15743	85.478	4919.32	0.09102
8014	302.284	33.918	0.15904	84.441	4919.43	0.09195
8015	301.855	33.922	0.15995	83.669	4920.04	0.09248
8016	301.464	33.924	0.16150	82.965	4920.25	0.09338
8017	302.160	23.570	0.15010	84.218	3418.51	0.08678
8018	301.638	23.570	0.15159	83.278	3418.60	0.08765
8019	301.181	23.563	0.15177	82.456	3417.49	0.08775
8020	300.752	23.567	0.15369	81.684	3418.05	0.08886
8021	302.360	12.635	0.13912	84.578	1832.53	0.08044
8022	301.789	12.638	0.14062	83.550	1833.00	0.08130
8023	301.288	12.626	0.14135	82.648	1831.19	0.08173
8024	300.852	12.628	0.14226	81.864	1831.60	0.08225
9001	303.730	1.638	0.01588	87.044	237.61	0.00918
9002	302.805	1.637	0.01565	85.379	237.44	0.00905
9003	301.984	1.637	0.01569	83.901	237.39	0.00907
9004	301.307	1.637	0.01575	82.683	237.41	0.00911
9005	303.783	1.553	0.01539	87.139	225.20	0.00890
9006	302.811	1.555	0.01538	85.390	225.49	0.00889
9007	301.989	1.558	0.01556	83.910	225.93	0.00900
9008	301.291	1.562	0.01585	82.654	226.54	0.00916
9009	303.499	1.436	0.01509	86.628	208.33	0.00872
9010	302.681	1.435	0.01507	85.156	208.14	0.00871
9011	301.966	1.434	0.01510	83.869	207.99	0.00873
9012	301.365	1.433	0.01510	82.787	207.89	0.00873
9013	303.778	1.270	0.01465	87.130	184.15	0.00847
9014	302.906	1.270	0.01465	85.561	184.26	0.00847
9015	302.151	1.271	0.01463	84.202	184.39	0.00846
9016	301.510	1.272	0.01466	83.048	184.44	0.00848
9017	303.496	1.110	0.01428	86.623	161.03	0.00826
9018	302.648	1.110	0.01426	85.096	161.01	0.00824
9019	301.905	1.110	0.01426	83.759	160.96	0.00824
9020	301.282	1.110	0.01428	82.638	160.93	0.00826
9021	303.711	0.932	0.01393	87.010	135.15	0.00805
9022	302.805	0.931	0.01393	85.379	135.07	0.00805
9023	302.023	0.931	0.01388	83.971	134.99	0.00803

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
9024	301.351	0.930	0.01392	82.762	134.88	0.00805
9025	303.587	0.756	0.01365	86.787	109.70	0.00789
9026	302.731	0.756	0.01358	85.246	109.62	0.00785
9027	301.962	0.756	0.01396	83.862	109.61	0.00807
9028	301.319	0.755	0.01350	82.704	109.56	0.00781
9029	303.860	0.533	0.01334	87.278	77.35	0.00771
9030	303.098	0.533	0.01326	85.906	77.31	0.00767
9031	302.349	0.533	0.01329	84.558	77.26	0.00768
9032	301.742	0.532	0.01330	83.466	77.23	0.00769
9033	304.127	0.324	0.01312	87.759	47.02	0.00759
9034	303.296	0.324	0.01326	86.263	46.95	0.00767
9035	302.619	0.323	0.01318	85.044	46.90	0.00762
9036	301.994	0.323	0.01314	83.919	46.84	0.00760
9037	303.523	0.143	0.01356	86.671	20.68	0.00784
9038	302.918	0.141	0.01348	85.582	20.46	0.00779
9039	302.366	0.140	0.01343	84.589	20.28	0.00776
9040	301.837	0.139	0.01341	83.637	20.11	0.00775
19001	312.996	2.250	0.01747	103.723	326.28	0.01010
19004	312.387	2.248	0.01745	102.627	326.05	0.01009
19007	311.871	2.247	0.01725	101.698	325.96	0.00997
19010	311.436	2.247	0.01729	100.915	325.93	0.01000
19013	313.243	2.069	0.01686	104.167	300.08	0.00975
19016	312.597	2.066	0.01681	103.005	299.58	0.00972
19019	312.034	2.064	0.01674	101.991	299.32	0.00968
19022	311.546	2.062	0.01685	101.113	299.14	0.00974
19025	312.738	1.904	0.01626	103.258	276.15	0.00940
19028	312.144	1.903	0.01638	102.189	276.00	0.00947
19031	311.639	1.902	0.01612	101.280	275.93	0.00932
19034	311.203	1.902	0.01591	100.495	275.89	0.00920
19037	312.843	1.772	0.01586	103.447	257.08	0.00917
19040	312.224	1.770	0.01593	102.333	256.65	0.00921
19043	311.705	1.767	0.01579	101.399	256.31	0.00913
19046	311.261	1.764	0.01612	100.600	255.91	0.00932
19049	312.968	1.673	0.01566	103.672	242.62	0.00905
19052	312.292	1.672	0.01558	102.456	242.56	0.00901
19055	311.733	1.673	0.01559	101.449	242.66	0.00901
19058	311.316	1.674	0.01556	100.699	242.79	0.00900
19061	313.072	1.495	0.01514	103.860	216.80	0.00875
19064	312.403	1.495	0.01522	102.655	216.80	0.00880
19067	311.822	1.495	0.01509	101.610	216.82	0.00872
19070	311.342	1.495	0.01502	100.746	216.81	0.00868
19073	312.879	1.337	0.01482	103.512	193.86	0.00857
19076	312.353	1.337	0.01470	102.565	193.91	0.00850
19079	311.851	1.337	0.01484	101.662	193.89	0.00858
19082	311.466	1.337	0.01477	100.969	193.90	0.00854
19085	312.978	1.164	0.01456	103.690	168.89	0.00842
19089	312.425	1.165	0.01444	102.695	168.95	0.00835
19093	311.944	1.165	0.01448	101.829	168.98	0.00837
19097	311.489	1.165	0.01418	101.010	168.99	0.00820

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
19101	313.114	0.947	0.01413	103.935	137.30	0.00817
19105	312.522	0.947	0.01416	102.870	137.35	0.00819
19109	312.012	0.947	0.01402	101.952	137.37	0.00811
19113	311.551	0.947	0.01386	101.122	137.40	0.00801
19117	312.818	0.738	0.01392	103.402	107.09	0.00805
19121	312.260	0.739	0.01388	102.398	107.24	0.00803
19125	311.762	0.740	0.01393	101.502	107.27	0.00805
19129	311.356	0.740	0.01379	100.771	107.33	0.00797
19133	312.958	0.516	0.01366	103.654	74.83	0.00790
19137	312.368	0.516	0.01371	102.592	74.90	0.00793
19141	311.839	0.517	0.01349	101.640	74.96	0.00780
19145	311.379	0.517	0.01361	100.812	74.93	0.00787
19149	313.231	0.230	0.01360	104.146	33.43	0.00786
19153	312.572	0.232	0.01358	102.960	33.60	0.00785
19157	311.984	0.232	0.01332	101.901	33.65	0.00770
19161	311.499	0.233	0.01330	101.028	33.73	0.00769
19165	313.804	0.037	0.01198	105.177	5.32	0.00693
19169	312.995	0.037	0.01200	103.721	5.39	0.00694
19173	312.287	0.038	0.01203	102.447	5.45	0.00696
19177	311.701	0.038	0.01195	101.392	5.50	0.00691
20001	322.140	73.373	0.19292	120.182	10641.92	0.11154
20002	322.313	73.392	0.21264	120.493	10644.58	0.12294
20003	322.426	73.437	0.20858	120.697	10651.13	0.12060
20004	322.406	73.445	0.20794	120.661	10652.40	0.12023
20005	322.443	36.989	0.14423	120.727	5364.78	0.08339
20006	322.482	39.477	0.16533	120.798	5725.66	0.09559
21001	322.477	39.683	0.16509	120.789	5755.55	0.09545
21002	322.269	39.691	0.16735	120.414	5756.78	0.09676
21003	322.039	39.691	0.17112	120.000	5756.74	0.09894
21004	321.856	39.690	0.17445	119.671	5756.61	0.10086
21005	322.506	33.897	0.15786	120.841	4916.37	0.09127
21006	322.278	33.897	0.15991	120.430	4916.38	0.09246
21007	322.075	33.896	0.16311	120.065	4916.15	0.09431
21008	321.857	33.892	0.16791	119.673	4915.62	0.09708
21009	322.684	29.378	0.14964	121.161	4260.99	0.08652
21010	322.439	29.380	0.15438	120.720	4261.27	0.08926
21011	322.207	29.384	0.15993	120.303	4261.80	0.09247
21012	322.002	29.388	0.16558	119.934	4262.35	0.09574
21013	322.693	25.745	0.14774	121.177	3733.99	0.08542
21014	322.447	25.748	0.15154	120.735	3734.43	0.08762
21015	322.217	25.751	0.15545	120.321	3734.91	0.08988
21016	322.010	25.756	0.16113	119.948	3735.66	0.09316
21017	322.711	21.924	0.14308	121.210	3179.84	0.08273
21018	322.463	21.927	0.14662	120.763	3180.30	0.08477
21019	322.234	21.930	0.14981	120.351	3180.71	0.08662
21020	322.004	21.933	0.15540	119.937	3181.06	0.08985
21021	322.768	15.780	0.13568	121.312	2288.72	0.07845
21022	322.506	15.781	0.13796	120.841	2288.91	0.07977
21023	322.256	15.784	0.14064	120.391	2289.30	0.08132

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
21024	322.028	15.786	0.14521	119.980	2289.57	0.08396
21025	322.803	13.725	0.13259	121.375	1990.60	0.07666
21026	322.543	13.725	0.13509	120.907	1990.72	0.07811
21027	322.293	13.729	0.13761	120.457	1991.18	0.07956
21028	322.060	13.732	0.14057	120.038	1991.60	0.08127
21029	322.855	11.532	0.12977	121.469	1672.62	0.07503
21030	322.590	11.538	0.13182	120.992	1673.47	0.07622
21031	322.339	11.542	0.13456	120.540	1674.00	0.07780
21032	322.110	11.545	0.13742	120.128	1674.47	0.07945
21033	322.922	9.192	0.12530	121.590	1333.22	0.07245
21034	322.639	9.194	0.12752	121.080	1333.48	0.07373
21035	322.384	9.194	0.12979	120.621	1333.45	0.07504
21036	322.142	9.195	0.13191	120.186	1333.59	0.07627
21037	322.938	7.635	0.12323	121.618	1107.33	0.07125
21038	322.666	7.640	0.12507	121.129	1108.03	0.07231
21039	322.408	7.641	0.12664	120.664	1108.23	0.07322
21040	322.161	7.640	0.12880	120.220	1108.08	0.07447
21041	322.977	5.748	0.11962	121.689	833.66	0.06916
21042	322.689	5.750	0.12273	121.170	834.03	0.07096
21043	322.420	5.751	0.12305	120.686	834.05	0.07115
21044	322.167	5.754	0.12703	120.231	834.54	0.07345
21045	322.992	4.377	0.12150	121.716	634.84	0.07025
21046	322.695	4.380	0.12149	121.181	635.20	0.07024
21047	322.425	4.381	0.12320	120.695	635.47	0.07123
21048	322.175	4.384	0.12427	120.245	635.78	0.07185
22005	323.625	2.873	0.01966	122.855	416.73	0.01137
22006	323.045	2.873	0.01946	121.811	416.76	0.01125
22007	322.531	2.874	0.01994	120.886	416.78	0.01153
22008	322.084	2.874	0.01963	120.081	416.82	0.01135
22009	323.763	2.785	0.01947	123.103	403.92	0.01126
22010	323.163	2.785	0.01944	122.023	403.89	0.01124
22011	322.625	2.785	0.01947	121.055	403.87	0.01126
22012	322.147	2.785	0.01940	120.195	403.86	0.01122
22013	323.856	2.683	0.01903	123.271	389.13	0.01100
22014	323.230	2.683	0.01902	122.144	389.18	0.01100
22015	322.670	2.684	0.01903	121.136	389.22	0.01100
22016	322.184	2.684	0.01897	120.261	389.25	0.01097
22017	324.097	2.538	0.01828	123.705	368.04	0.01057
22018	323.433	2.537	0.01826	122.509	368.00	0.01056
22019	322.838	2.537	0.01829	121.438	367.93	0.01057
22020	322.324	2.536	0.01834	120.513	367.82	0.01060
22021	323.548	2.426	0.01783	122.716	351.92	0.01031
22023	322.948	2.426	0.01787	121.636	351.86	0.01033
22025	322.406	2.426	0.01773	120.661	351.84	0.01025
22027	321.935	2.425	0.01788	119.813	351.72	0.01034
22029	323.689	2.283	0.01722	122.970	331.14	0.00996
22031	323.062	2.281	0.01728	121.842	330.83	0.00999
22033	322.492	2.280	0.01720	120.816	330.63	0.00994
22034	322.482	2.275	0.01720	120.798	329.99	0.00994

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
22036	322.004	2.274	0.01727	119.937	329.84	0.00999
22038	323.817	2.175	0.01689	123.201	315.43	0.00977
22040	323.151	2.176	0.01690	122.002	315.64	0.00977
22042	322.567	2.177	0.01684	120.951	315.78	0.00974
22044	322.056	2.178	0.01683	120.031	315.88	0.00973
22046	323.974	1.999	0.01631	123.483	289.96	0.00943
22048	323.275	2.000	0.01634	122.225	290.11	0.00945
22050	322.664	2.000	0.01638	121.125	290.06	0.00947
22052	322.124	2.000	0.01627	120.153	290.12	0.00941
22054	324.117	1.854	0.01591	123.741	268.95	0.00920
22056	323.393	1.855	0.01593	122.437	269.09	0.00921
22058	322.764	1.855	0.01584	121.305	269.08	0.00916
22060	322.204	1.856	0.01579	120.297	269.14	0.00913
22063	324.276	1.663	0.01545	124.027	241.14	0.00893
22065	323.529	1.662	0.01545	122.682	241.04	0.00893
22067	322.859	1.662	0.01548	121.476	241.05	0.00895
22069	322.278	1.662	0.01538	120.430	241.05	0.00889
22072	324.404	1.510	0.01518	124.257	219.05	0.00878
22074	323.615	1.521	0.01523	122.837	220.54	0.00881
22076	322.921	1.529	0.01516	121.588	221.78	0.00877
22078	322.315	1.536	0.01510	120.497	222.79	0.00873
22080	324.651	1.263	0.01473	124.702	183.12	0.00852
22082	323.827	1.263	0.01462	123.219	183.19	0.00845
22084	323.086	1.263	0.01460	121.885	183.20	0.00844
22086	322.446	1.264	0.01459	120.733	183.30	0.00844
22104	324.835	1.079	0.01440	125.033	156.56	0.00833
22106	323.977	1.080	0.01440	123.489	156.58	0.00833
22108	323.200	1.080	0.01432	122.090	156.62	0.00828
22110	322.534	1.080	0.01435	120.891	156.65	0.00830
22117	324.095	0.897	0.01417	123.701	130.13	0.00819
22119	323.294	0.898	0.01406	122.259	130.24	0.00813
22121	322.609	0.898	0.01401	121.026	130.20	0.00810
22123	322.013	0.898	0.01397	119.953	130.25	0.00808
22129	324.280	0.686	0.01387	124.034	99.55	0.00802
22131	323.437	0.687	0.01387	122.517	99.59	0.00802
22133	322.701	0.686	0.01377	121.192	99.56	0.00796
22135	322.075	0.687	0.01378	120.065	99.63	0.00797
22147	324.491	0.450	0.01361	124.414	65.29	0.00787
22149	323.600	0.450	0.01356	122.810	65.29	0.00784
22151	322.822	0.450	0.01348	121.410	65.29	0.00779
22153	322.153	0.450	0.01343	120.205	65.29	0.00776
22167	324.922	0.226	0.01344	125.190	32.77	0.00777
22169	323.936	0.226	0.01336	123.415	32.83	0.00772
22171	323.079	0.227	0.01333	121.872	32.91	0.00771
22173	322.334	0.227	0.01326	120.531	32.92	0.00767
23001	333.740	3.637	0.02569	141.062	527.56	0.01485
23003	333.174	3.638	0.02545	140.043	527.63	0.01471
23005	332.647	3.638	0.02513	139.095	527.72	0.01453
23007	332.163	3.639	0.02479	138.223	527.80	0.01433

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
23009	333.858	3.591	0.02511	141.274	520.89	0.01452
23011	333.270	3.592	0.02492	140.216	520.94	0.01441
23013	332.731	3.593	0.02479	139.246	521.06	0.01433
23015	332.239	3.593	0.02470	138.360	521.11	0.01428
23017	333.398	3.519	0.02423	140.446	510.39	0.01401
23019	332.840	3.519	0.02411	139.442	510.37	0.01394
23021	332.335	3.519	0.02422	138.533	510.36	0.01400
23023	331.883	3.517	0.02410	137.719	510.06	0.01393
23025	333.512	3.458	0.02363	140.652	501.57	0.01366
23027	332.938	3.458	0.02356	139.618	501.49	0.01362
23029	332.418	3.457	0.02361	138.682	501.46	0.01365
23031	331.962	3.457	0.02358	137.862	501.46	0.01363
23033	333.671	3.370	0.02287	140.938	488.72	0.01322
23035	333.079	3.368	0.02280	139.872	488.45	0.01318
23037	332.538	3.367	0.02275	138.898	488.32	0.01315
23039	332.054	3.365	0.02273	138.027	488.04	0.01314
23041	333.844	3.281	0.02229	141.249	475.92	0.01289
23043	333.218	3.284	0.02222	140.122	476.35	0.01285
23045	332.643	3.286	0.02226	139.087	476.61	0.01287
23047	332.148	3.287	0.02236	138.196	476.79	0.01293
23049	334.028	3.158	0.02129	141.580	458.10	0.01231
23051	333.381	3.157	0.02132	140.416	457.95	0.01233
23053	332.786	3.157	0.02131	139.345	457.88	0.01232
23055	332.263	3.157	0.02140	138.403	457.83	0.01237
23057	334.145	3.069	0.02081	141.791	445.11	0.01203
23059	333.477	3.069	0.02079	140.589	445.15	0.01202
23061	332.864	3.070	0.02068	139.485	445.23	0.01196
23063	332.320	3.071	0.02087	138.506	445.35	0.01207
23065	334.293	2.946	0.02016	142.057	427.23	0.01166
23067	333.613	2.947	0.02023	140.833	427.39	0.01170
23069	332.969	2.948	0.02028	139.674	427.64	0.01173
23071	332.399	2.950	0.02021	138.648	427.82	0.01169
23073	334.457	2.813	0.01963	142.353	408.03	0.01135
23075	333.736	2.818	0.01939	141.055	408.73	0.01121
23077	333.055	2.823	0.01980	139.829	409.45	0.01145
23079	332.471	2.828	0.01925	138.778	410.17	0.01113
23081	334.652	2.682	0.01905	142.704	389.00	0.01101
23083	333.911	2.684	0.01902	141.370	389.21	0.01100
23085	333.226	2.685	0.01894	140.137	389.36	0.01095
23087	332.602	2.686	0.01895	139.014	389.51	0.01096
23089	334.893	2.481	0.01832	143.137	359.78	0.01059
23092	334.112	2.476	0.01827	141.732	359.11	0.01056
23095	333.388	2.474	0.01825	140.428	358.86	0.01055
23098	332.746	2.474	0.01829	139.273	358.76	0.01057
23101	332.173	2.474	0.01812	138.241	358.79	0.01048
23104	331.668	2.477	0.01810	137.332	359.24	0.01047
23107	334.237	2.315	0.01777	141.957	335.79	0.01027
23110	333.503	2.314	0.01774	140.635	335.60	0.01026
23113	332.828	2.312	0.01775	139.420	335.28	0.01026

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
23116	332.222	2.309	0.01771	138.330	334.92	0.01024
23119	331.718	2.307	0.01764	137.422	334.63	0.01020
23122	334.414	2.174	0.01743	142.275	315.37	0.01008
23125	333.646	2.176	0.01743	140.893	315.60	0.01008
23128	332.948	2.178	0.01743	139.636	315.85	0.01008
23131	332.330	2.180	0.01732	138.524	316.25	0.01001
23134	331.791	2.183	0.01727	137.554	316.68	0.00999
23137	334.586	1.972	0.01686	142.585	286.02	0.00975
23140	333.797	1.963	0.01678	141.165	284.65	0.00970
23143	333.070	1.955	0.01674	139.856	283.61	0.00968
23146	332.433	1.954	0.01672	138.709	283.47	0.00967
23149	331.856	1.955	0.01680	137.671	283.57	0.00971
23152	334.743	1.800	0.01654	142.867	261.09	0.00956
23155	333.935	1.787	0.01644	141.413	259.23	0.00951
23158	333.180	1.779	0.01645	140.054	257.98	0.00951
23161	332.513	1.772	0.01635	138.853	256.99	0.00945
23164	331.923	1.767	0.01629	137.791	256.29	0.00942
23167	334.043	1.626	0.01618	141.607	235.88	0.00935
23170	333.256	1.627	0.01613	140.191	235.95	0.00933
23173	332.558	1.637	0.01604	138.934	237.38	0.00927
23176	331.969	1.638	0.01599	137.874	237.64	0.00925
23179	334.184	1.457	0.01585	141.861	211.32	0.00916
23182	333.333	1.488	0.01589	140.329	215.83	0.00919
23185	332.623	1.503	0.01584	139.051	217.99	0.00916
23188	331.976	1.577	0.01589	137.887	228.70	0.00919
23191	334.196	1.431	0.01576	141.883	207.49	0.00911
23194	333.382	1.447	0.01575	140.418	209.90	0.00911
23197	332.653	1.463	0.01576	139.105	212.20	0.00911
23200	332.021	1.478	0.01569	137.968	214.30	0.00907
23203	334.362	1.237	0.01550	142.182	179.48	0.00896
23206	333.518	1.238	0.01539	140.662	179.54	0.00890
23209	332.770	1.238	0.01537	139.316	179.59	0.00889
23212	332.125	1.238	0.01535	138.155	179.58	0.00888
23215	334.519	1.034	0.01523	142.464	149.97	0.00881
23218	333.645	1.033	0.01514	140.891	149.80	0.00875
23221	332.873	1.032	0.01509	139.501	149.64	0.00872
23224	332.187	1.030	0.01505	138.267	149.44	0.00870
23227	334.724	0.822	0.01501	142.833	119.22	0.00868
23230	333.806	0.823	0.01491	141.181	119.30	0.00862
23233	332.996	0.823	0.01485	139.723	119.34	0.00859
23236	332.280	0.823	0.01478	138.434	119.37	0.00855
23239	334.955	0.579	0.01474	143.249	84.05	0.00852
23242	333.990	0.580	0.01467	141.512	84.10	0.00848
23245	333.122	0.580	0.01459	139.950	84.17	0.00844
23248	332.371	0.581	0.01456	138.598	84.22	0.00842
23251	335.335	0.327	0.01459	143.933	47.49	0.00844
23254	334.274	0.328	0.01447	142.023	47.57	0.00837
23257	333.337	0.328	0.01440	140.337	47.58	0.00833
23260	332.522	0.329	0.01439	138.870	47.68	0.00832

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
23263	336.180	0.073	0.01305	145.454	10.62	0.00755
23266	334.957	0.074	0.01301	143.253	10.71	0.00752
23269	333.865	0.074	0.01293	141.287	10.76	0.00748
23272	332.919	0.075	0.01286	139.584	10.81	0.00744
27025	341.121	57.015	0.20434	154.348	8269.39	0.11814
27027	341.277	57.022	0.19773	154.629	8270.33	0.11432
27029	341.438	57.022	0.19273	154.918	8270.35	0.11143
27031	341.619	57.027	0.18850	155.244	8271.07	0.10898
27033	341.105	51.575	0.20349	154.319	7480.29	0.11765
27035	341.258	51.581	0.19424	154.594	7481.29	0.11230
27037	341.430	51.586	0.18764	154.904	7481.95	0.10849
27039	341.604	51.591	0.18390	155.217	7482.66	0.10632
27041	341.113	51.598	0.19717	154.333	7483.66	0.11400
27042	341.330	51.600	0.19188	154.724	7483.95	0.11094
27043	341.457	51.603	0.18434	154.953	7484.43	0.10658
27044	341.635	51.607	0.18045	155.273	7484.93	0.10433
27046	341.618	46.691	0.18053	155.242	6772.05	0.10438
27048	341.444	46.696	0.18395	154.929	6772.78	0.10635
27050	341.274	46.698	0.18943	154.623	6772.96	0.10952
27052	341.100	46.701	0.19454	154.310	6773.51	0.11248
27054	341.648	42.223	0.17948	155.296	6124.00	0.10377
27056	341.461	42.228	0.18166	154.960	6124.66	0.10503
27058	341.290	42.232	0.18617	154.652	6125.20	0.10764
27060	341.130	42.236	0.19182	154.364	6125.84	0.11090
27062	341.690	38.046	0.16954	155.372	5518.19	0.09802
27064	341.513	38.048	0.17304	155.053	5518.37	0.10005
27066	341.323	38.049	0.17830	154.711	5518.64	0.10309
27068	341.147	38.051	0.18373	154.395	5518.85	0.10623
27070	341.757	34.101	0.15699	155.493	4946.03	0.09077
27072	341.578	34.101	0.15959	155.170	4945.95	0.09227
27074	341.376	34.102	0.16298	154.807	4946.12	0.09423
27076	341.221	34.098	0.16558	154.528	4945.59	0.09573
27078	341.769	34.012	0.15635	155.514	4933.06	0.09040
27080	341.572	34.016	0.15785	155.160	4933.61	0.09126
27082	341.415	34.020	0.15899	154.877	4934.22	0.09192
27084	341.237	34.024	0.16051	154.557	4934.75	0.09280
27086	341.830	30.656	0.15685	155.624	4446.24	0.09069
27088	341.645	30.659	0.15825	155.291	4446.75	0.09149
27090	341.468	30.663	0.16021	154.972	4447.39	0.09263
27092	341.296	30.667	0.16297	154.663	4447.95	0.09422
27094	341.871	27.547	0.15389	155.698	3995.38	0.08897
27096	341.660	27.550	0.15578	155.318	3995.83	0.09007
27098	341.490	27.554	0.15714	155.012	3996.35	0.09085
27100	341.324	27.557	0.15952	154.713	3996.78	0.09223
27102	341.869	24.682	0.15108	155.694	3579.79	0.08735
27104	341.682	24.683	0.15235	155.358	3580.00	0.08808
27106	341.487	24.685	0.15416	155.007	3580.21	0.08913
27108	341.319	24.686	0.15619	154.704	3580.48	0.09030
27110	341.901	22.012	0.14829	155.752	3192.53	0.08574

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
27112	341.684	22.014	0.14938	155.361	3192.83	0.08637
27114	341.513	22.015	0.15135	155.053	3192.99	0.08751
27116	341.327	22.017	0.15338	154.719	3193.28	0.08868
27118	341.973	19.575	0.14490	155.881	2839.15	0.08378
27120	341.761	19.575	0.14572	155.500	2839.19	0.08425
27122	341.566	19.575	0.14759	155.149	2839.11	0.08533
27124	341.388	19.577	0.14860	154.828	2839.35	0.08592
27126	342.002	17.460	0.14108	155.934	2532.32	0.08157
27128	341.792	17.464	0.14125	155.556	2533.01	0.08167
27130	341.591	17.466	0.14316	155.194	2533.22	0.08277
27132	341.404	17.467	0.14550	154.857	2533.45	0.08412
27134	342.062	15.444	0.13727	156.042	2239.97	0.07936
27136	341.860	15.444	0.13787	155.678	2240.00	0.07971
27138	341.670	15.445	0.13833	155.336	2240.15	0.07998
27140	341.475	15.445	0.13960	154.985	2240.14	0.08071
27141	342.053	13.730	0.13081	156.025	1991.43	0.07563
27143	341.839	13.732	0.13147	155.640	1991.69	0.07601
27145	341.639	13.734	0.13193	155.280	1992.00	0.07628
27147	341.451	13.734	0.13280	154.942	1992.01	0.07678
27150	342.070	13.742	0.13057	156.056	1993.12	0.07549
27152	341.860	13.744	0.13081	155.678	1993.39	0.07563
27154	341.655	13.747	0.13122	155.309	1993.82	0.07587
27156	341.463	13.748	0.13157	154.963	1994.01	0.07607
27158	342.052	12.166	0.12817	156.024	1764.56	0.07410
27160	341.843	12.168	0.12837	155.647	1764.81	0.07422
27162	341.641	12.169	0.12872	155.284	1764.99	0.07442
27164	341.460	12.171	0.12951	154.958	1765.32	0.07488
27166	342.056	10.775	0.12546	156.031	1562.84	0.07254
27168	341.853	10.777	0.12593	155.665	1563.12	0.07281
27170	341.650	10.779	0.12606	155.300	1563.41	0.07288
27172	341.451	10.782	0.12598	154.942	1563.83	0.07284
27174	342.073	9.559	0.12327	156.061	1386.38	0.07127
27176	341.853	9.561	0.12350	155.665	1386.67	0.07140
27178	341.648	9.564	0.12369	155.296	1387.17	0.07151
27180	341.450	9.568	0.12371	154.940	1387.71	0.07153
27182	342.078	8.486	0.12108	156.070	1230.73	0.07000
27184	341.863	8.490	0.12130	155.683	1231.33	0.07013
27186	341.657	8.494	0.12134	155.313	1231.99	0.07015
27188	341.456	8.498	0.12133	154.951	1232.55	0.07015
27190	342.100	7.536	0.11843	156.110	1092.94	0.06847
27192	341.894	7.540	0.11861	155.739	1093.57	0.06858
27194	341.694	7.544	0.11900	155.379	1094.13	0.06880
27196	341.495	7.549	0.11894	155.021	1094.85	0.06877
27198	342.094	6.686	0.11697	156.099	969.72	0.06763
27200	341.875	6.689	0.11728	155.705	970.11	0.06781
27202	341.669	6.692	0.11701	155.334	970.58	0.06765
27204	341.466	6.695	0.11715	154.969	971.04	0.06773
27206	342.106	5.955	0.11484	156.121	863.76	0.06640
27208	341.895	5.956	0.11501	155.741	863.91	0.06649

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
27210	341.687	5.957	0.11501	155.367	863.98	0.06649
27212	341.480	5.957	0.11524	154.994	864.03	0.06663
27214	342.074	5.346	0.11420	156.063	775.41	0.06603
27216	341.861	5.345	0.11422	155.680	775.29	0.06604
27218	341.653	5.345	0.11400	155.305	775.18	0.06591
27220	341.452	5.344	0.11436	154.944	775.12	0.06612
27222	342.028	4.844	0.11646	155.980	702.63	0.06733
27224	341.817	4.844	0.11505	155.601	702.58	0.06652
27226	341.610	4.844	0.11540	155.228	702.55	0.06672
27228	341.419	4.844	0.11476	154.884	702.53	0.06635
24009	342.878	4.443	0.03392	157.510	644.42	0.01961
24011	342.522	4.442	0.03337	156.870	644.26	0.01929
24013	342.187	4.442	0.03307	156.267	644.27	0.01912
24015	341.875	4.442	0.03283	155.705	644.26	0.01898
24017	343.061	4.392	0.03206	157.840	636.97	0.01854
24019	342.689	4.392	0.03170	157.170	636.94	0.01833
24021	342.333	4.392	0.03140	156.529	636.99	0.01815
24023	342.010	4.392	0.03145	155.948	636.95	0.01818
24025	343.251	4.320	0.03046	158.182	626.55	0.01761
24027	342.869	4.318	0.03022	157.494	626.31	0.01747
24029	342.493	4.318	0.03010	156.817	626.24	0.01740
24031	342.144	4.317	0.02998	156.189	626.20	0.01733
24033	343.416	4.256	0.02934	158.479	617.33	0.01696
24035	342.998	4.256	0.02913	157.726	617.29	0.01684
24037	342.609	4.256	0.02894	157.026	617.31	0.01673
24039	342.249	4.256	0.02906	156.378	617.30	0.01680
24041	343.545	4.189	0.02833	158.711	607.59	0.01638
24043	343.127	4.188	0.02818	157.959	607.47	0.01629
24045	342.730	4.188	0.02799	157.244	607.36	0.01618
24047	342.342	4.187	0.02801	156.546	607.34	0.01619
24049	343.694	4.115	0.02741	158.979	596.90	0.01585
24051	343.245	4.115	0.02727	158.171	596.79	0.01577
24053	342.824	4.115	0.02712	157.413	596.76	0.01568
24055	342.436	4.114	0.02707	156.715	596.71	0.01565
24057	343.817	4.049	0.02665	159.201	587.28	0.01541
24059	343.339	4.049	0.02650	158.340	587.22	0.01532
24061	342.901	4.048	0.02648	157.552	587.17	0.01531
24063	342.508	4.048	0.02629	156.844	587.14	0.01520
24065	343.936	3.967	0.02582	159.415	575.41	0.01493
24067	343.460	3.967	0.02566	158.558	575.32	0.01484
24069	343.009	3.968	0.02558	157.746	575.45	0.01479
24071	342.589	3.968	0.02578	156.990	575.44	0.01491
24073	344.071	3.895	0.02513	159.658	564.91	0.01453
24075	343.587	3.894	0.02506	158.787	564.75	0.01449
24077	343.111	3.893	0.02503	157.930	564.64	0.01447
24079	342.682	3.892	0.02499	157.158	564.55	0.01445
24081	343.696	3.793	0.02426	158.983	550.13	0.01403
24083	343.234	3.792	0.02420	158.151	549.95	0.01399
24085	342.794	3.791	0.02417	157.359	549.84	0.01397

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
24087	342.381	3.790	0.02427	156.616	549.74	0.01403
24089	343.850	3.677	0.02349	159.260	533.34	0.01358
24091	343.369	3.674	0.02341	158.394	532.93	0.01354
24093	342.909	3.673	0.02328	157.566	532.74	0.01346
24095	342.476	3.672	0.02341	156.787	532.65	0.01354
24097	344.012	3.552	0.02268	159.552	515.21	0.01311
24099	343.503	3.551	0.02260	158.635	514.97	0.01307
24101	343.019	3.550	0.02261	157.764	514.85	0.01307
24103	342.571	3.549	0.02263	156.958	514.75	0.01308
24105	344.140	3.452	0.02215	159.782	500.73	0.01281
24107	343.602	3.451	0.02213	158.814	500.57	0.01280
24109	343.109	3.451	0.02207	157.926	500.50	0.01276
24111	342.653	3.451	0.02203	157.105	500.49	0.01274
24113	341.346	3.451	0.02217	154.753	500.48	0.01282
24115	344.019	3.312	0.02151	159.564	480.43	0.01244
24117	343.478	3.311	0.02145	158.590	480.27	0.01240
24119	342.996	3.311	0.02140	157.723	480.22	0.01237
24121	342.530	3.311	0.02140	156.884	480.19	0.01237
24123	341.390	3.312	0.02183	154.832	480.30	0.01262
24125	344.153	3.188	0.02094	159.805	462.42	0.01211
24127	343.601	3.188	0.02088	158.812	462.36	0.01207
24129	343.086	3.188	0.02081	157.885	462.33	0.01203
24131	342.612	3.187	0.02089	157.032	462.28	0.01208
24133	341.434	3.190	0.02073	154.911	462.65	0.01199
24135	344.316	3.030	0.02027	160.099	439.51	0.01172
24137	343.739	3.031	0.02031	159.060	439.63	0.01174
24139	343.207	3.031	0.02021	158.103	439.65	0.01169
24141	342.710	3.032	0.02020	157.208	439.81	0.01168
24143	341.488	3.043	0.02023	155.008	441.37	0.01170
24145	344.412	2.940	0.01999	160.272	426.45	0.01156
24147	343.823	2.943	0.01993	159.211	426.78	0.01152
24149	343.271	2.944	0.02006	158.218	427.06	0.01160
24151	342.779	2.946	0.01996	157.332	427.28	0.01154
24153	341.532	2.949	0.02020	155.088	427.74	0.01168
24155	344.592	2.773	0.01948	160.596	402.12	0.01126
24157	343.969	2.772	0.01979	159.474	402.02	0.01144
24159	343.418	2.772	0.01968	158.482	402.09	0.01138
24161	342.893	2.772	0.01969	157.537	402.05	0.01138
24163	341.601	2.772	0.01999	155.212	402.01	0.01156
24165	344.406	2.635	0.01908	160.261	382.19	0.01103
24167	343.803	2.636	0.01905	159.175	382.29	0.01101
24169	343.244	2.637	0.01893	158.169	382.42	0.01094
24171	342.726	2.638	0.01895	157.237	382.57	0.01096
24173	341.644	2.639	0.01895	155.289	382.77	0.01096
24175	344.569	2.443	0.01853	160.554	354.38	0.01071
24177	343.951	2.445	0.01852	159.442	354.59	0.01071
24179	343.359	2.446	0.01845	158.376	354.80	0.01067
24181	342.821	2.448	0.01845	157.408	355.03	0.01067
24183	341.697	2.451	0.01826	155.385	355.50	0.01056

Table 22. Transient Hot-Wire Thermal Conductivity Data for HFC-32 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
24185	344.700	2.266	0.01811	160.790	328.60	0.01047
24187	344.071	2.264	0.01807	159.658	328.41	0.01045
24189	343.462	2.264	0.01806	158.562	328.37	0.01044
24191	342.912	2.264	0.01799	157.572	328.37	0.01040
24193	341.759	2.264	0.01773	155.496	328.40	0.01025
24195	344.503	2.102	0.01777	160.435	304.89	0.01027
24197	343.867	2.103	0.01769	159.291	305.06	0.01023
24199	343.269	2.105	0.01765	158.214	305.36	0.01020
24201	342.716	2.107	0.01764	157.219	305.53	0.01020
24203	341.795	2.108	0.01758	155.561	305.75	0.01016
24205	344.669	1.893	0.01739	160.734	274.52	0.01005
24207	344.008	1.888	0.01733	159.544	273.87	0.01002
24209	343.390	1.885	0.01719	158.432	273.37	0.00994
24211	342.819	1.883	0.01731	157.404	273.12	0.01001
24213	341.864	1.881	0.01731	155.685	272.87	0.01001
24215	344.840	1.696	0.01710	161.042	245.92	0.00989
24217	344.157	1.687	0.01703	159.813	244.68	0.00985
24219	343.518	1.680	0.01694	158.662	243.68	0.00979
24221	342.934	1.674	0.01692	157.611	242.86	0.00978
24223	341.936	1.668	0.01713	155.815	241.88	0.00990
24225	344.658	1.492	0.01674	160.714	216.38	0.00968
24227	343.969	1.491	0.01676	159.474	216.27	0.00969
24229	343.336	1.491	0.01667	158.335	216.24	0.00964
24231	342.763	1.491	0.01669	157.303	216.26	0.00965
24233	341.998	1.492	0.01648	155.926	216.41	0.00953
24235	344.835	1.271	0.01647	161.033	184.28	0.00952
24237	344.123	1.271	0.01641	159.751	184.28	0.00949
24239	343.455	1.271	0.01627	158.549	184.30	0.00941
24241	342.857	1.271	0.01620	157.473	184.33	0.00937
24243	342.072	1.271	0.01625	156.060	184.36	0.00940
24245	345.041	1.040	0.01619	161.404	150.86	0.00936
24247	344.291	1.040	0.01613	160.054	150.90	0.00933
24249	343.603	1.041	0.01608	158.815	150.92	0.00930
24251	342.974	1.041	0.01604	157.683	150.97	0.00927
24253	342.145	1.041	0.01595	156.191	151.04	0.00922
24255	345.278	0.789	0.01596	161.830	114.49	0.00923
24257	344.489	0.790	0.01588	160.410	114.53	0.00918
24259	343.771	0.790	0.01584	159.118	114.61	0.00916
24261	343.113	0.790	0.01573	157.933	114.60	0.00909
24263	342.253	0.791	0.01571	156.385	114.67	0.00908
24265	345.557	0.540	0.01578	162.333	78.36	0.00912
24267	344.724	0.541	0.01569	160.833	78.45	0.00907
24269	343.956	0.541	0.01556	159.451	78.51	0.00900
24271	343.262	0.542	0.01552	158.202	78.55	0.00897
24273	342.348	0.542	0.01551	156.556	78.63	0.00897
24275	345.986	0.281	0.01565	163.105	40.82	0.00905
24277	345.104	0.282	0.01553	161.517	40.94	0.00898
24279	344.267	0.283	0.01550	160.011	41.02	0.00896
24281	343.523	0.283	0.01537	158.671	41.08	0.00889
24283	342.531	0.284	0.01535	156.886	41.14	0.00888

Table 23. Thermal conductivity correlation parameters for HFC-32, with thermal conductivity in W/m-K, temperature in K, and density in mol/L. The parameters are explained in Appendix B.

Refrigerant	HFC-32
Dilute Gas Terms	
a_1	-1.17164×10^{-3}
a_2	3.49249×10^{-5}
a_3	3.28621×10^{-8}
Excess Function Terms	
b_1	5.48429×10^{0}
b_2	-6.86183×10^{-3}
b_3	-6.08572×10^{0}
b_4	1.87197×10^{-2}
b_5	4.44371×10^{-1}
b_6	-1.33799×10^{-3}
b_7	-8.23987×10^{-3}
b_8	2.58946×10^{-5}
Critical Enhancement Parameters	
T_c	351.6 K
P_c	58.30 bar
ρ_c	8.124 mol/L
q_D	3.0×10^{9} m^{-1}

Table 24a. Viscosity of compressed fluid difluoromethane (HFC-32) (SI units).

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$	Viscosity mPa·s
200.00	35.73	25.44	0.472
	30.92	25.36	0.467
	28.01	25.31	0.455
	24.41	25.25	0.449
	20.48	25.18	0.441
	17.18	25.12	0.432
	13.75	25.06	0.426
	10.59	25.00	0.418
	7.15	24.94	0.413
	3.86	24.88	0.398
250.00	27.76	22.58	0.252
	20.93	22.40	0.242
	14.58	22.21	0.234
	7.09	21.98	0.221
	3.64	21.86	0.213
300.00	34.00	20.17	0.194
	31.18	20.06	0.184
	27.89	19.92	0.179
	24.32	19.76	0.177
	20.63	19.59	0.161
	17.61	19.43	0.156
	14.00	19.22	0.149
	10.50	19.00	0.142
	6.91	18.75	0.136
	3.77	18.50	0.131

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$	Viscosity mPa·s
420.00	18.28	10.09	0.063
	14.24	7.62	0.038
	12.39	6.12	0.030
	9.10	3.78	0.022
	5.09	1.76	0.018

Table 24b. Viscosity of compressed fluid difluoromethane (HFC-32) (PI units).

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$	Viscosity $10^{-3} lb/ft \cdot s$
-99.67	5181.	82.63	0.317
	4483.	82.37	0.314
	4061.	82.21	0.306
	3539.	82.01	0.302
	2970.	81.78	0.296
	2491.	81.59	0.290
	1994.	81.34	0.286
	1536.	81.20	0.281
	1037.	81.00	0.278
	559.7	80.81	0.267
-9.67	4025.	73.34	0.169
	3035.	72.76	0.163
	2114.	72.14	0.157
	1028.	71.39	0.149
	527.8	71.00	0.143
80.33	4930.	65.51	0.130
	4521.	65.15	0.124
	4044.	64.70	0.120
	3526.	64.14	0.119
	2991.	63.63	0.108
	2553.	63.11	0.105
	2030.	62.43	0.100
	1522.	61.71	0.095
	1002.	60.90	0.091
	546.7	60.09	0.088

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$	Viscosity $10^{-3} lb/ft \cdot s$
296.33	2651.	32.77	0.042
	2065.	24.75	0.026
	1797.	19.88	0.020
	1320.	12.27	0.015
	738.	5.72	0.012

Table 25a. Viscosity of saturated liquid difluoromethane (HFC-32) (SI units).

Temperature K	Density $mol \cdot dm^{-3}$	Viscosity mPa·s
150.00	28.58	1.193
160.00	27.71	0.945
170.00	26.91	0.724
180.00	26.16	0.598
190.00	25.46	0.456
200.00	24.80	0.384
210.00	24.16	0.342
220.00	23.55	0.294
230.00	22.95	0.259
240.00	22.35	0.227
250.00	21.74	0.209
260.00	21.12	0.187
270.00	20.48	0.169
280.00	19.81	0.149
290.00	19.09	0.135
300.00	18.31	0.123

Table 25b. Viscosity of saturated liquid difluoromethane (HFC-32) (PI units).

Temperature °F	Density $lb \cdot ft^{-3}$	Viscosity 10^{-3} lb/ft·s
-189.67	92.83	0.802
-171.67	90.00	0.635
-153.67	87.40	0.486
-135.67	84.97	0.402
-117.67	82.69	0.306
-99.67	80.55	0.258
-81.67	78.47	0.230
-63.67	76.49	0.198
-45.67	74.54	0.174
-27.67	72.59	0.153
-9.67	70.61	0.140
8.33	68.60	0.126
26.33	66.52	0.114
44.33	64.31	0.100
62.33	62.00	0.091
80.33	59.47	0.083

Table 26a. Burnett vapor-phase PVT measurements for HCFC-124 (SI units).

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
423.115	0.8281	8200.801	378.114	0.1461	2246.522	333.150	0.0461	789.038
423.115	0.8274	8190.710	373.146	0.1461	2178.006	323.154	0.0461	753.390
418.101	0.8276	7440.368	368.137	0.1462	2107.447	423.115	0.0257	632.025
408.122	0.8280	5985.352	423.115	0.0818	1798.808	423.141	0.0257	632.233
403.099	0.8281	5226.898	418.132	0.0818	1768.495	418.145	0.0257	623.917
398.101	0.8283	4510.935	413.096	0.8189	1737.613	413.115	0.0257	615.589
423.134	0.4647	5194.508	408.131	0.0819	1706.952	408.148	0.0257	607.200
423.122	0.4647	5193.894	403.113	0.0819	1675.852	403.133	0.0258	598.761
423.115	0.4647	5193.637	398.111	0.8195	1644.584	398.130	0.0258	590.285
418.082	0.4648	4911.935	393.114	0.0819	1613.187	393.132	0.0258	581.876
413.104	0.4649	4632.432	388.132	0.8198	1581.625	388.142	0.0258	573.407
408.132	0.4650	4351.803	383.147	0.8200	1549.812	383.102	0.0258	564.863
403.114	0.4651	4066.721	378.114	0.8202	1517.431	378.133	0.0258	556.417
398.114	0.4652	3779.324	373.148	0.0820	1485.164	373.108	0.0258	547.841
423.117	0.2607	4057.551	368.131	0.0820	1452.261	368.152	0.0258	539.308
423.115	0.2599	4050.782	363.126	0.0820	1419.106	363.148	0.0258	530.682
423.115	0.2607	4057.386	358.132	0.0820	1385.590	358.145	0.0258	522.011
423.108	0.2599	4050.618	353.137	0.0821	1351.617	353.149	0.0258	513.358
423.106	0.2607	4057.312	348.159	0.0821	1317.171	348.118	0.0258	504.615
418.121	0.2608	3926.136	423.115	0.0459	1083.072	343.145	0.0258	495.902
413.092	0.2609	3792.346	418.124	0.0459	1067.419	338.112	0.0258	487.052
408.127	0.2609	3658.701	413.097	0.0459	1051.589	333.101	0.0258	478.185
403.111	0.2610	3521.807	408.131	0.0459	1035.856	323.168	0.0258	460.407
398.110	0.2610	3383.100	403.112	0.0459	1019.942	318.127	0.0258	451.280
393.113	0.2611	3241.730	398.109	0.0459	1003.990	313.143	0.0258	442.161
388.125	0.2611	3096.868	393.116	0.0459	988.014	308.165	0.0259	432.976
423.115	0.1458	2827.307	388.121	0.0460	972.011	303.156	0.0259	423.391
423.106	0.1458	2827.303	383.143	0.0460	955.971	423.115	0.0144	362.488
418.116	0.1459	2765.369	378.115	0.4602	939.783	423.115	0.3993	4899.220
413.147	0.1459	2703.117	373.151	0.0460	923.612	423.115	0.2240	3734.379
408.138	0.1459	2639.991	368.138	0.0460	907.183	423.115	0.1257	2535.057
403.127	0.1460	2576.299	363.133	0.0460	890.678	423.115	0.0705	1585.333
398.110	0.1460	2511.815	358.134	0.0460	874.045	423.115	0.0395	945.153
393.108	0.1460	2446.784	353.140	0.0460	857.368	423.115	0.0222	548.573
388.120	0.1461	2381.123	348.110	0.0460	840.451	423.115	0.0124	313.587

Table 26b. Burnett vapor-phase PVT measurements for HCFC-124 (PI units).

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
301.937	1189.425	51.699	220.936	9.1246	325.830	140.001	2.8787	114.440
301.937	1187.962	51.658	211.993	9.1265	315.893	122.007	2.8799	109.270
292.911	1079.134	51.669	202.976	9.1284	305.659	301.937	1.6093	91.667
274.950	868.102	51.691	301.937	5.1107	260.895	301.984	1.6093	91.698
265.908	758.097	51.702	292.967	5.1118	256.498	292.990	1.6097	90.491
256.912	654.256	51.713	283.904	5.1128	252.019	283.938	1.6100	89.283
301.971	753.399	29.012	274.966	5.1139	247.572	274.997	1.6103	88.067
301.949	753.310	29.012	265.934	5.1150	243.062	265.970	1.6107	86.843
301.937	753.273	29.012	256.930	5.1161	238.527	256.964	1.6110	85.614
292.877	712.416	29.018	247.935	5.1171	233.973	247.968	1.6113	84.394
283.918	671.877	29.024	238.968	5.1182	229.395	238.986	1.6117	83.166
274.968	631.175	29.030	229.995	5.1193	224.781	229.914	1.6120	81.926
265.935	589.828	29.036	220.936	5.1203	220.085	220.970	1.6124	80.701
256.935	548.144	29.043	211.997	5.1214	215.405	211.925	1.6127	79.458
301.940	588.498	16.280	202.965	5.1225	210.633	203.003	1.6130	78.220
301.937	587.516	16.229	193.956	5.1236	205.824	193.996	1.6134	76.969
301.937	588.474	16.280	184.968	5.1246	200.963	184.991	1.6137	75.711
301.924	587.492	16.229	175.977	5.1257	196.035	175.999	1.6141	74.456
301.921	588.463	16.280	167.017	5.1268	191.039	166.943	1.6144	73.188
292.947	569.438	16.284	301.937	2.8679	157.086	157.991	1.6147	71.924
283.896	550.033	16.287	292.953	2.8685	154.816	148.932	1.6151	70.641
274.959	530.650	16.290	283.905	2.8691	152.520	139.913	1.6154	69.355
265.930	510.795	16.294	274.966	2.8697	150.238	122.033	1.6161	66.776
256.928	490.677	16.297	265.932	2.8703	147.930	112.959	1.6164	65.453
247.933	470.173	16.301	256.926	2.8709	145.618	103.987	1.6168	64.130
238.955	449.163	16.304	247.939	2.8715	143.299	95.027	1.6171	62.798
301.937	410.066	9.107	238.948	2.8721	140.978	86.012	1.6174	61.408
301.921	410.065	9.107	229.988	2.8727	138.652	301.937	0.9031	52.574
292.938	401.083	9.109	220.937	2.8733	136.304	301.962	24.9301	710.572
283.995	392.054	9.111	212.002	2.8739	133.959	301.937	13.9897	541.626
274.979	382.898	9.113	202.978	2.8745	131.576	301.937	7.8505	367.679
265.959	373.660	9.115	193.969	2.8751	129.182	301.937	4.4054	229.933
256.928	364.308	9.116	184.971	2.8757	126.769	301.937	2.4721	137.083
247.924	354.876	9.118	175.982	2.8763	124.351	301.937	1.3872	79.564
238.946	345.353	9.120	166.929	2.8769	121.897	301.937	0.7784	45.482

Table 27a. Vibrating-tube compressed-liquid-density measurements for HCFC-124 (SI units)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
275.195	1050.7	1.4369	303.459	4563.1	1.3573	337.884	3610.2	1.2288
275.213	1575.7	1.4346	303.468	4979.2	1.3593	337.903	4136.0	1.2306
275.159	2058.1	1.4366	303.479	5519.9	1.3618	337.876	4593.3	1.2349
275.146	2469.2	1.438	303.488	6070.1	1.3642	337.877	5051.2	1.2387
275.188	3036.4	1.4398	303.492	6441.2	1.3658	337.848	5620.8	1.2472
275.175	3592.0	1.4417	308.377	1060.6	1.3259	337.906	6089.6	1.2471
275.071	3951.7	1.4436	308.39	1599.5	1.3274	337.866	6586.3	1.251
275.123	4507.3	1.4449	308.377	2077.2	1.3273	342.787	1588.3	1.1843
275.18	4948.2	1.4464	308.416	2508.9	1.3297	342.733	2096.7	1.191
275.143	5470.6	1.448	308.366	3062.3	1.333	342.758	2651.8	1.1974
275.606	6023.4	1.448	308.405	3644.8	1.336	342.779	3098.2	1.2024
275.219	6361.0	1.4505	308.373	3979.3	1.338	342.879	3623.9	1.2076
278.699	1050.3	1.4258	308.376	4576.8	1.3412	342.867	4147.5	1.2105
278.702	1578.8	1.4238	308.373	4986.7	1.3433	342.823	4601.9	1.2149
278.723	2060.2	1.4256	308.387	5538.0	1.346	342.839	5065.9	1.2193
278.695	2474.9	1.4272	308.391	6081.2	1.3486	342.808	5632.8	1.228
278.725	3039.7	1.4291	308.394	6453.1	1.3504	342.877	6112.2	1.2283
278.697	3600.1	1.4311	313.327	1094.1	1.3066	342.824	6600.7	1.2335
278.714	3957.9	1.4324	313.338	1559.9	1.3098	347.706	1593.0	1.1587
278.669	4514.5	1.4344	313.328	2062.6	1.3131	347.635	2103.5	1.1666
278.702	4944.6	1.4358	313.331	2596.0	1.3164	347.598	2659.2	1.1742
278.74	5475.5	1.4374	313.336	3044.4	1.3192	347.696	3110.8	1.1797
278.763	6022.7	1.4391	313.395	3568.6	1.322	347.622	3630.5	1.1863
278.733	6371.2	1.4403	313.364	4091.3	1.3219	347.781	4155.1	1.1891
283.621	1051.1	1.41	313.36	4537.0	1.3246	347.761	4615.9	1.1942
283.635	1582.6	1.4082	313.363	4997.2	1.3272	347.76	5081.9	1.1991
283.631	2063.0	1.4101	313.373	5590.8	1.331	347.738	5644.6	1.2081
283.609	2480.0	1.4119	313.396	6012.6	1.3359	347.796	6128.0	1.2091
283.647	3044.1	1.4139	313.352	6520.7	1.3354	347.75	6615.5	1.2141
283.636	3608.2	1.4161	318.224	1097.2	1.2876	352.517	2110.0	1.1405
283.657	3964.2	1.4174	318.252	1568.3	1.2911	352.485	2666.3	1.1496
283.617	4522.8	1.4196	318.234	2068.7	1.2948	352.556	3116.4	1.1558
283.625	4948.2	1.4211	318.236	2612.2	1.2985	352.64	3647.6	1.1628
283.64	5483.9	1.4229	318.256	3052.0	1.3014	352.675	4168.0	1.1669
283.656	6029.4	1.4247	318.304	3582.8	1.3046	352.646	4624.3	1.1726
283.647	6384.5	1.426	318.287	4103.8	1.3047	352.647	5091.7	1.1781
288.526	1052.6	1.3941	318.277	4549.1	1.3077	352.612	5658.0	1.1878
288.538	1585.4	1.3924	318.283	5017.2	1.3105	352.626	6146.8	1.1896
288.54	2065.9	1.3944	318.283	5604.9	1.3146	352.637	6631.1	1.1947
288.49	2486.7	1.3964	318.3	6023.7	1.3165	357.37	2111.6	1.1122
288.538	3043.9	1.3985	318.271	6533.0	1.3193	357.392	2673.3	1.1227
288.568	3614.7	1.4007	323.093	1099.9	1.2681	357.28	3123.4	1.1307
288.549	3961.5	1.4022	323.134	1572.8	1.2718	357.5	3655.8	1.1384
288.514	4531.6	1.4046	323.094	2073.2	1.276	357.52	4181.5	1.1437
288.529	4957.1	1.4062	323.107	2622.3	1.28	357.514	4632.3	1.1503
288.551	5495.6	1.4082	323.137	3060.2	1.2833	357.523	5107.5	1.1562
288.543	6038.9	1.4102	323.121	5592.8	1.2979	357.479	5670.1	1.1667
288.555	6395.6	1.4114	323.184	3591.7	1.2867	357.498	6159.0	1.1691

Table 27a. Vibrating-tube compressed-liquid-density measurements for HCFC-124 (SI units) (continued)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
293.483	1054.3	1.3776	323.168	4110.4	1.2871	357.499	6646.9	1.1748
293.483	1589.4	1.3761	323.159	4557.9	1.2903	362.22	2117.4	1.0805
293.517	1589.8	1.376	323.166	5023.3	1.2934	362.239	2683.9	1.0938
293.488	2067.2	1.3782	323.184	6039.3	1.2998	362.286	3133.6	1.1023
293.525	2492.4	1.3802	323.158	6545.9	1.3029	362.312	3669.5	1.1127
293.475	3045.9	1.3827	327.958	1102.6	1.2476	362.331	4196.0	1.1191
293.516	3624.9	1.3851	328.0	1577.1	1.2517	362.307	4648.1	1.1266
293.484	3958.4	1.3867	327.979	2080.2	1.2564	362.335	5125.8	1.1353
293.468	4540.6	1.3892	327.897	2629.4	1.2612	362.289	5684.1	1.1448
293.473	4965.8	1.3909	328.032	3069.7	1.2644	362.302	6178.7	1.1482
293.489	5505.2	1.3931	328.058	3596.9	1.2682	362.314	6663.9	1.1544
293.49	6049.3	1.3952	328.042	4119.5	1.269	367.101	2693.5	1.0612
293.49	6410.0	1.3966	328.031	4571.1	1.2726	367.106	3143.1	1.0728
298.468	1056.2	1.3606	328.036	5036.0	1.2759	367.128	3680.5	1.0846
298.477	2069.8	1.3616	328.008	5599.8	1.2807	367.154	4198.7	1.0951
298.52	2497.5	1.3636	328.062	6060.8	1.2828	367.124	4651.9	1.1038
298.471	3051.1	1.3664	328.023	6558.6	1.2862	367.128	5138.9	1.1114
298.51	3629.1	1.369	332.79	1105.3	1.2262	367.101	5697.6	1.1219
298.471	3968.2	1.3707	332.841	1582.3	1.231	367.126	6172.3	1.1257
298.464	4551.2	1.3734	332.778	2085.4	1.2362	367.121	6681.5	1.1332
298.466	4973.2	1.3753	332.807	2635.9	1.241	368.942	3671.9	1.073
298.481	5513.0	1.3776	332.836	3084.7	1.245	369.038	4200.9	1.0839
298.486	6059.0	1.3799	332.884	3602.2	1.2492	369.063	4647.8	1.0929
298.487	6425.9	1.3813	332.885	4127.8	1.2506	368.995	5144.2	1.1014
303.472	1058.4	1.3432	332.875	4582.7	1.2543	369.175	5709.0	1.1106
303.488	1149.6	1.3392	332.882	5044.0	1.2579	369.195	6165.5	1.1157
303.499	1596.2	1.3418	332.85	5610.3	1.2636	368.579	6685.8	1.1263
303.475	2073.3	1.3445	332.906	6077.1	1.2654	372.09	2694.7	1.0221
303.515	2503.3	1.3467	332.87	6572.6	1.2691	372.366	3147.6	1.0356

Table 27b. Vibrating-tube compressed-liquid-density measurements for HCFC-124 (PI units)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
35.68	152.39	89.704	86.555	661.822	84.733	148.521	523.616	76.709
35.714	228.529	89.558	86.572	722.169	84.856	148.555	599.876	76.823
35.616	298.496	89.683	86.591	800.587	85.013	148.506	666.208	77.09
35.593	358.133	89.771	86.609	880.391	85.167	148.508	732.614	77.33
35.669	440.392	89.886	86.615	934.212	85.267	148.456	815.226	77.861
35.645	520.97	90.005	95.408	153.821	82.775	148.56	883.223	77.853
35.457	573.14	90.12	95.433	231.985	82.864	148.49	955.268	78.098
35.552	653.728	90.202	95.408	301.268	82.864	157.346	230.365	73.933
35.654	717.669	90.297	95.480	363.885	83.012	157.249	304.107	74.351
35.587	793.447	90.394	95.389	444.156	83.216	157.295	384.616	74.749
36.421	873.617	90.398	95.458	528.636	83.406	157.333	449.353	75.063
35.724	922.591	90.552	95.401	577.146	83.528	157.512	525.609	75.385
41.989	152.335	89.008	95.407	663.804	83.725	157.491	601.542	75.57
41.993	228.982	88.883	95.401	723.261	83.858	157.412	667.456	75.842
42.031	298.8	88.995	95.427	803.219	84.03	157.441	734.747	76.117
41.981	358.958	89.094	95.434	882.008	84.193	157.384	816.963	76.659
42.035	440.876	89.216	95.439	935.943	84.302	157.509	886.501	76.68
41.984	522.1451	89.344	104.319	158.686	81.568	157.413	957.355	77.005
42.015	574.048	89.422	104.338	226.239	81.766	166.201	231.049	72.337
41.935	654.768	89.55	104.321	299.153	81.973	166.073	305.093	72.829
41.993	717.15	89.634	104.326	376.519	82.183	166.007	385.691	73.305
42.062	794.148	89.735	104.335	441.552	82.354	166.183	451.18	73.649
42.103	873.514	89.842	104.441	517.583	82.532	166.049	526.561	74.059
42.05	924.066	89.917	104.385	593.389	82.525	166.335	602.643	74.231
50.848	152.453	88.023	104.378	658.035	82.694	166.3	669.486	74.549
50.873	229.536	87.910	104.384	724.782	82.852	166.298	737.067	74.855
50.866	299.216	88.031	104.401	810.874	83.091	166.258	818.685	75.421
50.826	359.692	88.144	104.443	872.051	83.399	166.363	888.788	75.479
50.894	441.51	88.268	104.363	945.746	83.367	166.281	959.493	75.795
50.874	523.323	88.403	113.134	159.133	80.385	174.861	306.025	71.202
50.912	574.959	88.484	113.184	227.459	80.6	174.803	386.715	71.768
50.841	655.982	88.622	113.152	300.036	80.83	174.93	451.997	72.154
50.856	717.67	88.714	113.155	378.865	81.062	175.081	529.037	72.593
50.882	795.372	88.831	113.191	442.659	81.244	175.145	604.524	72.845
50.911	874.495	88.944	113.277	519.648	81.444	175.093	670.697	73.202
50.895	925.995	89.019	113.246	595.202	81.451	175.095	738.49	73.544
59.678	152.67	87.031	113.228	659.797	81.635	175.031	820.63	74.152
59.699	229.937	86.922	113.239	727.68	81.813	175.057	891.523	74.264
59.703	299.636	87.052	113.239	812.921	82.066	175.076	961.766	74.586
59.612	360.669	87.177	113.271	873.658	82.188	183.595	306.258	69.432
59.699	441.481	87.306	113.218	947.537	82.361	183.636	387.726	70.089
59.753	524.266	87.446	121.898	159.522	79.162	183.433	453.01	70.59
59.718	574.571	87.539	121.971	228.118	79.396	183.829	530.23	71.067
59.656	657.253	87.686	121.9	300.692	79.656	183.867	606.478	71.397
59.682	718.966	87.787	121.923	380.331	79.909	183.856	671.863	71.808
59.721	797.069	87.910	121.976	443.845	80.113	183.872	740.775	72.182
59.708	875.864	88.033	121.948	811.173	81.022	183.792	822.374	72.832
59.729	927.607	88.111	122.06	520.936	80.326	183.827	893.281	72.983
68.6	152.92	86.0	122.033	596.166	80.353	183.828	964.049	73.342

Table 27b. Vibrating-tube compressed-liquid-density measurements for HCFC-124 (PI units) (continued)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
68.599	230.53	85.907	122.017	661.06	80.552	192.326	307.107	67.453
68.661	230.576	85.899	122.028	728.564	80.745	192.36	389.264	68.283
68.608	299.816	86.041	122.062	875.926	81.144	192.445	454.492	68.814
68.676	361.485	86.161	122.014	949.409	81.338	192.492	532.216	69.466
68.586	441.773	86.318	130.654	159.918	77.883	192.526	608.574	69.865
68.659	525.753	86.469	130.73	228.746	78.144	192.483	674.151	70.333
68.601	574.114	86.568	130.691	301.711	78.432	192.533	743.427	70.874
68.573	658.561	86.727	130.544	381.36	78.731	192.449	824.413	71.468
68.582	720.234	86.834	130.788	445.225	78.932	192.473	896.146	71.679
68.609	798.462	86.968	130.834	521.68	79.17	192.496	966.523	72.066
68.612	877.373	87.1	130.805	597.485	79.224	201.111	390.658	66.249
68.612	929.692	87.184	130.785	662.984	79.445	201.121	455.875	66.971
77.572	153.196	84.941	130.795	730.417	79.65	201.161	533.805	67.711
77.589	300.205	85.001	130.744	812.177	79.952	201.208	608.965	68.363
77.667	362.237	85.129	130.841	879.041	80.081	201.153	674.695	68.906
77.578	442.53	85.3	130.771	951.248	80.294	201.16	745.329	69.384
77.647	526.359	85.463	139.352	160.316	76.548	201.111	826.363	70.037
77.578	575.541	85.571	139.443	229.496	76.849	201.157	895.214	70.273
77.565	660.091	85.74	139.331	302.463	77.171	201.148	969.063	70.742
77.568	721.296	85.855	139.383	382.305	77.475	204.426	532.559	66.984
77.596	799.588	85.999	139.435	447.394	77.724	204.598	609.294	67.663
77.604	878.785	86.141	139.521	522.461	77.983	204.643	674.104	68.229
77.606	931.996	86.233	139.522	598.68	78.071	204.521	746.106	68.759
86.579	153.511	83.854	139.505	664.663	78.304	204.846	828.026	69.334
86.608	166.732	83.601	139.517	731.564	78.526	204.881	894.235	69.651
86.628	231.515	83.767	139.459	813.711	78.886	203.773	969.697	70.313
86.585	300.71	83.935	139.562	881.413	78.999	210.092	390.833	63.809
86.657	363.08	84.075	139.496	953.277	79.228	210.588	456.514	64.65

Table 28a. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 1/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
103.999	6.226760	13.91860
105.999	12.778850	13.91419
107.999	19.287510	13.91010
109.999	25.760370	13.90619
111.998	32.154860	13.90244
112.000	.983711	13.74957
113.999	3.258380	13.70930
116.000	9.240955	13.70497
117.998	15.167930	13.70103
119.999	21.063240	13.69729
121.999	26.921330	13.69369
123.998	32.720460	13.69021
124.000	3.157045	13.51722
126.000	8.608703	13.51317
127.999	14.056010	13.50943
129.999	19.471300	13.50589
131.999	24.844050	13.50247
134.000	30.174590	13.49916
136.000	35.472760	13.49591
135.999	2.474208	13.28578
138.000	7.391337	13.28197
139.999	12.296560	13.27844
142.000	17.191640	13.27508
143.999	22.051510	13.27185
146.000	26.864480	13.26872
147.999	31.641030	13.26566
148.000	2.457991	13.06041
149.999	6.915843	13.05684
151.999	11.373190	13.05352
154.000	15.806910	13.05035
155.998	20.220830	13.04729
157.999	24.606620	13.04430
159.999	28.969200	13.04139
161.999	33.302550	13.03852
162.000	1.892250	12.79345
164.000	5.875665	12.79009
166.000	9.856306	12.78696
167.999	13.815500	12.78397
169.999	17.758390	12.78109
172.000	21.683680	12.77826
174.001	25.588160	12.77550
175.999	29.463810	12.77279
177.999	33.319840	12.77012

Table 28a. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 2/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
177.999	2.931927	12.50169
180.000	6.459064	12.49865
182.000	9.973697	12.49577
184.000	13.482320	12.49299
185.999	16.968830	12.49030
188.001	20.440880	12.48767
190.001	23.902990	12.48507
191.999	27.341340	12.48252
193.999	30.759340	12.48001
195.999	34.157370	12.47752
194.000	1.931502	12.18909
196.000	5.033347	12.18621
197.999	8.122772	12.18349
200.000	11.209380	12.18087
202.000	14.286380	12.17832
204.001	17.348010	12.17582
206.000	20.397440	12.17337
208.000	23.429070	12.17095
210.001	26.452370	12.16857
212.002	29.403170	12.16623
214.000	32.396790	12.16388
216.000	35.375180	12.16156
209.999	2.613277	11.89087
212.000	5.359978	11.88823
214.000	8.103843	11.88568
216.000	10.835770	11.88323
218.001	13.554630	11.88083
219.999	16.268500	11.87848
222.000	18.967570	11.87616
224.000	21.663110	11.87387
226.000	24.344580	11.87160
228.000	27.018200	11.86935
230.002	29.681040	11.86713
232.000	32.323510	11.86492
233.998	34.961730	11.86272
228.000	2.687304	11.54016
229.999	5.068540	11.53772
232.000	7.441756	11.53536
234.001	9.818677	11.53306
235.999	12.178040	11.53081
238.000	14.538120	11.52859
240.001	16.892600	11.52640
241.999	19.236050	11.52424
244.000	21.573870	11.52209
245.999	23.899430	11.51997

Table 28a. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 3/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
248.001	26.219510	11.51786
250.001	28.532190	11.51576
252.000	30.830360	11.51367
254.000	33.123620	11.51159
256.001	35.409220	11.50952
247.999	.995255	11.13293
250.000	2.591872	11.09319
251.999	4.584418	11.09096
253.999	6.575962	11.08878
256.001	8.563781	11.08665
258.000	10.541220	11.08456
260.000	12.522810	11.08249
262.000	14.496410	11.08045
263.999	16.460680	11.07843
266.000	18.422190	11.07642
268.000	20.379320	11.07443
270.000	22.325860	11.07245
271.998	24.272940	11.07047
274.001	26.211550	11.06851
276.000	28.146420	11.06655
278.000	30.076080	11.06460
279.998	31.997200	11.06266
282.000	33.912730	11.06071
276.000	1.215140	10.49846
279.999	4.364996	10.49442
283.999	7.507500	10.49053
288.000	10.637100	10.48674
292.001	13.762190	10.48302
296.001	16.872810	10.47934
299.998	19.970760	10.47569
304.000	23.058260	10.47205
308.000	26.131280	10.46844
311.999	29.185910	10.46484
316.000	32.226150	10.46125
320.001	35.252500	10.45765
315.998	2.669067	9.56622
320.000	4.851199	9.56284
323.998	7.029285	9.55950
328.000	9.209246	9.55621
331.998	11.387150	9.55294
336.000	13.562010	9.54969
339.998	15.731440	9.54645
343.999	17.898300	9.54321
348.001	20.060370	9.53999
352.000	22.212470	9.53679

Table 28a. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 4/4

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
355.998	24.357130	9.53375
360.001	26.502230	9.53056
364.002	28.640990	9.52734
368.000	30.771150	9.52411
372.001	32.893580	9.52087
375.998	35.004500	9.51762
356.001	2.716171	8.28455
360.000	4.022936	8.28178
364.000	5.335316	8.27902
368.000	6.654194	8.27626
372.001	7.977267	8.27352
376.001	9.303176	8.27078
380.000	10.633070	8.26804
384.000	11.963660	8.26528
387.998	13.296440	8.26254
392.001	14.630800	8.25977
396.001	15.964290	8.25701
400.000	17.297460	8.25425

Table 28b. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 1/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-272.47	903.117	118.586
-268.87	1853.419	118.548
-265.27	2797.422	118.513
-261.67	3736.232	118.480
-258.07	4663.676	118.448
-258.07	142.675	117.145
-254.47	472.589	116.802
-250.87	1340.290	116.765
-247.27	2199.926	116.732
-243.67	3054.970	116.700
-240.07	3904.616	116.669
-236.47	4745.710	116.640
-236.47	457.891	115.166
-232.87	1248.589	115.131
-229.27	2038.655	115.099
-225.67	2824.078	115.069
-222.07	3603.331	115.040
-218.47	4376.462	115.012
-214.87	5144.898	114.984
-214.87	358.854	113.194
-211.27	1072.025	113.162
-207.67	1783.468	113.131
-204.07	2493.441	113.103
-200.47	3198.307	113.075
-196.87	3896.370	113.049
-193.27	4589.152	113.023
-193.27	356.502	111.274
-189.67	1003.060	111.243
-186.07	1649.545	111.215
-182.47	2292.603	111.188
-178.87	2932.789	111.162
-175.27	3568.895	111.137
-171.67	4201.635	111.112
-168.07	4830.135	111.087
-168.07	274.448	108.999
-164.47	852.195	108.971
-160.87	1429.539	108.944
-157.27	2003.772	108.919
-153.67	2575.641	108.894
-150.07	3144.957	108.870
-146.47	3711.255	108.846
-142.87	4273.372	108.823
-139.27	4832.643	108.801

Table 28b. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 2/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-139.27	425.241	106.514
-135.67	936.810	106.488
-132.07	1446.565	106.463
-128.47	1955.449	106.439
-124.87	2461.125	106.417
-121.27	2964.704	106.394
-117.67	3466.842	106.372
-114.07	3965.533	106.350
-110.47	4461.273	106.329
-106.87	4954.116	106.308
-110.47	280.141	103.850
-106.87	730.027	103.826
-103.27	1178.111	103.803
-99.67	1625.786	103.780
-96.07	2072.068	103.759
-92.47	2516.121	103.737
-88.87	2958.404	103.716
-85.27	3398.105	103.696
-81.67	3836.599	103.675
-78.07	4264.577	103.655
-74.47	4698.765	103.635
-70.87	5130.745	103.616
-81.67	379.024	101.309
-78.07	777.400	101.287
-74.47	1175.365	101.265
-70.87	1571.598	101.244
-67.27	1965.936	101.224
-63.67	2359.551	101.204
-60.07	2751.018	101.184
-56.47	3141.974	101.165
-52.87	3530.889	101.145
-49.27	3918.666	101.126
-45.67	4304.879	101.107
-42.07	4688.137	101.088
-38.47	5070.779	101.070
-49.27	389.761	98.321
-45.67	735.131	98.301
-42.07	1079.337	98.281
-38.47	1424.081	98.261
-34.87	1766.278	98.242
-31.27	2108.580	98.223
-27.67	2450.069	98.204
-24.07	2789.958	98.186
-20.47	3129.031	98.167
-16.87	3466.325	98.149

Table 28b. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 3/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-13.27	3802.825	98.131
-9.67	4138.252	98.114
-6.07	4471.574	98.096
-2.47	4804.183	98.078
1.13	5135.682	98.060
-13.27	144.350	94.852
-9.67	375.920	94.513
-6.07	664.915	94.494
-2.47	953.764	94.476
1.13	1242.074	94.458
4.73	1528.877	94.440
8.33	1816.283	94.422
11.93	2102.530	94.405
15.53	2387.424	94.388
19.13	2671.917	94.370
22.73	2955.776	94.353
26.33	3238.098	94.337
29.93	3520.499	94.320
33.53	3801.671	94.303
37.13	4082.300	94.286
40.73	4362.174	94.270
44.33	4640.810	94.253
47.93	4918.634	94.237
37.13	176.241	89.446
44.33	633.090	89.412
51.53	1088.873	89.379
58.73	1542.784	89.346
65.93	1996.040	89.315
73.13	2447.199	89.283
80.33	2896.519	89.252
87.53	3344.324	89.221
94.73	3790.028	89.190
101.93	4233.066	89.160
109.13	4674.016	89.129
116.33	5112.952	89.099
109.13	387.116	81.504
116.33	703.608	81.475
123.53	1019.513	81.446
130.73	1335.691	81.418
137.93	1651.569	81.390
145.13	1967.007	81.363
152.33	2281.657	81.335
159.53	2595.934	81.308
166.73	2909.516	81.280
173.93	3221.652	81.253

Table 28b. Liquid PVT Data (Isochoric Apparatus) for HCFC-124 4/4

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
181.13	3532.709	81.227
188.33	3843.830	81.200
195.53	4154.032	81.172
202.73	4462.986	81.145
209.93	4770.819	81.117
217.13	5076.982	81.090
181.13	393.948	70.584
188.33	583.479	70.560
195.53	773.824	70.537
202.73	965.111	70.513
209.93	1157.007	70.490
217.13	1349.314	70.467
224.33	1542.199	70.443
231.53	1735.185	70.420
238.73	1928.489	70.396
245.93	2122.022	70.373
253.13	2315.429	70.349
260.33	2508.789	70.326

Table 29a. Vapor pressures of HCFC-124 (NIST Burnett apparatus + ebulliometer) (SI units).

T/K	P/kPa	T/K	P/kPa	T/K	P/kPa
388.119	3163.73	333.147	996.88	278.115	195.65
393.119	3471.42	333.144	996.39	278.110	195.68
388.132	3164.85	333.118	995.73	277.549	191.67
383.150	2882.64	333.112	995.71	275.821	179.94
383.142	2882.28	323.123	774.78	274.270	169.85
383.140	2881.88	318.140	679.38	272.883	161.18
383.137	2881.81	318.126	679.18	271.077	150.48
378.120	2619.37	313.139	592.85	267.404	130.37
378.113	2618.90	313.129	592.77	265.432	120.49
378.109	2618.91	308.156	515.04	263.330	110.59
373.150	2378.32	308.154	515.12	260.958	100.22
373.148	2378.14	303.189	445.38	259.892	95.82
373.145	2378.62	303.188	445.49	258.405	89.92
373.102	2376.06	303.142	444.87	257.300	85.73
368.152	2153.79	298.173	382.58	255.597	79.58
368.138	2153.16	298.169	382.46	254.414	75.50
368.135	2153.20	298.168	382.58	252.719	69.96
363.144	1945.56	293.161	326.67	251.186	65.23
363.134	1945.31	293.151	326.56	249.586	60.58
363.130	1945.61	293.148	326.63	247.695	55.43
358.135	1752.97	288.190	277.71	245.626	50.18
358.130	1752.87	288.182	277.57	243.916	46.16
358.122	1753.07	288.167	277.45	241.623	41.17
353.148	1575.90	287.859	274.57	239.026	36.07
353.139	1575.61	286.098	258.82	237.217	32.82
353.135	1575.96	283.871	239.75	235.513	29.98
348.156	1412.94	283.136	233.84	233.583	27.01
348.115	1411.20	283.128	233.70	231.986	24.73
348.108	1410.96	283.118	233.71	230.426	22.66
343.139	1261.34	282.199	226.25	228.600	20.42
343.133	1261.16	280.272	211.38	226.969	18.58
343.116	1260.53	279.073	202.48	225.082	16.62
338.174	1123.90	278.139	195.81	224.067	15.63
338.111	1122.25	278.128	195.71	222.956	14.61
338.109	1122.05	278.122	195.73	223.005	14.66

Table 29b. Vapor pressures of HCFC-124 (NIST Burnett apparatus + ebulliometer) (PI units).

T/F	P/psia	T/F	P/psia	T/F	P/psia
238.944	458.861	140.006	144.543	40.938	28.376
247.944	503.488	140.002	144.532	40.929	28.381
238.967	459.023	139.995	144.585	39.919	27.799
230.000	418.091	139.989	144.515	36.808	26.098
229.985	418.040	139.943	144.419	34.016	24.635
229.982	417.981	139.932	144.416	31.519	23.377
229.976	417.972	121.951	112.373	28.269	21.825
220.946	379.907	112.982	98.535	21.657	18.910
220.933	379.839	112.957	98.506	18.108	17.475
220.926	379.841	103.981	85.985	14.324	16.040
212.000	344.947	103.963	85.974	10.056	14.536
211.997	344.920	95.011	74.701	8.135	13.898
211.991	344.990	95.007	74.712	5.459	13.042
211.914	344.619	86.071	64.597	3.470	12.434
203.004	312.381	86.069	64.613	0.406	11.542
202.979	312.290	85.986	64.523	-1.723	10.951
202.973	312.296	77.042	55.488	-4.774	10.148
193.990	282.180	77.035	55.471	-7.534	9.462
193.972	282.143	77.033	55.489	-10.413	8.787
193.965	282.187	68.019	47.380	-13.817	8.039
184.974	254.248	68.001	47.363	-17.542	7.278
184.965	254.233	67.996	47.374	-20.619	6.696
184.951	254.261	59.072	40.279	-24.748	5.972
175.996	228.565	59.058	40.258	-29.422	5.232
175.980	228.523	59.031	40.241	-32.678	4.760
175.973	228.574	58.476	39.823	-35.745	4.349
167.011	204.929	55.306	37.540	-39.220	3.917
166.937	204.678	51.299	34.773	-42.094	3.587
166.925	204.642	49.975	33.916	-44.901	3.287
157.981	182.942	49.961	33.896	-48.189	2.962
157.970	182.916	49.943	33.897	-51.124	2.694
157.940	182.825	48.289	32.816	-54.522	2.411
149.043	163.008	44.821	30.658	-56.348	2.267
148.930	162.769	42.662	29.367	-58.348	2.120
148.926	162.739	40.981	28.400	-58.261	2.126
148.924	162.730	40.961	28.386	-60.416	1.974

Table 30. Speed of Sound in R-124

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
250.010	-9.652	36.795	5.337	127.8356	419.4081	16.2
		34.212	4.962	127.9641	419.8297	14.8
		30.454	4.417	128.1595	420.4708	10.8
		27.054	3.924	128.3295	421.0285	10.2
		24.072	3.491	128.4835	421.5338	10.5
		21.407	3.105	128.6077	421.9413	41.1
259.966	8.269	58.398	8.470	129.4742	424.7841	29.7
		54.328	7.880	129.6596	425.3924	16.3
		48.125	6.980	129.9416	426.3176	29.2
		42.593	6.178	130.1950	427.1490	39.8
		39.592	5.742	130.3272	427.5827	21.7
		35.043	5.083	130.5323	428.2556	20.5
269.908	26.164	88.361	12.816	130.8665	429.3520	50.0
		78.064	11.322	131.2991	430.7713	37.2
		72.496	10.515	131.5297	431.5279	26.9
		64.077	9.294	131.8751	432.6611	13.4
		56.654	8.217	132.1758	433.6476	23.1
		46.362	6.724	132.5907	435.0089	10.1
		38.018	5.514	132.9221	436.0961	50.0
		31.151	4.518	133.1923	436.9826	21.1
		15.009	2.177	133.8167	439.0312	50.0
279.871	44.098	100.284	14.545	133.1135	436.7241	50.0
		100.208	14.534	133.1172	436.7362	50.0
		92.313	13.389	133.4146	437.7119	26.6
		86.020	12.476	133.6456	438.4698	50.0
		79.293	11.501	133.8967	439.2936	24.7
		73.817	10.706	134.0965	439.9491	10.6
		64.726	9.388	134.4287	441.0390	12.9
		63.412	9.197	134.4754	441.1923	10.4
		52.717	7.646	134.8651	442.4708	13.7
		52.434	7.605	134.8721	442.4938	12.1
		40.859	5.926	135.2851	443.8488	20.7
		39.183	5.683	135.3443	444.0430	11.0
		14.781	2.144	136.2006	446.8524	50.0

Table 30. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
300.043	80.407	179.000	25.962	135.9367	445.9865	50.0
		168.320	24.413	136.2724	447.0879	50.0
		152.076	22.057	136.7828	448.7625	50.0
		111.775	16.212	138.0176	452.8136	28.7
		111.800	16.215	138.0183	452.8159	18.2
		95.020	13.782	138.5224	454.4698	10.1
		77.717	11.272	139.0341	456.1486	17.2
		57.114	8.284	139.6412	458.1404	10.6
		40.037	5.807	140.1374	459.7684	33.5
		19.710	2.859	140.7155	461.6650	22.2
319.675	115.745	442.476	64.176	133.9481	439.4623	16.8
		378.196	54.853	135.8273	445.6276	12.4
		308.872	44.798	137.7688	451.9974	10.3
		240.381	34.864	139.6121	458.0449	15.5
		170.777	24.769	141.4163	463.9642	10.7
		102.455	14.860	143.1273	469.5778	10.0
320.269	116.814	206.351	29.929	140.6523	461.4577	52.9
		176.440	25.590	141.4174	463.9678	47.9
		145.323	21.077	142.2018	466.5413	41.3
		112.325	16.291	143.0207	469.2280	28.5
		83.718	12.142	143.7203	471.5233	10.4
		51.555	7.477	144.4987	474.0771	12.9
		20.225	2.933	145.2433	476.5200	37.6
339.740	151.862	777.171	112.719	131.8811	432.6808	12.4
		706.910	102.529	133.7857	438.9295	10.1
		638.555	92.614	135.5654	444.7684	11.1
		559.584	81.161	137.5542	451.2933	12.9
		489.988	71.067	139.2476	456.8491	10.0
		418.994	60.770	140.9163	462.3238	10.5
		344.139	49.913	142.6221	467.9203	10.4
		316.415	45.892	143.2367	469.9367	55.2
		298.737	43.328	143.6284	471.2218	53.9
		277.309	40.220	144.1006	472.7710	10.5
		269.057	39.023	144.2765	473.3481	52.8

Table 30. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
339.740	151.862	242.039	35.105	144.8619	475.2687	52.9
		217.743	31.581	145.3829	476.9780	43.8
		204.751	29.697	145.6622	477.8944	10.0
		195.884	28.411	145.8474	478.5020	46.4
		176.207	25.557	146.2619	479.8619	45.5
340.221	152.728	294.021	42.644	143.8562	471.9692	101.3
		265.902	38.566	144.4693	473.9806	52.0
		240.398	34.867	145.0187	475.7831	50.6
		203.815	29.561	145.7971	478.3369	45.8
		172.929	25.081	146.4461	480.4662	40.9
		146.634	21.268	146.9938	482.2631	34.0
		112.631	16.336	147.6945	484.5620	22.5
		83.704	12.140	148.2842	486.4967	10.0
		55.698	8.078	148.8504	488.3543	12.2
		54.111	7.848	148.8834	488.4626	13.8
		39.741	5.764	149.1716	489.4081	20.7
		29.679	4.305	149.3682	490.0532	51.7
355.095	179.501	294.704	42.743	147.6819	484.5207	48.5
		267.525	38.801	148.1941	486.2011	46.3
		240.670	34.906	148.6976	487.8530	43.8
		202.915	29.430	149.3982	490.1516	44.7
		172.036	24.952	149.9658	492.0138	42.9
		146.499	21.248	150.4310	493.5400	29.1
		115.274	16.719	150.9955	495.3921	20.9
		82.394	11.950	151.5862	497.3301	10.8
		57.873	8.394	152.0232	498.7638	12.1
		55.857	8.101	152.0600	498.8845	25.5
		55.877	8.104	152.0603	498.8855	22.3
		20.316	2.947	152.6843	500.9327	51.2
360.040	188.402	861.534	124.955	137.6826	451.7146	50.0
		857.615	124.387	137.7619	451.9747	50.0
		793.765	115.126	139.1445	456.5108	50.0
		707.828	102.662	140.9484	462.4291	22.5
		622.243	90.249	142.6928	468.1522	17.8

Table 30. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
360.040	188.402	534.180	77.476	144.4315	473.8566	10.3
		446.593	64.773	146.1142	479.3773	10.8
		361.880	52.486	147.6980	484.5735	10.9
		276.898	40.161	149.2458	489.6516	10.0
		189.246	27.448	150.8046	494.7657	10.6
		102.714	14.897	152.3034	499.6831	14.2
365.000	197.330	295.095	42.800	150.1402	492.5860	56.5
		275.484	39.956	150.4782	493.6949	52.2
		247.117	35.841	150.9644	495.2900	46.1
		213.316	30.939	151.5406	497.1804	42.7
		191.332	27.750	151.9121	498.3993	38.8
		160.061	23.215	152.4382	500.1253	37.0
		134.184	19.462	152.8699	501.5417	22.6
		104.816	15.202	153.3573	503.1407	15.4
		79.108	11.474	153.7816	504.5328	10.3
		49.553	7.187	154.2667	506.1243	19.4
		19.846	2.878	154.7508	507.7126	65.0
374.900	215.150	295.101	42.801	152.5159	500.3803	44.2
		264.599	38.377	153.0001	501.9688	48.3
		236.689	34.329	153.4384	503.4068	49.4
		204.278	29.628	153.9446	505.0676	44.3
		172.975	25.088	154.4298	506.6594	37.2
		143.965	20.880	154.8776	508.1286	27.5
		115.475	16.748	155.3149	509.5633	15.6
		82.775	12.006	155.8139	511.2005	10.1
		52.025	7.546	156.2790	512.7264	24.4
		50.877	7.379	156.2947	512.7779	34.4
		34.683	5.030	156.5406	513.5846	42.0
		20.110	2.917	156.7564	514.2927	56.3
380.120	224.546	861.545	124.957	144.5819	474.3501	70.3
		826.662	119.897	145.1875	476.3369	14.0
		734.569	106.540	146.7474	481.4547	10.8
		649.931	94.265	148.1527	486.0653	10.3
		560.832	81.342	149.5969	490.8035	10.5

Table 30. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
380.120	224.546	467.628	67.824	151.0856	495.6877	10.5
		376.986	54.677	152.4933	500.3061	23.0
		285.789	41.450	153.8860	504.8753	12.4
		193.184	28.019	155.2809	509.4518	77.5
		102.815	14.912	156.6010	513.7828	10.1
385.650	234.500	295.602	42.873	155.0203	508.5968	55.8
		270.057	39.168	155.3888	509.8058	46.9
		233.661	33.890	155.9117	511.5213	45.6
		209.940	30.449	156.2492	512.6286	33.1
		173.992	25.235	156.7609	514.3074	22.5
		144.704	20.988	157.1758	515.6686	18.8
		115.415	16.740	157.5867	517.0167	15.4
		82.398	11.951	158.0509	518.5397	16.6
		51.624	7.487	158.4782	519.9416	16.3
399.933	260.209	294.182	42.668	158.2851	519.3081	50.0
		273.047	39.602	158.5570	520.2001	50.0
		242.256	35.136	158.9503	521.4905	50.0
		215.184	31.210	159.2955	522.6230	50.0
		191.079	27.714	159.6021	523.6289	50.0
		159.671	23.158	159.9986	524.9298	50.0
		131.874	19.127	160.3492	526.0801	50.0
		104.406	15.143	160.6935	527.2096	50.0
		76.710	11.126	161.0399	528.3461	50.0
		50.530	7.329	161.3658	529.4154	50.0
		50.574	7.335	161.3683	529.4236	50.0
		30.705	4.453	161.6064	530.2047	50.0
		19.957	2.895	161.7428	530.6522	50.0
400.045	260.411	874.592	126.849	150.4808	493.7034	50.0
		781.357	113.326	151.7914	498.0033	38.3
		717.790	104.107	152.6728	500.8950	51.8
		635.818	92.218	153.7933	504.5712	42.2
		560.035	81.226	154.8143	507.9209	43.2
		481.433	69.826	155.8624	511.3596	36.6
		402.900	58.436	156.8956	514.7493	40.9

Table 30. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
400.045	260.411	321.068	46.567	157.9577	518.2339	34.4
		243.643	35.337	158.9523	521.4970	26.2
		163.068	23.651	159.9768	524.8583	15.5

The following conversion factors were used to define the Engineering units:

t /deg F = (T/K-273.15)*1.8 + 32
1 psi = 1 psia = 6894.759 Pa
1 ft/s = 0.3048000 m/s
1 Btu = 1054.35 J
1 pound mass = 0.45359237 kg

Table 31. Ideal-Gas Heat Capacity, C_p^o, of R-124

T/K	deg F	C_p^0/R	sigC_p^0/R
250.010	-9.652	10.66021	.008[a]
259.966	8.269	10.91542	.006[a]
269.908	26.164	11.17243	.017
279.871	44.098	11.40686	.014
300.035	80.393	11.86296	.015
300.043	80.407	11.88922	.009
319.675	115.745	12.32617	.009
339.740	151.862	12.76547	.010
355.095	179.501	13.09448	.011
365.000	197.330	13.28091	.017
374.900	215.150	13.49625	.012
385.650	234.500	13.71336	.019
400.045	260.411	13.99065	.008

[a] Values of C_p^0/R on this isotherm were determined from two-parameter fits with the acoustic virial coefficient gamma held at certain fixed values.

Table 32(a). Acoustic Viral Coefficients for R-124 (SI units)

T	10^6 beta	10^9 gamma	10^{12} delta
/K	/(m^3/mol)	/(m^3/mol-Pa)	/(m^3/mol-Pa^2)
250.010	-1509.83 +/- 5.37	-	-
259.966	-1367.30 +/- 2.55	-	-
269.908	-1255.04 +/- 6.16	-0.6544 +/- 0.055	-
279.871	-1160.28 +/- 4.31	-0.4298 +/- 0.032	-
300.035	-987.90 +/- 2.33	-0.2438 +/- 0.008	-
300.043	-989.09 +/- 1.94	-0.2450 +/- 0.010	-
319.675*	-854.94 +/- 1.62	-0.1247 +/- 0.008	-5.96E-5 +/-1.1E-5
319.675	-863.07 +/- 2.77	-0.0905 +/- 0.011	-10.10E-5 +/- 1.3E-5
320.269	-855.66 +/- 2.99	-0.1266 +/- 0.012	-
339.740*	-745.84 +/- 1.09	-0.0684 +/- 0.004	-3.40E-5 +/-0.30E-5
339.740	-745.55 +/- 3.29	-0.0672 +/- 0.008	-3.58E-5 +/-0.54E-5
340.221	-743.20 +/- 2.02	-0.0806 +/- 0.006	-
355.095	-673.91 +/- 1.67	-0.0528 +/- 0.005	-
360.040	-649.22 +/- 0.91	-0.0445 +/- 0.002	-1.53E-5 +/-0.15E-5
365.000	-634.61 +/- 1.80	-0.0328 +/- 0.006	-
374.900	-592.23 +/- 1.77	-0.0336 +/- 0.006	-
380.120	-567.49 +/- 0.85	-0.0371 +/- 0.001	-
385.650	-555.59 +/- 2.21	-0.0193 +/- 0.006	-
399.933	-505.39 +/- 1.04	-0.0194 +/- 0.003	-
400.045	-504.27 +/- 1.03	-0.0198 +/- 0.001	-
400.045*	-505.64 +/- 0.44	-0.0185 +/- 0.001	-

* Merged isotherm of high and low pressure data

Table 32(b). Acoustic Viral Coefficients for R-124 (PI units)

t	10^4 beta	10^6 gamma	10^9 delta
/(deg F)	/(btu/psi)	/(btu/psi^2)	/(btu/psi^3)
-9.652	-98.733 +/- 0.351	- -	- -
8.269	-89.413 +/- 0.167	- -	- -
26.164	-82.072 +/- 0.403	-29.505 +/- 0.248	- -
44.098	-75.875 +/- 0.282	-19.379 +/- 0.144	- -
80.393	-64.603 +/- 0.152	-10.992 +/- 0.036	- -
80.407	-64.680 +/- 0.127	-11.046 +/- 0.045	- -
115.745*	-55.908 +/- 0.106	-5.622 +/- 0.036	-18.528 +/- 3.420
115.745	-56.439 +/- 0.181	-4.080 +/- 0.050	-31.398 +/- 4.041
116.814	-55.955 +/- 0.196	-5.708 +/- 0.054	- -
151.862*	-48.773 +/- 0.071	-3.084 +/- 0.018	-10.570 +/- 0.933
151.862	-48.754 +/- 0.215	-3.030 +/- 0.036	-11.129 +/- 1.679
152.728	-48.601 +/- 0.132	-3.634 +/- 0.027	- -
179.501	-44.070 +/- 0.109	-2.381 +/- 0.023	- -
188.402	-42.455 +/- 0.060	-2.006 +/- 0.009	-4.756 +/- 0.466
197.330	-41.500 +/- 0.118	-1.479 +/- 0.027	- -
215.150	-38.728 +/- 0.116	-1.515 +/- 0.027	- -
224.546	-37.110 +/- 0.056	-1.673 +/- 0.005	- -
234.500	-36.332 +/- 0.145	-0.870 +/- 0.027	- -
260.209	-33.049 +/- 0.068	-0.875 +/- 0.014	- -
260.411	-32.976 +/- 0.067	-0.893 +/- 0.005	- -
260.411*	-33.066 +/- 0.029	-0.834 +/- 0.005	- -

* Merged isotherm of high and low pressure data

Table 33(a). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	mol dm^{-3}	MPa	J mol^{-1} K^{-1}			
173.4550	12.5707	7.8316	94.78	74.54	21.35	a
175.5705	12.5645	10.7927	89.28	76.78	14.00	b
177.6791	12.5584	13.7109	89.65	78.70	12.22	a
179.8395	12.5521	16.6751	90.12	80.40	10.78	b
181.9187	12.5461	19.5024	90.30	81.82	9.39	a
184.0649	12.5399	22.3953	90.57	83.10	8.24	b
186.1174	12.5341	25.1371	91.00	84.18	7.49	a
188.2467	12.5280	27.9568	91.23	85.17	6.64	b

Table 33(b). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	lb ft^{-3}	psia	Btu lb^{-1} $°F^{-1}$			
-147.451	107.10	1135.9	0.16599	0.13054	21.35	a
-143.643	107.05	1565.4	0.15635	0.13446	14.00	b
-139.848	107.00	1988.6	0.15700	0.13783	12.22	a
-135.959	106.94	2418.5	0.15782	0.14081	10.78	b
-132.216	106.89	2828.6	0.15815	0.14330	9.39	a
-128.353	106.84	3248.2	0.15861	0.14554	8.24	b
-124.659	106.79	3645.8	0.15937	0.14742	7.49	a
-120.826	106.74	4054.8	0.15976	0.14915	6.64	b

Table 34(a). Experimental liquid heat capacity data for HCFC-l24.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	mol dm^{-3}	MPa	J mol^{-1} K^{-1}			
207.9631	11.9193	5.9118	95.64	90.44	5.43	a
209.9690	11.9145	8.0811	92.82	90.91	2.05	b
212.1001	11.9095	10.3662	93.05	91.39	1.78	a
214.1297	11.9047	12.5276	93.50	91.84	1.77	b
216.2301	11.8997	14.7483	93.83	92.29	1.64	a
218.2530	11.8950	16.8723	94.03	92.72	1.39	b
220.3301	11.8901	19.0377	94.45	93.16	1.37	a
222.3365	11.8854	21.1153	94.84	93.58	1.33	b
224.3897	11.8806	23.2266	95.30	94.02	1.35	a
226.3933	11.8759	25.2733	95.64	94.44	1.26	b
228.4212	11.8712	27.3307	96.32	94.86	1.51	a
230.4057	11.8666	29.3310	96.29	95.28	1.05	b

Table 34(b). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	lb ft^{-3}	psia	Btu lb^{-1} $°F^{-1}$			
-85.336	101.55	857.4	0.16749	0.15839	5.43	a
-81.726	101.51	1172.1	0.16255	0.15921	2.05	b
-77.890	101.47	1503.5	0.16296	0.16006	1.78	a
-74.237	101.43	1817.0	0.16374	0.16084	1.77	b
-70.456	101.38	2139.1	0.16433	0.16163	1.64	a
-66.815	101.34	2447.1	0.16467	0.16239	1.39	b
-63.076	101.30	2761.2	0.16542	0.16315	1.37	a
-59.464	101.26	3062.5	0.16610	0.16389	1.33	b
-55.769	101.22	3368.7	0.16690	0.16465	1.35	a
-52.162	101.18	3665.6	0.16750	0.16538	1.26	b
-48.512	101.14	3964.0	0.16868	0.16613	1.51	a
-44.940	101.10	4254.1	0.16864	0.16687	1.05	b

Table 35(a). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	mol dm^{-3}	MPa	J mol^{-1} K^{-1}			
252.3937	11.0418	3.3676	98.19	99.49	-1.32	a
254.3739	11.0381	4.9289	98.36	99.94	-1.61	b
256.4831	11.0342	6.5832	98.13	100.42	-2.34	a
258.4306	11.0307	8.1030	98.98	100.86	-1.90	b
260.5241	11.0268	9.7284	99.02	101.33	-2.34	a
262.4502	11.0233	11.2165	99.61	101.76	-2.16	b
264.5707	11.0195	12.8466	99.76	102.23	-2.47	a
266.4534	11.0160	14.2869	100.17	102.64	-2.46	b
268.5793	11.0122	15.9054	99.87	103.10	-3.24	a
270.4352	11.0088	17.3116	101.02	103.50	-2.45	b
272.5607	11.0049	18.9144	100.83	103.95	-3.09	a
274.4003	11.0016	20.2953	101.81	104.34	-2.49	b
276.5152	10.9978	21.8754	101.76	104.78	-2.96	a
278.3513	10.9945	23.2409	102.48	105.16	-2.62	b
280.4525	10.9907	24.7964	102.21	105.59	-3.31	a
282.2811	10.9874	26.1440	102.90	105.97	-2.98	b

Table 35(b). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	lb ft^{-3}	psia	Btu lb^{-1} $°F^{-1}$			
-5.361	94.07	488.4	0.17196	0.17423	-1.32	a
-1.797	94.04	714.9	0.17226	0.17503	-1.61	b
2.000	94.01	954.8	0.17185	0.17587	-2.34	a
5.505	93.98	1175.2	0.17335	0.17664	-1.90	b
9.273	93.95	1411.0	0.17340	0.17746	-2.34	a
12.740	93.92	1626.8	0.17444	0.17821	-2.16	b
16.557	93.88	1863.2	0.17471	0.17903	-2.47	a
19.946	93.86	2072.1	0.17542	0.17975	-2.46	b
23.773	93.82	2306.9	0.17489	0.18055	-3.24	a
27.113	93.79	2510.8	0.17692	0.18125	-2.45	b
30.939	93.76	2743.3	0.17659	0.18204	-3.09	a
34.250	93.73	2943.6	0.17829	0.18272	-2.49	b
38.057	93.70	3172.8	0.17821	0.18350	-2.96	a
41.362	93.67	3370.8	0.17947	0.18417	-2.62	b
45.145	93.64	3596.4	0.17900	0.18492	-3.31	a
48.436	93.61	3791.9	0.18020	0.18558	-2.98	b

Table 36(a). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	mol dm^{-3}	MPa	J mol^{-1} K^{-1}			
283.2097	10.3636	2.1384	102.28	106.13	-3.77	a
285.1525	10.3607	3.3478	102.35	106.54	-4.10	b
287.2912	10.3575	4.6739	102.97	106.97	-3.88	a
289.2119	10.3546	5.8607	103.52	107.36	-3.71	b
291.3544	10.3514	7.1795	103.63	107.78	-4.01	a
293.2499	10.3485	8.3423	104.01	108.14	-3.97	b
295.4023	10.3453	9.6579	104.21	108.55	-4.17	a
297.2712	10.3425	10.7962	104.96	108.90	-3.76	b
299.4244	10.3393	12.1031	104.95	109.30	-4.14	a
301.2852	10.3365	13.2288	106.07	109.64	-3.36	b
303.4346	10.3333	14.5245	105.46	110.02	-4.32	a
305.2795	10.3305	15.6331	105.92	110.34	-4.17	b
307.4236	10.3273	16.9170	106.26	110.71	-4.19	a
309.2492	10.3246	18.0066	106.31	111.02	-4.43	b
311.4093	10.3214	19.2915	106.40	111.38	-4.69	a
313.2210	10.3187	20.3657	107.46	111.68	-3.93	b
315.3686	10.3155	21.6347	106.81	112.03	-4.89	a
317.1919	10.3127	22.7087	107.87	112.33	-4.13	b
319.3270	10.3096	23.9621	107.78	112.66	-4.53	a
321.1285	10.3069	25.0162	108.13	112.95	-4.45	b
323.2708	10.3037	26.2657	108.27	113.27	-4.62	a
325.0592	10.3010	27.3054	109.14	113.55	-4.04	b
327.1984	10.2978	28.5449	108.81	113.87	-4.65	a

Table 36(b). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	lb ft^{-3}	psia	Btu lb^{-1} $°F^{-1}$			
50.107	88.30	310.2	0.17911	0.18587	-3.77	a
53.604	88.27	485.6	0.17924	0.18658	-4.10	b
57.454	88.24	677.9	0.18034	0.18734	-3.88	a
60.912	88.22	850.0	0.18129	0.18801	-3.71	b
64.768	88.19	1041.3	0.18148	0.18875	-4.01	a
68.180	88.17	1210.0	0.18216	0.18939	-3.97	b
72.054	88.14	1400.8	0.18251	0.19011	-4.17	a
75.418	88.12	1565.9	0.18381	0.19072	-3.76	b
79.294	88.09	1755.4	0.18380	0.19141	-4.14	a
82.643	88.07	1918.7	0.18575	0.19200	-3.36	b
86.512	88.04	2106.6	0.18469	0.19267	-4.32	a
89.833	88.01	2267.4	0.18550	0.19324	-4.17	b
93.693	87.99	2453.6	0.18609	0.19389	-4.19	a
96.979	87.96	2611.6	0.18618	0.19443	-4.43	b
100.867	87.94	2798.0	0.18633	0.19507	-4.69	a
104.128	87.91	2953.8	0.18820	0.19559	-3.93	b
107.993	87.89	3137.9	0.18706	0.19620	-4.89	a
111.275	87.86	3293.6	0.18891	0.19672	-4.13	b
115.119	87.84	3475.4	0.18876	0.19731	-4.53	a
118.361	87.81	3628.3	0.18937	0.19780	-4.45	b
122.218	87.79	3809.5	0.18962	0.19838	-4.62	a
125.437	87.76	3960.3	0.19113	0.19885	-4.04	b
129.287	87.74	4140.1	0.19055	0.19941	-4.65	a

Table 37(a). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	mol dm^{-3}	MPa	J mol^{-1} K^{-1}			
312.0861	9.6520	1.9472	106.79	112.14	-5.01	a
314.2179	9.6494	2.9748	107.24	112.49	-4.89	b
316.2227	9.6470	3.9394	107.61	112.80	-4.83	a
318.3765	9.6443	4.9736	107.62	113.13	-5.12	b
320.3513	9.6419	5.9201	107.92	113.43	-5.11	a
322.5148	9.6393	6.9551	107.91	113.75	-5.41	b
324.4604	9.6371	7.8841	108.19	114.03	-5.40	a
326.6482	9.6343	8.9268	108.76	114.34	-5.13	b
328.5609	9.6319	9.8367	108.98	114.61	-5.17	a
330.7650	9.6293	10.8832	109.06	114.91	-5.36	b
332.6574	9.6270	11.7800	109.75	115.16	-4.93	a
334.8760	9.6243	12.8295	109.31	115.45	-5.61	b
336.7578	9.6220	13.7179	109.90	115.69	-5.27	a
338.9813	9.6193	14.7657	110.04	115.97	-5.39	b
340.8491	9.6170	15.6441	110.47	116.20	-5.18	a

Table 37(b). Experimental liquid heat capacity data for HCFC-124.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	lb ft^{-3}	psia	Btu lb^{-1} $°F^{-1}$			
102.085	82.23	282.4	0.18701	0.19639	-5.01	a
105.922	82.21	431.5	0.18780	0.19699	-4.89	b
109.531	82.19	571.4	0.18845	0.19755	-4.83	a
113.408	82.17	721.4	0.18847	0.19813	-5.12	b
116.962	82.15	858.6	0.18900	0.19865	-5.11	a
120.857	82.13	1008.8	0.18898	0.19921	-5.41	b
124.359	82.11	1143.5	0.18948	0.19970	-5.40	a
128.297	82.08	1294.7	0.19048	0.20025	-5.13	b
131.740	82.06	1426.7	0.19085	0.20071	-5.17	a
135.707	82.04	1578.5	0.19100	0.20123	-5.36	b
139.113	82.02	1708.6	0.19220	0.20168	-4.93	a
143.107	82.00	1860.8	0.19144	0.20218	-5.61	b
146.494	81.98	1989.6	0.19246	0.20260	-5.27	a
150.496	81.96	2141.6	0.19271	0.20309	-5.39	b
153.858	81.94	2269.0	0.19347	0.20350	-5.18	a

Table 38(a). Experimental tyro-phase heat capacity data for HCFC-124.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
94.2808	0.0031	13.867	0.0000	126.79	0.11	0.09	126.79	0.11	0.09	e
97.8905	0.0035	13.841	0.0000	126.21	0.09	0.07	126.21	0.09	0.07	a
99.6888	0.0030	13.825	0.0000	127.15	0.08	0.06	127.15	0.08	0.06	e
103.2706	0.0034	13.786	0.0000	127.00	0.09	0.07	127.00	0.09	0.07	a
105.0349	0.0030	13.764	0.0000	127.26	0.08	0.06	127.26	0.08	0.06	e
108.5510	0.0034	13.716	0.0000	127.37	0.09	0.07	127.37	0.09	0.07	a
110.2904	0.0029	13.690	0.0000	127.12	0.08	0.06	127.12	0.08	0.06	e
113.7544	0.0034	13.635	0.0000	127.34	0.09	0.07	127.34	0.09	0.07	a
115.4658	0.0029	13.607	0.0000	127.32	0.08	0.06	127.32	0.08	0.06	e
118.8756	0.0034	13.545	0.0000	127.30	0.09	0.07	127.30	0.09	0.07	a
120.4597	0.0029	13.515	0.0000	127.17	0.08	0.06	127.17	0.08	0.06	d
120.5655	0.0029	13.513	0.0000	127.42	0.08	0.06	127.42	0.08	0.06	e
123.9281	0.0034	13.448	0.0000	127.21	0.09	0.07	127.21	0.09	0.07	a
125.4934	0.0029	13.418	0.0000	127.22	0.08	0.06	127.22	0.08	0.06	d
128.9121	0.0034	13.351	0.0000	127.21	0.09	0.07	127.21	0.09	0.07	a
130.4609	0.0029	13.321	0.0000	127.31	0.08	0.06	127.31	0.08	0.06	d
133.0919	0.0029	13.269	0.0000	127.67	0.08	0.07	127.67	0.08	0.07	e
133.8383	0.0034	13.254	0.0000	127.56	0.09	0.07	127.56	0.09	0.07	a
135.3654	0.0029	13.224	0.0000	127.56	0.08	0.07	127.56	0.08	0.07	d
137.9605	0.0030	13.173	0.0000	127.64	0.08	0.07	127.64	0.08	0.07	e
138.7074	0.0034	13.158	0.0000	127.79	0.10	0.08	127.79	0.10	0.08	a
140.2086	0.0030	13.129	0.0000	127.70	0.09	0.07	127.70	0.09	0.07	d
142.7737	0.0029	13.078	0.0000	127.87	0.09	0.07	127.87	0.09	0.07	e
143.5208	0.0034	13.063	0.0000	127.93	0.10	0.08	127.93	0.10	0.08	a
144.9941	0.0029	13.034	0.0000	127.60	0.08	0.07	127.60	0.08	0.07	d
147.5313	0.0030	12.984	0.0000	128.19	0.09	0.07	128.19	0.09	0.07	e
148.2833	0.0035	12.969	0.0000	128.27	0.10	0.08	128.26	0.10	0.08	a
149.7346	0.0029	12.941	0.0000	127.91	0.09	0.07	127.91	0.09	0.07	d
152.2464	0.0030	12.892	0.0000	128.13	0.09	0.07	128.12	0.09	0.07	e
152.9943	0.0034	12.877	0.0000	128.49	0.10	0.08	128.49	0.10	0.08	a
154.4289	0.0030	12.849	0.0000	128.20	0.09	0.07	128.20	0.09	0.07	d
156.9203	0.0030	12.801	0.0000	128.23	0.09	0.07	128.23	0.09	0.07	e
157.6600	0.0034	12.786	0.0000	128.97	0.10	0.08	128.97	0.10	0.08	a
159.0738	0.0030	12.759	0.0000	128.95	0.09	0.07	128.95	0.09	0.07	d
161.5419	0.0031	12.711	0.0001	128.88	0.09	0.07	128.87	0.09	0.07	e
162.2811	0.0034	12.697	0.0001	129.06	0.10	0.08	129.06	0.10	0.08	a
163.6821	0.0030	12.670	0.0001	129.21	0.09	0.07	129.20	0.09	0.07	d
166.1243	0.0030	12.623	0.0001	129.69	0.09	0.07	129.68	0.09	0.07	e
166.8549	0.0034	12.609	0.0001	129.62	0.10	0.08	129.61	0.10	0.08	a
168.2348	0.0029	12.582	0.0001	129.54	0.09	0.07	129.53	0.09	0.07	d
170.6671	0.0030	12.536	0.0002	130.26	0.09	0.07	130.25	0.09	0.07	e
171.3904	0.0034	12.522	0.0002	130.14	0.10	0.08	130.12	0.10	0.08	a
172.7523	0.0029	12.496	0.0002	130.20	0.09	0.07	130.18	0.09	0.07	d
175.1654	0.0030	12.450	0.0003	130.67	0.09	0.07	130.65	0.09	0.07	e
175.8344	0.0030	12.437	0.0003	130.38	0.09	0.07	130.36	0.10	0.07	b
177.2414	0.0030	12.411	0.0004	130.43	0.09	0.07	130.40	0.09	0.07	d
179.6156	0.0031	12.366	0.0005	131.17	0.10	0.07	131.14	0.10	0.08	e
180.2819	0.0030	12.353	0.0005	130.91	0.09	0.07	130.88	0.10	0.07	b
181.6819	0.0029	12.326	0.0006	130.92	0.09	0.07	130.89	0.09	0.07	d
184.0320	0.0031	12.282	0.0008	131.52	0.10	0.07	131.48	0.10	0.07	e
184.7027	0.0030	12.269	0.0008	131.33	0.10	0.07	131.29	0.10	0.07	b
188.4135	0.0031	12.199	0.0012	132.04	0.10	0.07	131.98	0.10	0.08	e
189.0790	0.0030	12.187	0.0013	132.22	0.10	0.07	132.16	0.10	0.07	b
192.7535	0.0030	12.118	0.0017	132.80	0.10	0.07	132.72	0.10	0.08	e
193.4312	0.0031	12.105	0.0018	132.76	0.10	0.08	132.69	0.10	0.08	b
197.0754	0.0031	12.036	0.0025	133.54	0.10	0.08	133.45	0.11	0.08	e

197.7406	0.0032	12.024	0.0026	133.40	0.11	0.08	133.30	0.11	0.08	b
201.3537	0.0030	11.956	0.0035	133.67	0.10	0.08	133.55	0.11	0.08	e
202.0131	0.0030	11.943	0.0036	134.18	0.10	0.07	134.06	0.11	0.08	b
205.6103	0.0031	11.876	0.0048	134.45	0.10	0.08	134.30	0.11	0.08	e
206.2671	0.0030	11.863	0.0050	135.06	0.10	0.08	134.91	0.11	0.08	b
209.8258	0.0031	11.796	0.0064	135.37	0.10	0.08	135.20	0.12	0.09	e
210.4779	0.0031	11.784	0.0067	135.39	0.11	0.08	135.21	0.12	0.09	b
214.0078	0.0030	11.717	0.0085	136.06	0.11	0.08	135.85	0.13	0.09	e
214.6656	0.0031	11.704	0.0089	135.99	0.11	0.08	135.78	0.13	0.09	b
218.1576	0.0031	11.638	0.0111	137.10	0.11	0.08	136.85	0.14	0.10	e
218.8142	0.0031	11.625	0.0116	136.59	0.11	0.08	136.34	0.14	0.10	b
222.2848	0.0030	11.559	0.0144	137.18	0.11	0.08	136.89	0.14	0.11	e
222.9397	0.0030	11.547	0.0150	137.31	0.11	0.08	137.02	0.15	0.11	b
226.3763	0.0030	11.481	0.0184	137.70	0.11	0.08	137.37	0.16	0.11	e
227.0338	0.0030	11.468	0.0191	137.84	0.11	0.08	137.50	0.16	0.12	b
230.4401	0.0031	11.402	0.0231	138.43	0.11	0.08	138.05	0.17	0.12	e
231.1042	0.0031	11.389	0.0240	138.64	0.11	0.08	138.25	0.17	0.13	b
234.4705	0.0031	11.323	0.0288	139.48	0.11	0.08	139.05	0.19	0.13	e
235.1487	0.0031	11.310	0.0299	139.06	0.11	0.08	138.63	0.19	0.14	b
238.4834	0.0031	11.244	0.0356	139.95	0.11	0.08	139.47	0.20	0.15	e
239.1595	0.0030	11.231	0.0368	139.86	0.11	0.08	139.37	0.20	0.15	b
242.4615	0.0033	11.166	0.0434	140.51	0.12	0.09	139.98	0.22	0.16	e
243.1519	0.0031	11.152	0.0450	141.06	0.11	0.08	140.53	0.22	0.16	b
246.4153	0.0030	11.086	0.0526	141.74	0.11	0.08	141.16	0.24	0.17	e
247.1143	0.0030	11.072	0.0544	142.17	0.11	0.08	141.59	0.24	0.17	b
250.3553	0.0030	11.007	0.0633	142.61	0.12	0.08	141.99	0.26	0.18	e
251.0611	0.0033	10.992	0.0653	143.19	0.12	0.09	142.56	0.27	0.19	b
254.2552	0.0031	10.927	0.0754	143.31	0.12	0.08	142.65	0.28	0.20	e
254.9815	0.0031	10.912	0.0779	143.56	0.12	0.08	142.89	0.28	0.20	b
258.1462	0.0032	10.846	0.0893	144.29	0.12	0.09	143.59	0.30	0.21	e
261.4441	0.0032	10.777	0.1026	145.30	0.12	0.09	144.57	0.32	0.22	c
262.0158	0.0033	10.765	0.1051	144.92	0.13	0.09	144.18	0.32	0.22	e
265.3289	0.0032	10.695	0.1203	145.48	0.13	0.09	144.72	0.34	0.23	c
265.8582	0.0031	10.683	0.1228	145.64	0.12	0.08	144.87	0.34	0.24	e
269.1882	0.0036	10.611	0.1400	146.54	0.14	0.10	145.76	0.37	0.25	c
269.6939	0.0031	10.600	0.1428	146.37	0.12	0.08	145.58	0.36	0.25	e
273.0335	0.0031	10.527	0.1622	147.97	0.13	0.09	147.17	0.38	0.26	c
273.4964	0.0031	10.517	0.1650	147.83	0.13	0.08	147.04	0.38	0.26	e
276.8495	0.0033	10.442	0.1868	148.80	0.13	0.09	148.00	0.40	0.27	c
277.2833	0.0031	10.433	0.1897	148.44	0.13	0.08	147.65	0.40	0.27	e
280.6518	0.0032	10.357	0.2140	149.91	0.13	0.09	149.13	0.42	0.28	c
281.0435	0.0035	10.348	0.2170	149.52	0.14	0.09	148.74	0.42	0.28	e
284.4395	0.0032	10.269	0.2441	150.80	0.13	0.09	150.05	0.43	0.29	c
284.7852	0.0032	10.261	0.2471	150.41	0.13	0.09	149.67	0.44	0.29	e
288.2118	0.0032	10.181	0.2773	151.30	0.13	0.09	150.59	0.45	0.30	c
288.5126	0.0031	10.174	0.2801	151.36	0.13	0.09	150.67	0.45	0.30	e
291.9621	0.0032	10.091	0.3136	152.81	0.14	0.09	152.18	0.46	0.30	c
292.2226	0.0032	10.085	0.3162	152.40	0.14	0.09	151.78	0.46	0.30	e
295.7095	0.0032	10.000	0.3533	153.44	0.14	0.09	152.90	0.47	0.31	c
295.9172	0.0031	9.995	0.3556	152.91	0.13	0.09	152.38	0.47	0.31	e
299.4338	0.0032	9.908	0.3965	154.08	0.14	0.09	153.67	0.48	0.31	c
299.6010	0.0032	9.903	0.3986	153.32	0.14	0.09	152.91	0.48	0.31	e
303.1447	0.0033	9.813	0.4435	155.36	0.15	0.09	155.10	0.49	0.31	c
303.2621	0.0033	9.810	0.4450	154.72	0.14	0.09	154.46	0.49	0.31	e
306.8468	0.0033	9.717	0.4944	155.74	0.15	0.09	155.66	0.49	0.31	c
306.9307	0.0032	9.715	0.4956	155.23	0.14	0.09	155.16	0.49	0.31	e
310.5255	0.0032	9.619	0.5492	156.85	0.14	0.09	157.00	0.48	0.31	c
310.5624	0.0032	9.618	0.5498	156.35	0.14	0.09	156.50	0.48	0.31	e
314.1985	0.0031	9.518	0.6084	158.02	0.14	0.09	158.45	0.48	0.30	c
314.1987	0.0032	9.518	0.6084	158.40	0.15	0.09	158.82	0.48	0.30	e
317.8211	0.0030	9.417	0.6714	159.89	0.14	0.09	160.64	0.47	0.29	e
317.8549	0.0033	9.416	0.6720	159.18	0.15	0.09	159.93	0.47	0.29	c
321.4171	0.0031	9.313	0.7386	156.85	4.72	3.01	157.95	4.74	3.00	e
321.4709	0.0033	9.311	0.7397	157.27	4.73	3.01	158.37	4.75	3.00	c

325.0007	0.0031	9.207	0.8105	162.74	0.16	0.10	164.29	0.45	0.27	e
325.0838	0.0033	9.204	0.8123	162.34	0.16	0.10	163.90	0.45	0.27	c
328.6095	0.0031	9.096	0.8881	164.18	0.16	0.10	166.25	0.43	0.26	e
328.7119	0.0032	9.093	0.8904	162.64	0.16	0.10	164.74	0.43	0.26	c
332.2173	0.0032	8.982	0.9711	164.69	0.16	0.10	167.40	0.41	0.24	e
332.3189	0.0032	8.979	0.9736	163.69	0.16	0.10	166.41	0.41	0.24	c
335.8163	0.0031	8.865	1.0596	165.01	0.16	0.10	168.45	0.39	0.23	e
335.9268	0.0034	8.861	1.0625	164.69	0.17	0.10	168.15	0.39	0.23	c
339.4145	0.0033	8.743	1.1540	166.56	0.17	0.10	170.86	0.38	0.22	e
339.5167	0.0034	8.739	1.1568	165.55	0.17	0.11	169.87	0.38	0.23	c
343.0172	0.0033	8.616	1.2547	167.56	0.17	0.10	172.89	0.39	0.23	e
343.0928	0.0034	8.613	1.2569	166.12	0.18	0.11	171.48	0.40	0.23	c

Table 38(b). Experimental two-phase heat capacity data for HCFC-124.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
-289.965	0.005	118.14	0.00	0.22205	0.00019	0.09	0.22204	0.00019	0.09	e
-283.467	0.006	117.93	0.00	0.22103	0.00015	0.07	0.22103	0.00015	0.07	a
-280.230	0.005	117.79	0.00	0.22268	0.00014	0.06	0.22268	0.00014	0.06	e
-273.783	0.006	117.46	0.00	0.22240	0.00015	0.07	0.22240	0.00015	0.07	a
-270.607	0.005	117.27	0.00	0.22287	0.00013	0.06	0.22287	0.00013	0.06	e
-264.278	0.006	116.86	0.00	0.22306	0.00015	0.07	0.22306	0.00015	0.07	a
-261.147	0.005	116.64	0.00	0.22263	0.00014	0.06	0.22263	0.00014	0.06	e
-254.912	0.006	116.17	0.00	0.22301	0.00016	0.07	0.22301	0.00016	0.07	a
-251.832	0.005	115.93	0.00	0.22296	0.00014	0.06	0.22296	0.00014	0.06	e
-245.694	0.006	115.40	0.00	0.22293	0.00016	0.07	0.22293	0.00016	0.07	a
-242.842	0.005	115.14	0.00	0.22271	0.00014	0.06	0.22271	0.00014	0.06	d
-242.652	0.005	115.13	0.00	0.22315	0.00014	0.06	0.22315	0.00014	0.06	e
-236.599	0.006	114.58	0.00	0.22279	0.00016	0.07	0.22279	0.00016	0.07	a
-233.782	0.005	114.32	0.00	0.22279	0.00014	0.06	0.22279	0.00014	0.06	d
-227.628	0.006	113.75	0.00	0.22277	0.00016	0.07	0.22277	0.00016	0.07	a
-224.840	0.005	113.49	0.00	0.22296	0.00014	0.06	0.22296	0.00014	0.06	d
-220.105	0.005	113.05	0.00	0.22359	0.00015	0.07	0.22359	0.00015	0.07	e
-218.761	0.006	112.93	0.00	0.22340	0.00017	0.07	0.22339	0.00017	0.07	a
-216.012	0.005	112.67	0.00	0.22339	0.00015	0.07	0.22339	0.00015	0.07	d
-211.341	0.005	112.23	0.00	0.22353	0.00015	0.07	0.22353	0.00015	0.07	e
-209.997	0.006	112.11	0.00	0.22380	0.00017	0.08	0.22380	0.00017	0.08	a
-207.295	0.005	111.85	0.00	0.22364	0.00015	0.07	0.22364	0.00015	0.07	d
-202.677	0.005	111.42	0.00	0.22394	0.00015	0.07	0.22394	0.00015	0.07	e
-201.333	0.006	111.30	0.00	0.22404	0.00017	0.08	0.22404	0.00017	0.08	a
-198.681	0.005	111.05	0.00	0.22346	0.00015	0.07	0.22346	0.00015	0.07	d
-194.114	0.005	110.62	0.00	0.22450	0.00015	0.07	0.22450	0.00015	0.07	e
-192.760	0.006	110.50	0.00	0.22463	0.00017	0.08	0.22463	0.00017	0.08	a
-190.148	0.005	110.26	0.00	0.22400	0.00015	0.07	0.22400	0.00015	0.07	d
-185.626	0.005	109.84	0.00	0.22439	0.00015	0.07	0.22438	0.00015	0.07	e
-184.280	0.006	109.71	0.00	0.22503	0.00017	0.08	0.22502	0.00017	0.08	a
-181.698	0.005	109.47	0.00	0.22451	0.00016	0.07	0.22451	0.00016	0.07	d
-177.213	0.005	109.06	0.01	0.22457	0.00016	0.07	0.22457	0.00016	0.07	e
-175.882	0.006	108.94	0.01	0.22587	0.00018	0.08	0.22586	0.00018	0.08	a
-173.337	0.005	108.70	0.01	0.22583	0.00016	0.07	0.22582	0.00016	0.07	d
-168.895	0.006	108.30	0.01	0.22570	0.00016	0.07	0.22569	0.00016	0.07	e
-167.564	0.006	108.17	0.01	0.22602	0.00018	0.08	0.22601	0.00018	0.08	a
-165.042	0.005	107.94	0.01	0.22628	0.00016	0.07	0.22627	0.00016	0.07	d
-160.646	0.005	107.54	0.02	0.22713	0.00016	0.07	0.22711	0.00016	0.07	e
-159.331	0.006	107.42	0.02	0.22700	0.00018	0.08	0.22698	0.00018	0.08	a
-156.847	0.005	107.20	0.02	0.22686	0.00016	0.07	0.22684	0.00016	0.07	d
-152.469	0.005	106.80	0.03	0.22813	0.00016	0.07	0.22810	0.00016	0.07	e
-151.167	0.006	106.68	0.03	0.22791	0.00018	0.08	0.22788	0.00018	0.08	a
-148.716	0.005	106.46	0.04	0.22802	0.00016	0.07	0.22798	0.00016	0.07	d
-144.372	0.005	106.07	0.05	0.22884	0.00016	0.07	0.22880	0.00016	0.07	e
-143.168	0.005	105.96	0.05	0.22833	0.00017	0.07	0.22829	0.00017	0.07	b
-140.635	0.005	105.74	0.06	0.22842	0.00016	0.07	0.22837	0.00016	0.07	d
-136.362	0.006	105.35	0.07	0.22972	0.00017	0.07	0.22967	0.00017	0.08	e
-135.163	0.005	105.24	0.08	0.22926	0.00017	0.07	0.22920	0.00017	0.07	b
-132.643	0.005	105.02	0.09	0.22928	0.00016	0.07	0.22922	0.00017	0.07	d
-128.412	0.005	104.64	0.11	0.23033	0.00017	0.07	0.23026	0.00017	0.07	e
-127.205	0.005	104.53	0.12	0.23000	0.00017	0.07	0.22992	0.00017	0.07	b
-120.526	0.006	103.94	0.17	0.23124	0.00017	0.07	0.23114	0.00018	0.08	e
-119.328	0.005	103.83	0.18	0.23155	0.00017	0.07	0.23145	0.00017	0.07	b
-112.714	0.005	103.24	0.25	0.23256	0.00017	0.07	0.23244	0.00018	0.08	e
-111.494	0.006	103.13	0.27	0.23251	0.00018	0.08	0.23237	0.00018	0.08	b
-104.934	0.006	102.55	0.36	0.23387	0.00018	0.08	0.23371	0.00019	0.08	e

-103.737	0.006	102.44	0.38	0.23362	0.00018	0.08	0.23345	0.00019	0.08	b
-97.233	0.005	101.86	0.50	0.23409	0.00018	0.08	0.23389	0.00019	0.08	e
-96.046	0.005	101.76	0.53	0.23498	0.00018	0.07	0.23477	0.00019	0.08	b
-89.571	0.006	101.18	0.69	0.23545	0.00018	0.08	0.23520	0.00020	0.08	e
-88.389	0.005	101.07	0.72	0.23652	0.00018	0.08	0.23626	0.00020	0.08	b
-81.984	0.006	100.50	0.93	0.23707	0.00018	0.08	0.23677	0.00021	0.09	e
-80.810	0.006	100.40	0.97	0.23710	0.00019	0.08	0.23679	0.00021	0.09	b
-74.456	0.005	99.83	1.24	0.23827	0.00018	0.08	0.23790	0.00022	0.09	e
-73.272	0.006	99.72	1.29	0.23816	0.00018	0.08	0.23778	0.00022	0.09	b
-66.986	0.006	99.15	1.62	0.24010	0.00019	0.08	0.23966	0.00024	0.10	e
-65.805	0.005	99.05	1.69	0.23921	0.00019	0.08	0.23876	0.00024	0.10	b
-59.557	0.005	98.48	2.09	0.24023	0.00019	0.08	0.23972	0.00025	0.11	e
-58.379	0.005	98.38	2.17	0.24047	0.00019	0.08	0.23995	0.00026	0.11	b
-52.193	0.005	97.81	2.66	0.24115	0.00019	0.08	0.24057	0.00027	0.11	e
-51.009	0.005	97.70	2.77	0.24140	0.00019	0.08	0.24081	0.00028	0.12	b
-44.878	0.006	97.14	3.35	0.24243	0.00019	0.08	0.24176	0.00030	0.12	e
-43.682	0.006	97.03	3.48	0.24279	0.00019	0.08	0.24211	0.00030	0.13	b
-37.623	0.006	96.47	4.18	0.24426	0.00020	0.08	0.24351	0.00033	0.13	e
-36.402	0.006	96.36	4.33	0.24354	0.00019	0.08	0.24277	0.00033	0.14	b
-30.400	0.006	95.80	5.16	0.24510	0.00020	0.08	0.24426	0.00036	0.15	e
-29.183	0.005	95.69	5.34	0.24493	0.00020	0.08	0.24408	0.00036	0.15	b
-23.239	0.006	95.13	6.30	0.24606	0.00021	0.09	0.24514	0.00039	0.16	e
-21.997	0.006	95.01	6.52	0.24703	0.00020	0.08	0.24610	0.00039	0.16	b
-16.122	0.005	94.45	7.63	0.24822	0.00020	0.08	0.24721	0.00042	0.17	e
-14.864	0.005	94.33	7.89	0.24898	0.00020	0.08	0.24796	0.00042	0.17	b
-9.031	0.005	93.78	9.18	0.24974	0.00020	0.08	0.24866	0.00045	0.18	e
-7.760	0.006	93.65	9.48	0.25076	0.00022	0.09	0.24966	0.00046	0.19	b
-2.011	0.006	93.09	10.94	0.25098	0.00021	0.08	0.24981	0.00049	0.20	e
-0.703	0.006	92.97	11.30	0.25142	0.00021	0.08	0.25024	0.00050	0.20	b
4.993	0.006	92.41	12.96	0.25270	0.00022	0.09	0.25146	0.00053	0.21	e
10.929	0.006	91.82	14.89	0.25446	0.00022	0.09	0.25318	0.00056	0.22	c
11.959	0.006	91.72	15.24	0.25379	0.00023	0.09	0.25250	0.00057	0.22	e
17.922	0.006	91.12	17.44	0.25478	0.00022	0.09	0.25345	0.00059	0.23	c
18.875	0.006	91.02	17.81	0.25506	0.00021	0.08	0.25371	0.00060	0.24	e
24.869	0.006	90.41	20.31	0.25664	0.00025	0.10	0.25527	0.00064	0.25	c
25.779	0.006	90.31	20.71	0.25633	0.00021	0.08	0.25495	0.00063	0.25	e
31.790	0.006	89.69	23.52	0.25913	0.00022	0.09	0.25774	0.00066	0.26	c
32.623	0.006	89.60	23.93	0.25890	0.00022	0.08	0.25750	0.00067	0.26	e
38.659	0.006	88.97	27.09	0.26059	0.00023	0.09	0.25920	0.00070	0.27	c
39.440	0.006	88.89	27.52	0.25997	0.00022	0.08	0.25858	0.00070	0.27	e
45.503	0.006	88.24	31.04	0.26254	0.00023	0.09	0.26117	0.00073	0.28	c
46.208	0.006	88.16	31.47	0.26185	0.00025	0.09	0.26049	0.00074	0.28	e
52.321	0.006	87.49	35.41	0.26409	0.00023	0.09	0.26278	0.00076	0.29	c
52.943	0.006	87.43	35.83	0.26341	0.00023	0.09	0.26211	0.00076	0.29	e
59.111	0.006	86.74	40.22	0.26496	0.00024	0.09	0.26373	0.00079	0.30	c
59.653	0.006	86.68	40.62	0.26508	0.00023	0.09	0.26386	0.00079	0.30	e
65.862	0.006	85.98	45.48	0.26762	0.00024	0.09	0.26651	0.00081	0.30	c
66.331	0.006	85.92	45.86	0.26690	0.00024	0.09	0.26581	0.00081	0.30	e
72.607	0.006	85.20	51.24	0.26871	0.00024	0.09	0.26777	0.00083	0.31	c
72.981	0.006	85.16	51.58	0.26778	0.00024	0.09	0.26685	0.00083	0.31	e
79.311	0.006	84.41	57.51	0.26984	0.00024	0.09	0.26911	0.00084	0.31	c
79.612	0.006	84.37	57.81	0.26851	0.00024	0.09	0.26779	0.00084	0.31	e
85.990	0.006	83.61	64.32	0.27208	0.00025	0.09	0.27161	0.00085	0.31	c
86.202	0.006	83.58	64.54	0.27096	0.00025	0.09	0.27050	0.00085	0.31	e
92.654	0.006	82.79	71.70	0.27274	0.00025	0.09	0.27260	0.00086	0.31	c
92.805	0.006	82.77	71.87	0.27186	0.00025	0.09	0.27173	0.00085	0.31	e
99.276	0.006	81.95	79.65	0.27469	0.00025	0.09	0.27495	0.00085	0.31	c
99.342	0.006	81.94	79.74	0.27381	0.00025	0.09	0.27408	0.00085	0.31	e
105.887	0.006	81.09	88.24	0.27674	0.00025	0.09	0.27748	0.00084	0.30	c
105.888	0.006	81.09	88.24	0.27740	0.00026	0.09	0.27814	0.00084	0.30	e
112.408	0.005	80.23	97.37	0.28001	0.00025	0.09	0.28132	0.00082	0.29	e
112.469	0.006	80.22	97.46	0.27878	0.00026	0.09	0.28009	0.00082	0.29	c
118.881	0.006	79.34	107.13	0.27470	0.00827	3.01	0.27662	0.00831	3.00	e
118.978	0.006	79.33	107.28	0.27542	0.00828	3.01	0.27735	0.00832	3.00	c

125.331	0.006	78.44	117.56	0.28501	0.00027	0.10	0.28772	0.00078	0.27	e
125.481	0.006	78.42	117.81	0.28431	0.00029	0.10	0.28703	0.00079	0.27	c
131.827	0.006	77.50	128.81	0.28752	0.00028	0.10	0.29115	0.00075	0.26	e
132.011	0.006	77.47	129.14	0.28484	0.00028	0.10	0.28850	0.00075	0.26	c
138.321	0.006	76.53	140.85	0.28843	0.00028	0.10	0.29316	0.00071	0.24	e
138.504	0.006	76.50	141.20	0.28666	0.00028	0.10	0.29142	0.00071	0.24	c
144.799	0.006	75.53	153.69	0.28898	0.00028	0.10	0.29500	0.00068	0.23	e
144.998	0.006	75.49	154.10	0.28842	0.00030	0.10	0.29448	0.00069	0.23	c
151.276	0.006	74.49	167.38	0.29170	0.00030	0.10	0.29923	0.00067	0.22	e
151.460	0.006	74.46	167.78	0.28992	0.00031	0.11	0.29750	0.00067	0.23	c
157.761	0.006	73.41	181.98	0.29345	0.00030	0.10	0.30278	0.00069	0.23	e
157.897	0.006	73.38	182.29	0.29093	0.00031	0.11	0.30030	0.00070	0.23	c

Table 39. Coefficients to the MBWR equation of state for HCFC-124 (units are K, bar, L, mol)

$$p = \sum_{n=1}^{9} a_n \rho^n + \exp(-\rho^2/\rho_c^2) \sum_{n=10}^{15} a_n \rho^{2n-17}$$

ρ_c = 4.10153 mol/L

$a_1 = RT$
$a_2 = b_1T + b_2T^{0.5} + b_3 + b_4/T + b_5/T^2$
$a_3 = b_6T + b_7 + b_8/T + b_9/T^2$
$a_4 = b_{10}T + b_{11} + b_{12}/T$
$a_5 = b_{13}$
$a_6 = b_{14}/T + b_{15}/T^2$
$a_7 = b_{16}/T$
$a_8 = b_{17}/T + b_{18}/T^2$
$a_9 = b_{19}/T^2$
$a_{10} = b_{20}/T^2 + b_{21}/T^3$
$a_{11} = b_{22}/T^2 + b_{23}/T^4$
$a_{12} = b_{24}/T^2 + b_{25}/T^3$
$a_{13} = b_{26}/T^2 + b_{27}/T^4$
$a_{14} = b_{28}/T^2 + b_{29}/T^3$
$a_{15} = b_{30}/T^2 + b_{31}/T^3 + b_{32}/T^4$

i	b_i
1	-0.204576807203E+00
2	0.183289763904E+02
3	-0.436304129852E+03
4	0.784900629507E+05
5	-0.882621240790E+07
6	-0.214052457908E-02
7	-0.421490706906E+01
8	0.379367628599E+04
9	0.257319006570E+07
10	-0.128703560721E-02
11	0.318383860178E+01
12	-0.126323679904E+04
13	-0.359253621024E-01
14	-0.201822160275E+02
15	0.239512195711E+03
16	0.249923391219E+01

Table 39. Coefficients to the MBWR equation of state for HCFC-124 (units are K, bar, L, mol) (continued)

17	-0.688566863825E-01
18	-0.132391812938E+02
19	0.667600131841E+00
20	-0.271799858829E+07
21	-0.111422740208E+09
22	-0.175854504297E+06
23	0.566801130630E+10
24	-0.214018815397E+04
25	-0.327561948065E+06
26	-0.546930696467E+02
27	0.931832376640E+06
28	0.193654970621E-02
29	-0.110844683745E+03
30	-0.452370482664E-02
31	0.163031126242E+01
32	-0.681395650661E+03

Table 40a. Refrigerant 124 (1-chloro-1,2,2,2-tetrafluoroethane) Properties of Saturated Liquid and Saturated Vapor (SI units)

Temp* (°C)	Pressure (MPa)	Density (kg/m**3)	Volume (m**3/kg)	Enthalpy (kJ/kg)		Entropy (kJ/kg.K)		Specific Heat, Cp (kJ/kg.K)		Cp/Cv	Vel of Sound (m/s)	
		liq	vap	liq	vap	liq	vap	liq	vap	vap	liq	vap
-60.00	0.00793	1606.3	1.62214	139.71	324.30	0.7517	1.6177	0.963	0.605	1.122	800.	120.
-50.00	0.01501	1580.1	0.89240	149.40	329.95	0.7961	1.6052	0.974	0.627	1.122	765.	122.
-40.00	0.02665	1553.3	0.52152	159.21	335.64	0.8390	1.5958	0.986	0.651	1.123	734.	124.
-30.00	0.04478	1525.8	0.32086	169.15	341.35	0.8807	1.5889	1.001	0.676	1.125	704.	125.
-20.00	0.07173	1497.4	0.20627	179.24	347.06	0.9213	1.5843	1.017	0.703	1.129	674.	126.
-12.03	0.10132	1474.2	0.14906	187.41	351.61	0.9530	1.5819	1.032	0.725	1.133	650.	127.
-10.00	0.11023	1468.2	0.13768	189.52	352.76	0.9610	1.5814	1.036	0.731	1.134	643.	127.
0.00	0.16338	1437.9	0.09490	200.00	358.44	1.0000	1.5800	1.057	0.762	1.141	611.	128.
5.00	0.19649	1422.3	0.07963	205.32	361.26	1.0192	1.5798	1.069	0.777	1.145	595.	128.
10.00	0.23456	1406.4	0.06724	210.71	364.06	1.0383	1.5799	1.081	0.794	1.149	578.	128.
15.00	0.27805	1390.2	0.05712	216.15	366.85	1.0573	1.5803	1.093	0.811	1.154	560.	128.
20.00	0.32746	1373.6	0.04878	221.66	369.62	1.0761	1.5808	1.106	0.828	1.160	542.	128.
25.00	0.38327	1356.6	0.04186	227.23	372.37	1.0948	1.5816	1.120	0.846	1.166	524.	128.
30.00	0.44600	1339.2	0.03609	232.87	375.09	1.1134	1.5825	1.134	0.865	1.174	506.	127.
35.00	0.51618	1321.3	0.03124	238.59	377.77	1.1319	1.5836	1.149	0.885	1.182	487.	127.
40.00	0.59433	1302.9	0.02715	244.38	380.41	1.1504	1.5848	1.165	0.906	1.192	468.	126.
45.00	0.68103	1283.9	0.02367	250.25	383.01	1.1688	1.5861	1.182	0.928	1.203	448.	125.
50.00	0.77682	1264.3	0.02070	256.21	385.55	1.1871	1.5874	1.201	0.952	1.216	428.	124.
55.00	0.88231	1244.0	0.01814	262.25	388.03	1.2054	1.5887	1.221	0.978	1.231	408.	123.
60.00	0.99808	1222.9	0.01594	268.40	390.43	1.2237	1.5900	1.243	1.007	1.248	387.	121.
65.00	1.12476	1200.9	0.01403	274.64	392.75	1.2420	1.5913	1.268	1.038	1.270	366.	119.
70.00	1.26301	1177.8	0.01236	281.00	394.96	1.2603	1.5924	1.296	1.075	1.296	345.	118.
75.00	1.41349	1153.5	0.01090	287.49	397.04	1.2787	1.5934	1.329	1.117	1.328	324.	116.
80.00	1.57694	1127.7	0.00961	294.12	398.97	1.2972	1.5942	1.367	1.167	1.368	302.	113.
85.00	1.75412	1100.3	0.00847	300.91	400.72	1.3159	1.5946	1.414	1.229	1.420	279.	111.
90.00	1.94587	1070.7	0.00745	307.89	402.22	1.3348	1.5945	1.472	1.309	1.490	256.	108.
95.00	2.15312	1038.4	0.00653	315.11	403.43	1.3540	1.5939	1.550	1.416	1.586	233.	104.
100.00	2.37693	1002.5	0.00570	322.62	404.23	1.3736	1.5923	1.658	1.568	1.729	208.	101.
110.00	2.87954	913.3	0.00421	339.04	403.84	1.4157	1.5848	2.121	2.243	2.382	157.	92.
120.00	3.46980	751.0	0.00269	361.00	395.45	1.4703	1.5580	6.654	8.779	8.836	97.	80.
122.47	3.63400	559.8	0.00179	378.57	378.57	1.5079	1.5079	inf	inf	inf	0.	0.

* temperatures are on the IPTS-68 scale; b boiling point; c critical point

Table 40b. Refrigerant 124 (1-chloro-1,2,2,2-tetrafluoroethane) Properties of Saturated Liquid and Saturated Vapor (PI units)

Temp* (°F)	Pressure (psia)	Density (lb/ft**3)	Volume (ft**3/lb)	Enthalpy (BTU/lb)		Entropy (BTU/lb.°F)		Specific Heat, Cp (BTU/lb.°F)		Cp/Cv	Vel of Sound (ft/s)	
		liq	vap	liq	vap	liq	vap	liq	vap	vap	liq	vap
-80.00	0.988	100.64	29.9502	-9.306	70.485	-0.02328	0.18687	0.2296	0.1436	1.1219	2654.	390.
-70.00	1.433	99.74	21.1355	-7.002	71.832	-0.01730	0.18501	0.2311	0.1464	1.1217	2585.	394.
-60.00	2.034	98.83	15.2280	-4.684	73.184	-0.01143	0.18340	0.2325	0.1493	1.1218	2523.	398.
-50.00	2.830	97.91	11.1816	-2.350	74.542	-0.00566	0.18203	0.2340	0.1524	1.1223	2464.	402.
-40.00	3.865	96.97	8.3539	0.000	75.904	0.00000	0.18087	0.2357	0.1555	1.1231	2409.	405.
-30.00	5.189	96.02	6.3410	2.368	77.268	0.00557	0.17989	0.2375	0.1588	1.1243	2354.	408.
-20.00	6.858	95.06	4.8834	4.755	78.633	0.01105	0.17909	0.2395	0.1622	1.1258	2300.	411.
-10.00	8.935	94.08	3.8113	7.163	79.999	0.01646	0.17844	0.2417	0.1658	1.1278	2245.	414.
0.00	11.485	93.08	3.0110	9.594	81.363	0.02180	0.17793	0.2441	0.1695	1.1301	2190.	416.
10.00	14.580	92.07	2.4056	12.051	82.726	0.02707	0.17755	0.2466	0.1732	1.1329	2134.	418.
10.34b	14.696	92.03	2.3877	12.135	82.772	0.02725	0.17754	0.2467	0.1734	1.1330	2132.	418.
20.00	18.298	91.03	1.9417	14.533	84.086	0.03228	0.17728	0.2493	0.1772	1.1361	2076.	419.
30.00	22.720	89.98	1.5821	17.044	85.441	0.03745	0.17713	0.2521	0.1812	1.1398	2017.	420.
40.00	27.930	88.90	1.3003	19.584	86.790	0.04256	0.17706	0.2551	0.1854	1.1441	1957.	421.
50.00	34.020	87.80	1.0771	22.155	88.132	0.04763	0.17708	0.2582	0.1897	1.1491	1895.	421.
60.00	41.081	86.67	0.8988	24.759	89.465	0.05266	0.17717	0.2616	0.1942	1.1547	1831.	420.
70.00	49.210	85.52	0.7549	27.397	90.787	0.05765	0.17733	0.2650	0.1989	1.1612	1766.	420.
80.00	58.506	84.33	0.6379	30.070	92.095	0.06262	0.17755	0.2687	0.2037	1.1686	1700.	418.
90.00	69.073	83.11	0.5420	32.781	93.388	0.06755	0.17781	0.2726	0.2089	1.1772	1632.	416.
100.00	81.015	81.85	0.4627	35.531	94.661	0.07246	0.17811	0.2768	0.2143	1.1872	1562.	414.
110.00	94.441	80.55	0.3967	38.323	95.912	0.07735	0.17844	0.2812	0.2200	1.1988	1491.	411.
120.00	109.463	79.20	0.3415	41.158	97.135	0.08222	0.17879	0.2860	0.2262	1.2125	1419.	407.
130.00	126.196	77.80	0.2949	44.041	98.325	0.08709	0.17914	0.2913	0.2330	1.2288	1346.	403.
140.00	144.759	76.34	0.2553	46.974	99.476	0.09194	0.17949	0.2972	0.2406	1.2484	1271.	397.
150.00	165.276	74.81	0.2215	49.963	100.580	0.09680	0.17983	0.3038	0.2491	1.2724	1195.	391.
160.00	187.877	73.20	0.1925	53.013	101.627	0.10167	0.18012	0.3114	0.2590	1.3022	1117.	384.
170.00	212.698	71.48	0.1674	56.132	102.604	0.10656	0.18037	0.3204	0.2707	1.3400	1038.	376.
180.00	239.885	69.66	0.1455	59.329	103.494	0.11149	0.18053	0.3314	0.2852	1.3893	957.	368.
190.00	269.595	67.68	0.1264	62.620	104.274	0.11647	0.18059	0.3452	0.3038	1.4560	874.	357.
200.00	302.006	65.52	0.1094	66.024	104.910	0.12153	0.18048	0.3636	0.3289	1.5502	789.	346.
210.00	337.315	63.11	0.0942	69.573	105.353	0.12672	0.18015	0.3897	0.3654	1.6921	701.	333.
220.00	375.761	60.34	0.0804	73.319	105.518	0.13210	0.17947	0.4307	0.4243	1.9270	610.	318.
230.00	417.642	57.01	0.0675	77.367	105.245	0.13782	0.17824	0.5069	0.5360	2.3825	514.	301.
240.00	463.383	52.61	0.0547	81.981	104.143	0.14424	0.17591	0.7078	0.8330	3.6065	410.	281.
250.00	513.779	44.38	0.0392	88.581	100.240	0.15333	0.16975	2.8382	3.8068	15.8894	291.	258.
252.45c	527.067	34.94	0.0286	94.372	94.372	0.16055	0.16055	inf	inf	inf	0.	0.

*temperatures are on the IPTS-68 scale; b boiling point; c critical point

Table 41a. Burnett vapor-phase PVT measurements for HFC-125 (SI units).

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
363.156	0.3393	4558.61	358.104	0.0336	781.507
363.153	0.3393	4558.23	353.158	0.0336	769.028
363.153	0.3393	4558.17	348.129	0.0336	756.204
363.149	0.3393	4558.39	343.158	0.0336	743.351
358.102	0.3393	4345.19	338.132	0.0336	730.368
353.167	0.3394	4133.97	332.963	0.0336	717.212
348.123	0.3395	3915.00	323.176	0.0337	691.725
343.159	0.3395	3695.21	318.146	0.0337	678.578
363.153	0.1904	3337.93	313.144	0.0337	665.352
358.105	0.1904	3237.66	308.119	0.0337	652.116
353.104	0.1904	3137.14	303.153	0.0337	638.937
348.125	0.1905	3035.77	298.127	0.0337	625.474
343.158	0.1905	2933.29	293.158	0.0337	612.108
338.137	0.1906	2828.07	288.207	0.0337	598.655
333.113	0.1906	2720.88	283.151	0.0337	584.814
363.153	0.1068	2194.52	278.139	0.0337	570.947
363.109	0.1068	2194.30	273.138	0.0337	556.909
358.105	0.1068	2146.30	323.118	0.0337	691.471
353.104	0.1068	2097.98	363.153	0.0188	458.239
348.126	0.1069	2049.53	358.106	0.0188	449.926
343.156	0.1069	2000.74	353.168	0.0188	444.643
338.129	0.1069	1950.91	348.127	0.0188	437.708
333.110	0.1069	1900.59	343.106	0.0188	430.832
323.128	0.1070	1798.70	338.129	0.0189	423.984
318.165	0.1070	1746.98	333.110	0.0189	417.028
313.147	0.1070	1693.83	323.176	0.0189	403.207
308.174	0.1070	1640.06	323.134	0.0189	403.066
323.137	0.1070	1798.70	318.145	0.0189	396.177
328.137	0.1070	1849.94	313.145	0.0189	389.201
363.153	0.0599	1346.59	308.116	0.0189	382.170
358.106	0.0599	1322.23	303.154	0.0189	375.183
353.103	0.0599	1297.92	298.128	0.0189	368.084
348.128	0.0599	1273.59	293.157	0.0189	361.028
343.156	0.0600	1249.15	288.204	0.0189	353.976
338.136	0.0600	1224.39	283.151	0.0189	346.738
333.111	0.0600	1199.40	278.137	0.0189	339.555
323.130	0.0600	1149.26	273.134	0.0189	332.317
318.141	0.0600	1123.90	363.153	0.2530	3951.636
313.150	0.0600	1098.28	363.153	0.1419	2727.698
308.173	0.0600	1072.51	363.153	0.0796	1723.650
303.146	0.0601	1046.21	363.153	0.0447	1033.725
298.133	0.0601	1019.65	363.153	0.0250	601.990
293.116	0.0601	992.694	363.153	0.0140	344.832

Table 41b. Burnett vapor-phase PVT measurements for HFC-125 (PI units).

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
194.010	21.1822	661.171	194.005	2.1004	115.199
194.005	21.1822	661.116	184.917	2.1009	113.348
194.005	21.1822	661.106	176.015	2.1013	111.538
193.998	21.1822	661.138	166.963	2.1018	109.678
184.914	21.1867	630.217	158.014	2.1022	107.814
176.031	21.1910	599.582	148.968	2.1026	105.931
166.952	21.1955	567.823	139.664	2.1031	104.023
158.016	21.1999	535.945	122.047	2.1040	100.326
194.005	11.8866	484.126	112.994	2.1044	98.419
184.919	11.8891	469.584	103.989	2.1048	96.501
175.918	11.8916	455.004	94.944	2.1053	94.581
166.956	11.8941	440.301	86.005	2.1057	92.670
158.014	11.8966	425.439	76.958	2.1062	90.717
148.977	11.8991	410.177	68.014	2.1066	88.779
139.934	11.9016	394.630	59.103	2.1070	86.828
194.005	6.6703	318.288	50.001	2.1075	84.820
193.926	6.6703	318.257	40.980	2.1079	82.809
184.919	6.6717	311.295	31.978	2.1084	80.773
175.918	6.6731	304.286	121.943	2.1040	100.289
166.958	6.6745	297.260	194.005	1.1787	66.462
158.01	6.6759	290.183	184.921	1.1789	65.256
148.962	6.6773	282.956	176.033	1.1792	64.490
139.929	6.6787	275.658	166.959	1.1794	63.484
121.961	6.6815	260.880	157.920	1.1797	62.487
113.028	6.6829	253.378	148.962	1.1799	61.494
103.994	6.6843	245.670	139.929	1.1801	60.485
95.043	6.6857	237.872	122.047	1.1806	58.480
121.977	6.6815	260.880	121.971	1.1806	58.460
130.976	6.6801	268.312	112.992	1.1809	57.461
194.005	3.7431	195.307	103.991	1.1811	56.449
184.921	3.7439	191.774	94.939	1.1814	55.429
175.916	3.7446	188.248	86.008	1.1816	54.416
166.961	3.7454	184.719	76.960	1.1819	53.386
158.01	3.7462	181.175	68.013	1.1821	52.363
148.975	3.7470	177.584	59.098	1.1824	51.340
139.931	3.7478	173.959	50.001	1.1826	50.290
121.964	3.7494	166.687	40.976	1.1829	49.248
112.985	3.7501	163.008	31.971	1.1831	48.198
104.00	3.7509	159.292	194.005	15.796	573.136
95.042	3.7517	155.555	194.005	8.8646	395.619
85.994	3.7525	151.741	194.005	4.9744	249.994
76.969	3.7533	147.888	194.005	2.7914	149.929
67.939	3.7541	143.978	194.005	1.5664	87.311

Table 42a. Vibrating-tube compressed-liquid-density measurements for HFC-125 (SI units)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
275.559	1.316	1590.1	340.576	0.9355	5235.1	358.643	0.389	4599.5
275.553	1.3194	2019.8	340.603	0.9476	5467.7	358.643	0.389	4599.5
275.412	1.3272	3006.5	340.598	0.9576	5672.5	358.63	0.415	4700.7
275.407	1.3341	3996.3	340.577	0.9671	5879.3	358.642	0.4454	4810.0
275.368	1.3406	4958.9	340.499	0.9855	6328.8	358.646	0.4743	4904.2
275.374	1.3484	6213.0	343.332	0.2906	3542.8	358.652	0.506	5005.6
283.966	1.2745	1607.4	343.338	0.3194	3645.5	358.661	0.5381	5105.2
283.978	1.2783	2019.9	343.363	0.3633	3747.6	358.669	0.57	5208.1
283.985	1.2873	3024.5	343.361	0.4748	3851.0	358.641	0.5927	5284.8
283.997	1.2958	4057.0	343.358	0.6392	3950.3	358.675	0.6211	5393.9
284.0	1.3037	5070.0	343.347	0.725	4081.3	358.695	0.6692	5603.8
284.003	1.3122	6238.5	343.371	0.7993	4345.8	358.698	0.7062	5801.0
293.477	1.2217	1586.8	343.346	0.8369	4570.0	358.675	0.7647	6212.2
293.479	1.2275	2054.7	343.345	0.8883	5070.8	363.827	0.2826	4206.3
293.482	1.2384	3005.2	343.347	0.9212	5551.8	363.806	0.295	4296.1
293.483	1.2493	4035.0	343.358	0.9486	6083.4	363.813	0.308	4387.6
293.484	1.2593	5073.5	348.423	0.2584	3551.5	363.828	0.3255	4503.4
293.482	1.27	6266.3	348.409	0.2734	3638.6	363.839	0.3421	4604.7
303.313	1.1586	1616.2	348.428	0.2933	3740.4	363.903	0.3590	4703.8
303.323	1.1659	2026.6	348.412	0.3198	3854.5	363.254	0.3823	4799.1
303.326	1.1824	3053.0	348.431	0.3445	3946.2	363.255	0.4029	4898.2
303.331	1.196	4021.6	348.448	0.3778	4041.8	363.268	0.4248	4998.8
303.33	1.2089	5049.6	348.444	0.4362	4152.0	363.285	0.4463	5092.2
303.353	1.2226	6283.0	348.453	0.5078	4251.6	363.414	0.4689	5196.3
313.94	1.0951	2496.4	348.448	0.5809	4348.2	363.675	0.4939	5310.8
313.934	1.1094	3057.2	348.513	0.6915	4581.2	363.567	0.5210	5415.6
313.932	1.1302	4044.2	348.441	0.7662	4863.6	363.606	0.5407	5498.2
313.93	1.1471	5001.2	348.52	0.7972	5056.5	363.67	0.5662	5611.2
313.935	1.1663	6263.2	348.439	0.83	5302.9	363.661	0.6080	5798.9
323.873	1.0067	2811.2	348.517	0.8525	5542.6	363.655	0.6307	5911.1
323.872	1.0178	3039.2	348.444	0.8778	5845.1	363.68	0.6471	6000.4
323.873	1.0534	4016.5	348.516	0.8973	6150.1	363.678	0.6655	6105.5
323.877	1.0807	5027.3	353.548	0.2694	3782.0	363.675	0.6893	6254.7
323.872	1.1059	6212.2	353.57	0.2897	3905.1	369.108	0.2870	4411.1
333.921	0.8857	3389.5	353.565	0.307	3999.3	369.134	0.2991	4509.1
333.919	0.9498	4088.8	353.581	0.3287	4105.9	369.134	0.3111	4600.3
333.909	0.9977	5063.8	353.602	0.3524	4208.7	368.406	0.4495	5410.4
333.916	1.0345	6184.0	353.592	0.3792	4307.0	368.468	0.4677	5505.8
339.059	0.8179	3816.3	353.549	0.4138	4411.5	368.565	0.4862	5604.2
339.072	0.8618	4067.3	353.262	0.4579	4503.4	368.483	0.5089	5705.9
339.062	0.9098	4547.7	353.262	0.502	4599.4	368.304	0.5302	5804.5
339.051	0.944	5069.3	353.268	0.5425	4685.0	368.436	0.5477	5900.0
339.057	0.9671	5535.5	353.253	0.5933	4800.1	368.525	0.5584	5966.2
339.062	0.9922	6168.6	353.255	0.6316	4903.5	368.525	0.5584	5966.2
340.499	0.3437	3556.5	353.265	0.6644	5008.3	368.578	0.58	6086.1
340.504	0.4761	3645.2	353.278	0.6829	5075.3	368.586	0.6048	6226.9
340.494	0.6451	3689.5	353.188	0.7399	5328.9	369.188	0.3249	4704.1
340.499	0.7717	3856.1	353.282	0.7735	5548.4	369.173	0.3384	4798.6

Table 42a. Vibrating-tube compressed-liquid-density measurements for HFC-125 (SI units) (continued)

T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa	T/K	ρ/g/cm^3	P/kPa
340.509	0.8272	4078.5	353.164	0.8116	5849.9	369.192	0.3568	4921.1
340.52	0.8429	4172.2	353.283	0.8389	6161.8	369.292	0.3687	5003.3
340.605	0.871	4403.9	358.631	0.2973	4129.3	369.292	0.3687	5003.3
340.598	0.8945	4646.5	358.636	0.3078	4193.6	369.347	0.3832	5096.6
340.594	0.9118	4865.4	358.652	0.3263	4301.3	369.361	0.3994	5194.2
340.571	0.9246	5053.0	358.628	0.3412	4379.2	369.449	0.4206	5320.5

Table 42b. Vibrating-tube compressed-liquid-density measurements for HFC-125 (PI units)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
36.336	82.155	230.62	153.367	58.401	759.29	185.887	24.284	667.1
36.325	82.367	292.95	153.415	59.157	793.02	185.887	24.284	667.1
36.072	82.854	436.06	153.406	59.781	822.73	185.864	25.908	681.78
36.063	83.285	579.61	153.369	60.374	852.72	185.886	27.805	697.63
35.992	83.691	719.23	153.228	61.523	917.91	185.893	29.61	711.29
36.003	84.178	901.12	158.328	18.142	513.84	185.904	31.589	726.0
51.469	79.564	233.13	158.338	19.94	528.74	185.92	33.592	740.45
51.49	79.802	292.96	158.383	22.68	543.54	185.934	35.584	755.37
51.503	80.364	438.67	158.38	29.641	558.54	185.884	37.001	766.5
51.525	80.894	588.42	158.374	39.904	572.94	185.945	38.774	782.32
51.53	81.387	735.34	158.355	45.26	591.94	185.981	41.777	812.76
51.535	81.918	904.82	158.398	49.899	630.3	185.986	44.087	841.36
68.589	76.268	230.15	158.353	52.246	662.82	185.945	47.739	901.0
68.592	76.63	298.01	158.351	55.455	735.46	195.219	17.642	610.07
68.598	77.311	435.87	158.355	57.509	805.22	195.181	18.416	623.1
68.599	77.991	585.23	158.374	59.219	882.32	195.193	19.228	636.37
68.601	78.616	735.85	167.491	16.131	515.1	195.22	20.32	653.16
68.598	79.284	908.85	167.466	17.068	527.73	195.24	21.357	667.86
86.293	72.329	234.41	167.5	18.31	542.5	195.355	22.412	682.23
86.311	72.785	293.93	167.472	19.964	559.05	194.187	23.866	696.05
86.317	73.815	442.8	167.506	21.506	572.35	194.189	25.152	710.42
86.325	74.664	583.28	167.536	23.585	586.21	194.212	26.519	725.01
86.324	75.469	732.38	167.529	27.231	602.2	194.243	27.862	738.56
86.365	76.324	911.27	167.545	31.701	616.64	194.475	29.272	753.66
105.422	68.365	362.07	167.536	36.264	630.65	194.945	30.833	770.27
105.411	69.258	443.41	167.653	43.169	664.45	194.751	32.525	785.47
105.408	70.556	586.56	167.524	47.832	705.41	194.821	33.755	797.45
105.404	71.611	725.36	167.666	49.768	733.38	194.936	35.347	813.84
105.413	72.81	908.4	167.52	51.815	769.12	194.92	37.956	841.06
123.301	62.846	407.73	167.661	53.22	803.89	194.909	39.373	857.33
123.3	63.539	440.8	167.529	54.799	847.76	194.954	40.397	870.28
123.301	65.762	582.54	167.659	56.017	892.0	194.95	41.546	885.53
123.309	67.466	729.15	176.716	16.818	548.53	194.945	43.032	907.17
123.3	69.039	901.0	176.756	18.085	566.39	204.724	17.917	639.78
141.388	55.292	491.61	176.747	19.165	580.05	204.771	18.672	653.99
141.384	59.294	593.03	176.776	20.52	595.51	204.771	19.421	667.22
141.366	62.284	734.44	176.814	22.0	610.42	203.461	28.061	784.71
141.379	64.582	896.91	176.796	23.673	624.68	203.572	29.198	798.55
150.636	51.06	553.51	176.718	25.833	639.83	203.747	30.352	812.82
150.66	53.8	589.91	176.202	28.586	653.16	203.599	31.77	827.57
150.642	56.797	659.59	176.202	31.339	667.09	203.277	33.099	841.87
150.622	58.932	735.24	176.212	33.867	679.5	203.515	34.192	855.72
150.633	60.374	802.86	176.185	37.039	696.2	203.675	34.86	865.32
150.642	61.941	894.68	176.189	39.43	711.19	203.675	34.86	865.32
153.228	21.456	515.83	176.207	41.477	726.39	203.77	36.208	882.71
153.237	29.722	528.69	176.23	42.632	736.11	203.785	37.756	903.14
153.219	40.272	535.12	176.068	46.19	772.89	204.868	20.283	682.27
153.228	48.176	559.28	176.238	48.288	804.73	204.841	21.126	695.98
153.246	51.64	591.54	176.025	50.667	848.46	204.876	22.274	713.75

Table 42b. Vibrating-tube compressed-liquid-density measurements for HFC-125 (PI units) (continued)

T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia	T/F	ρ/lb/ft^3	P/psia
153.266	52.621	605.13	176.239	52.371	893.69	205.056	23.017	725.67
153.419	54.375	638.73	185.866	18.56	598.9	205.056	23.017	725.67
153.406	55.842	673.92	185.875	19.215	608.23	205.155	23.922	739.2
153.399	56.922	705.67	185.904	20.37	623.85	205.18	24.934	753.36
153.358	57.721	732.88	185.86	21.3	635.15	205.338	26.257	771.67

Table 43a. Liquid PVT Data (Isochoric Apparatus) for HFC-125 1/2

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
174.001	1.572130	14.06755
176.000	3.186809	14.05714
178.000	6.011646	14.02831
180.001	9.259311	14.02319
182.000	12.535940	14.01906
184.000	15.826000	14.01535
186.001	19.108860	14.01189
188.001	22.384900	14.00860
190.002	25.655180	14.00543
192.000	28.904070	14.00235
194.001	32.147290	13.99934
185.999	2.588665	13.76738
188.000	3.931049	13.73748
190.000	6.785781	13.73083
192.001	9.737449	13.72635
194.000	12.702930	13.72255
196.000	15.672670	13.71909
198.000	18.642740	13.71583
200.000	21.605980	13.71272
202.000	24.559160	13.70971
204.001	27.505050	13.70678
205.999	30.429050	13.70392
208.000	33.352820	13.70110
202.000	1.547702	13.31587
204.000	3.168674	13.30579
206.001	5.107316	13.27811
208.001	7.612479	13.27329
210.000	10.149190	13.26946
212.000	12.695070	13.26605
214.000	15.243050	13.26290
216.000	17.786270	13.25991
217.999	20.321700	13.25704
219.999	22.850930	13.25425
221.999	25.373530	13.25151
223.998	27.893440	13.24884
226.000	30.405660	13.24621
228.000	32.905790	13.24361
230.001	35.396040	13.24104
220.000	3.584159	12.85812
223.999	7.887842	12.84761
228.000	12.303330	12.84102
232.000	16.710760	12.83531
236.000	21.108060	12.82999
240.000	25.487380	12.82490
244.001	29.846050	12.81996
248.000	34.172920	12.81513

Table 43a. Liquid PVT Data (Isochoric Apparatus) for HFC-125 2/2

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
244.001	3.150607	12.14012
248.001	6.081187	12.10937
252.001	9.523219	12.10297
256.002	12.978420	12.09757
260.000	16.431190	12.09262
263.998	19.871730	12.08789
267.998	23.300320	12.08333
271.998	26.721690	12.07887
275.999	30.125850	12.07448
279.999	33.511270	12.07019
276.001	2.664308	11.01663
279.999	4.587385	10.98439
284.001	6.952455	10.97823
288.001	9.330561	10.97328
292.001	11.714370	10.96880
296.001	14.099870	10.96456
300.002	16.483800	10.96048
304.002	18.866340	10.95650
308.002	21.235980	10.95259
311.999	23.607610	10.94874
316.001	25.974380	10.94491
320.001	28.340110	10.94111
323.998	30.694960	10.93735
327.999	33.033720	10.93371
332.001	35.372100	10.93014
310.000	2.472744	9.38809
313.999	3.683955	9.35782
318.000	5.050635	9.35231
322.001	6.431671	9.34799
326.001	7.823143	9.34414
330.000	9.220093	9.34053
334.002	10.622020	9.33708
338.000	12.025280	9.33402
342.001	13.435840	9.33090
350.002	16.261530	9.32441
358.000	19.091220	9.31801
366.000	21.921170	9.31168
374.001	24.747190	9.30537
382.000	27.567680	9.29906
389.998	30.378470	9.29274
398.001	33.180550	9.28639

Table 43b. Liquid PVT Data (Isochoric Apparatus) for HFC-125 1/2

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-146.47	228.019	105.404
-142.87	462.208	105.326
-139.27	871.917	105.110
-135.67	1342.952	105.072
-132.07	1818.188	105.041
-128.47	2295.371	105.013
-124.87	2771.511	104.987
-121.27	3246.661	104.963
-117.67	3720.976	104.939
-114.07	4192.188	104.916
-110.47	4662.578	104.893
-124.87	375.455	103.155
-121.27	570.151	102.931
-117.67	984.196	102.881
-114.07	1412.300	102.848
-110.47	1842.407	102.819
-106.87	2273.133	102.793
-103.27	2703.906	102.769
-99.67	3133.688	102.746
-96.07	3562.011	102.723
-92.47	3989.277	102.701
-88.87	4413.368	102.680
-85.27	4837.426	102.659
-96.07	224.476	99.772
-92.47	459.578	99.697
-88.87	740.755	99.489
-85.27	1104.099	99.453
-81.67	1472.018	99.424
-78.07	1841.267	99.399
-74.47	2210.821	99.375
-70.87	2579.685	99.353
-67.27	2947.419	99.331
-63.67	3314.253	99.310
-60.07	3680.126	99.290
-56.47	4045.609	99.270
-52.87	4409.976	99.250
-49.27	4772.590	99.231
-45.67	5133.771	99.212
-63.67	519.839	96.342
-56.47	1144.037	96.264
-49.27	1784.450	96.214
-42.07	2423.695	96.171
-34.87	3061.471	96.132
-27.67	3696.638	96.093
-20.47	4328.811	96.056
-13.27	4956.372	96.020

Table 43b. Liquid PVT Data (Isochoric Apparatus) for HFC-125 2/2

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-20.47	456.958	90.963
-13.27	882.003	90.732
-6.07	1381.229	90.684
1.13	1882.364	90.644
8.33	2383.147	90.607
15.53	2882.156	90.571
22.73	3379.432	90.537
29.93	3875.660	90.504
37.13	4369.393	90.471
44.33	4860.407	90.439
37.13	386.426	82.545
44.33	665.345	82.303
51.53	1008.370	82.257
58.73	1353.286	82.220
65.93	1699.029	82.186
73.13	2045.017	82.154
80.33	2390.777	82.124
87.53	2736.336	82.094
94.73	3080.024	82.065
101.93	3424.000	82.036
109.13	3767.272	82.007
116.33	4110.393	81.979
123.53	4451.935	81.951
130.73	4791.144	81.923
137.93	5130.298	81.897
98.33	358.642	70.342
105.53	534.313	70.116
112.73	732.534	70.074
119.93	932.837	70.042
127.13	1134.653	70.013
134.33	1337.264	69.986
141.53	1540.596	69.960
148.73	1744.122	69.937
155.93	1948.707	69.914
170.33	2358.540	69.865
184.73	2768.952	69.817
199.13	3179.403	69.770
213.53	3589.283	69.723
227.93	3998.361	69.675
242.33	4406.032	69.628
256.73	4812.440	69.580

Table 44a. Vapor pressures of HFC-125 (NIST Burnett apparatus + ebulliometer) (SI units).

T/K	P/kPa	T/K	P/kPa
335.160	3313.62	236.643	173.31
334.123	3239.42	235.033	161.44
333.115	3168.90	233.989	154.13
328.135	2839.13	233.825	153.00
325.628	2683.69	231.835	139.80
323.174	2538.45	230.070	128.86
323.145	2536.91	229.270	124.12
320.648	2395.80	228.491	119.64
318.146	2260.39	227.495	114.12
315.630	2130.71	227.055	111.73
313.140	2007.77	226.371	108.10
310.666	1891.36	226.442	108.48
308.122	1776.56	226.262	107.54
305.674	1671.79	224.984	101.08
303.154	1568.42	224.053	96.539
300.656	1471.03	223.343	93.183
298.126	1376.81	222.736	90.391
295.665	1289.87	222.855	90.931
293.161	1205.31	222.257	88.238
290.681	1126.10	221.575	85.240
288.117	1048.11	221.185	83.567
285.630	976.663	220.916	82.419
283.148	908.576	220.553	80.907
280.658	844.462	220.381	80.182
278.139	782.615	220.174	79.326
275.647	725.350	220.0	78.623
273.130	670.185	219.978	78.519
246.589	262.041	219.444	76.384
246.052	256.519	219.175	75.321
245.662	252.551	218.762	73.712
245.18	247.709		
244.317	239.246		
242.532	222.428		
240.801	207.015		
239.292	194.249		
238.261	185.870		
237.774	182.005		

Table 44b. Vapor pressures of HFC-125 (NIST Burnett apparatus + ebulliometer) (PI units).

T/F	P/psia	T/F	P/psia
143.619	480.600	-33.712	25.137
141.751	469.838	-36.610	23.415
139.937	459.609	-38.489	22.355
130.974	411.780	-38.785	22.191
126.461	389.237	-42.367	20.276
122.043	368.171	-45.544	18.690
121.991	367.948	-46.984	18.002
117.497	347.481	-48.386	17.352
112.993	327.842	-50.179	16.552
108.464	309.033	-50.971	16.205
103.983	291.202	-52.202	15.679
99.529	274.318	-52.074	15.734
94.949	257.668	-52.398	15.597
90.544	242.473	-54.698	14.661
86.008	227.480	-56.374	14.001
81.511	213.355	-57.652	13.515
76.958	199.690	-58.745	13.110
72.527	187.080	-58.531	13.188
68.019	174.815	-59.607	12.797
63.557	163.328	-60.835	12.363
58.941	152.016	-61.537	12.120
54.463	141.653	-62.021	11.953
49.997	131.777	-62.674	11.734
45.514	122.478	-62.984	11.629
40.981	113.508	-63.356	11.505
36.495	105.203	-63.670	11.403
31.964	97.202	-63.709	11.388
-15.809	38.005	-64.670	11.078
-16.776	37.205	-65.155	10.924
-17.478	36.629	-65.898	10.691
-18.346	35.927		
-19.899	34.699		
-23.112	32.260		
-26.228	30.025		
-28.944	28.173		
-30.800	26.958		
-31.676	26.397		

Table 45a. Vapor Pressures (Static Method) for HFC-125

Temperature K	Pressure MPa
175.00	0.0038267
180.00	0.0057581
185.00	0.0085389
190.00	0.0124842
195.00	0.0176219
200.00	0.0246727
205.00	0.0338212
210.00	0.0454994
215.00	0.0602158
215.00	0.0601804
220.00	0.0785527
225.00	0.1010906
226.00	0.1061137
227.00	0.1113069
220.00	0.0786538
224.00	0.0962118
225.00	0.1009778
226.00	0.1061138
227.00	0.1112603
220.00	0.0787120
224.00	0.0962743
225.00	0.1010465
226.00	0.1061720
227.00	0.1113240
230.00	0.1283306
235.00	0.1611207
240.00	0.2000651
245.00	0.2457774
250.00	0.2991071
250.00	0.2990033
255.00	0.3609777
260.00	0.4321179
265.00	0.5130656
270.00	0.6053216
275.00	0.7096039
280.00	0.8268395
285.00	0.9577343
290.00	1.1034699
295.00	1.2652707
300.00	1.4435247
305.00	1.6409153
310.00	1.8581738
315.00	2.0959887
320.00	2.3559976
325.00	2.6430217
330.00	2.9561105
335.00	3.2975511

Table 45b. Vapor Pressures (Static Method) for HFC-125

Temperature °F	Pressure psia
-144.67	0.55501
-135.67	0.83514
-126.67	1.23847
-117.67	1.81069
-108.67	2.55584
-99.67	3.57847
-90.67	4.90535
-81.67	6.59913
-72.67	8.73357
-72.67	8.72843
-63.67	11.39311
-54.67	14.66196
-52.87	15.39048
-51.07	16.14371
-63.67	11.40778
-56.47	13.95434
-54.67	14.64559
-52.87	15.39051
-51.07	16.13694
-63.67	11.41621
-56.47	13.96340
-54.67	14.65556
-52.87	15.39894
-51.07	16.14619
-45.67	18.61278
-36.67	23.36858
-27.67	29.01700
-18.67	35.64700
-9.67	43.38182
-9.67	43.36675
-0.67	52.35539
8.33	62.67339
17.33	74.41387
26.33	87.79448
35.33	102.91934
44.33	119.92293
53.33	138.90761
62.33	160.04477
71.33	183.51200
80.33	209.36556
89.33	237.99464
98.33	269.50532
107.33	303.99745
116.33	341.70855
125.33	383.33789
134.33	428.74757
143.33	478.26934

Table 46. Speed of Sound in HFC-125/CFC-115

(Mole Fraction HFC-125 = 0.99850, Mole Fraction CFC-115 = 0.00150 +/- 0.000075)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
240.007	-27.657	164.738	23.893	129.9841	426.4570	57.4
		155.341	22.530	130.3539	427.6703	72.8
		147.355	21.372	130.6612	428.6785	46.3
		133.645	19.384	131.1830	430.3904	68.8
		118.894	17.244	131.7378	432.2106	21.4
		104.137	15.104	132.2778	433.9823	48.2
		101.132	14.668	132.3896	434.3491	44.1
		98.212	14.244	132.4972	434.7021	49.9
		95.373	13.833	132.6016	435.0446	41.2
		92.631	13.435	132.7023	435.3750	45.7
		92.620	13.433	132.6993	435.3651	59.9
		86.480	12.543	132.9213	436.0935	32.7
		86.196	12.502	132.9330	436.1319	31.5
		86.026	12.477	132.9339	436.1348	38.3
		85.924	12.462	132.9404	436.1562	49.7
		85.861	12.453	132.9433	436.1657	63.6
		82.017	11.896	133.0813	436.6184	58.4
		70.758	10.263	133.4821	437.9334	33.6
		64.299	9.326	133.7143	438.6952	43.5
		53.120	7.704	134.1130	440.0033	41.4
		39.816	5.775	134.5672	441.4934	26.4
260.023	8.371	162.905	23.627	136.5707	448.0666	47.7
		154.233	22.370	136.8219	448.8907	52.2
		145.994	21.175	137.0625	449.6801	44.7
		138.172	20.040	137.2884	450.4213	44.9
		125.681	18.228	137.6465	451.5961	52.4
		118.900	17.245	137.8388	452.2271	42.9
		107.522	15.595	138.1589	453.2773	40.9
		97.648	14.163	138.4388	454.1955	41.0
		88.656	12.858	138.6899	455.0193	42.2
		80.111	11.619	138.9311	455.8107	54.1
		80.102	11.618	138.9308	455.8097	37.0
		68.440	9.926	139.2506	456.8589	36.8
		61.806	8.964	139.4352	457.4645	35.2
		50.379	7.307	139.7521	458.5043	79.1
		38.853	5.635	140.0576	459.5066	51.0

Table 46. Speed of Sound in HFC-125/CFC-115 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
279.988	44.308	659.333	95.628	129.4841	424.8166	92.4
		614.809	89.170	130.8155	429.1847	86.7
		549.469	79.694	132.6964	435.3556	78.5
		485.542	70.422	134.4609	441.1447	71.5
		422.837	61.327	136.1270	446.6109	66.9
		358.699	52.025	137.7722	452.0085	64.1
		294.764	42.752	139.3577	457.2103	61.0
		231.099	33.518	140.8860	462.2244	55.8
		166.746	24.184	142.3859	467.1453	51.6
		114.415	16.594	143.5739	471.0430	49.9
		114.409	16.594	143.5755	471.0482	42.1
		102.872	14.920	143.8318	471.8891	49.8
		87.213	12.649	144.1832	473.0420	27.1
		78.424	11.374	144.3783	473.6821	38.2
		78.420	11.374	144.3763	473.6755	46.0
		70.472	10.221	144.5548	474.2611	46.3
		59.639	8.650	144.7897	475.0318	37.7
		50.526	7.328	144.9861	475.6762	36.8
		38.550	5.591	145.2484	476.5367	39.8
300.003	80.335	999.087	144.905	129.8952	426.1654	157.6
		910.396	132.042	132.1476	433.5551	150.0
		823.948	119.504	134.2462	440.4403	102.8
		718.298	104.180	136.6915	448.4629	92.8
		613.670	89.005	139.0036	456.0486	81.7
		513.115	74.421	141.1333	463.0358	75.8
		408.108	59.191	143.2722	470.0532	71.6
		307.469	44.595	145.2472	476.5328	65.5
		204.506	29.661	147.2006	482.9416	56.4
		102.551	14.874	149.0744	489.0892	45.5
		102.553	14.874	149.0746	489.0899	46.8
		86.100	12.488	149.3703	490.0600	46.0
		76.937	11.159	149.5376	490.6089	44.5
		64.636	9.375	149.7584	491.3333	43.4
		51.711	7.500	149.9851	492.0771	38.7

Table 46. Speed of Sound in HFC-125/CFC-115 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
319.988	116.308	1023.022	148.377	138.7143	455.0994	178.7
		840.164	121.855	142.0787	466.1375	86.0
		840.056	121.840	142.0814	466.1463	132.8
		778.982	112.982	143.1592	469.6824	86.4
		778.692	112.940	143.1639	469.6978	88.3
		778.573	112.922	143.1675	469.7096	89.2
		692.805	100.483	144.6548	474.5892	82.0
		606.223	87.925	146.1150	479.3799	78.8
		521.142	75.585	147.5263	484.0102	78.1
		435.923	63.225	148.9051	488.5338	69.8
		348.595	50.559	150.2939	493.0902	53.1
		264.250	38.326	151.6026	497.3839	55.9
		178.362	25.869	152.9118	501.6791	52.4
		103.268	14.978	154.0384	505.3753	41.7
		99.928	14.493	154.0900	505.5446	39.9
		96.191	13.951	154.1459	505.7280	43.0
		92.670	13.441	154.1994	505.9036	47.3
		89.284	12.950	154.2438	506.0492	52.7
		89.286	12.950	154.2475	506.0613	59.7
		65.168	9.452	154.6063	507.2385	50.5
		40.224	5.834	154.9700	508.4318	53.7
340.003	152.335	1006.522	145.984	146.8144	481.6746	108.4
		911.577	132.213	148.1678	486.1148	92.2
		810.912	117.613	149.5761	490.7352	83.0
		720.791	104.542	150.8154	494.8012	80.0
		506.620	73.479	153.6838	504.2120	66.0
		405.167	58.764	155.0068	508.5525	57.9
		305.879	44.364	156.2808	512.7323	54.4
		201.865	29.278	157.5952	517.0446	50.7
		173.768	25.203	157.9451	518.1926	47.6
		136.717	19.829	158.4074	519.7093	45.0
		77.987	11.311	159.1366	522.1017	43.1
		59.946	8.694	159.3592	522.8320	50.7

Table 46. Speed of Sound in HFC-125/CFC-115 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
359.958	188.254	1002.010	145.329	153.6674	504.1581	99.0
		911.464	132.197	154.6952	507.5302	97.0
		802.369	116.374	155.9167	511.5378	87.8
		707.538	102.620	156.9693	514.9911	78.9
		615.983	89.341	157.9724	518.2822	69.9
		500.468	72.587	159.2245	522.3901	67.1
		411.293	59.653	160.1808	525.5276	62.1
		306.302	44.425	161.2932	529.1772	57.4
		203.795	29.558	162.3707	532.7123	56.8
		102.643	14.887	163.4221	536.1617	48.2
		102.651	14.888	163.4234	536.1660	45.3
		93.791	13.603	163.5169	536.4728	39.2
		83.275	12.078	163.6240	536.8241	40.0
		72.534	10.520	163.7383	537.1992	36.3
		61.698	8.949	163.8479	537.5587	47.5
		51.568	7.479	163.9537	537.9059	36.0
		42.753	6.201	164.0431	538.1992	24.2
379.983	224.299	999.315	144.938	159.8448	524.4252	95.8
		922.664	133.821	160.5522	526.7461	94.0
		821.681	119.175	161.4733	529.7680	85.6
		717.610	104.080	162.4188	532.8701	82.4
		613.968	89.049	163.3534	535.9363	79.3
		513.912	74.537	164.2508	538.8806	69.0
		411.334	59.659	165.1641	541.8770	58.6
		307.715	44.630	166.0766	544.8707	61.3
		205.322	29.779	166.9781	547.8284	42.9
		130.146	18.876	167.6355	549.9852	40.1
		130.129	18.874	167.6376	549.9921	41.7
		120.762	17.515	167.7181	550.2562	49.3
		112.064	16.254	167.7942	550.5059	42.8
		98.226	14.246	167.9107	550.8881	50.0
		91.150	13.220	167.9732	551.0932	42.9
		79.972	11.599	168.0709	551.4138	34.9
		70.158	10.176	168.1574	551.6975	32.8
		60.105	8.717	168.2377	551.9609	37.8
		48.982	7.104	168.3309	552.2667	26.0
		39.289	5.698	168.4172	552.5499	54.6

Table 46. Speed of Sound in HFC-125/CFC-115 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10^6*du/u
400.000	260.330	1016.426	147.420	165.3693	542.5502	67.9
		935.971	135.751	165.9991	544.6165	46.2
		826.676	119.899	166.8218	547.3156	39.8
		725.010	105.154	167.5817	549.8087	47.4
		625.623	90.739	168.3246	552.2461	58.8
		519.173	75.300	169.1190	554.8524	43.5
		415.180	60.217	169.8898	557.3812	50.5
		312.057	45.260	170.6565	559.8966	37.7
		207.025	30.026	171.4334	562.4455	31.7

Table 47. Ideal-Gas Heat Capacity, C_p^0, of HFC-125

T/K	deg F	C_p^0/R	$sigC_p^0/R$
240.007	-27.657	9.9700	0.020
260.023	8.371	10.451	0.019
279.988	44.308	10.925	0.013
300.003	80.335	11.390	0.015
319.988	116.308	11.847	0.013
340.003	152.335	12.283	0.016
359.958	188.254	12.706	0.008
379.983	224.299	13.129	0.009

Table 48(a). Acoustic Viral Coefficients for HFC-125 (SI units)

T	10^6 beta	10^9 gamma	10^{12} delta
/K	/(m^3/mol)	/(m^3/mol-Pa)	/(m^3/mol-Pa^2)
240.007	-971.41 +/- 4.12	-0.3713 +/- 0.0186	-
260.023	-811.43 +/- 4.31	-0.1682 +/- 0.0204	-
279.988	-683.77 +/- 2.20	-0.0754 +/- 0.0087	-5.21 +/- 0.97
300.003	-582.40 +/- 1.88	-0.0400 +/- 0.0051	-2.38 +/- 0.39
319.988	-499.66 +/- 1.34	-0.0218 +/- 0.0031	-1.04 +/- 0.20
340.003	-430.70 +/- 1.44	-0.0139 +/- 0.0025	-
359.958	-373.18 +/- 0.76	-0.0072 +/- 0.0005	-
379.983	-323.18 +/- 0.53	-0.0021 +/- 0.0005	-

Table 48(b). Acoustic Viral Coefficients for HFC-125 (PI units)

T	10^6 beta	10^9 gamma	10^{12} delta
/K	/(m^3/mol)	/(m^3/mol-Pa)	/(m^3/mol-Pa^2)
-27.657	-63.524 +/- 0.269	-16.741 +/- 0.839	-
8.371	-53.062 +/- 0.282	-7.584 +/- 0.920	-
44.308	-44.714 +/- 0.144	-3.400 +/- 0.392	-16.200 +/- 3.0
80.335	-38.085 +/- 0.123	-1.803 +/- 0.230	-7.399 +/- 1.2
116.308	-32.674 +/- 0.088	-0.983 +/- 0.140	-3.233 +/- 0.62
152.335	-28.165 +/- 0.094	-0.627 +/- 0.113	-
188.254	-24.403 +/- 0.050	-0.325 +/- 0.022	-
224.299	-21.134 +/- 0.035	-0.095 +/- 0.022	-

Table 49(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1}	K^{-1}
288.4648	10.5874	3.7918	0.7764	73.332	5.3749	442.907	160.204	7.527	98.81
293.8343	10.5799	6.5902	0.7764	73.382	5.3361	441.610	161.307	7.753	99.72
299.2337	10.5724	9.4072	0.7764	73.432	5.3092	441.264	162.038	7.898	100.17
304.5630	10.5649	12.1847	0.7763	73.483	5.2661	439.498	163.129	8.007	101.10
309.9158	10.5574	14.9677	0.7763	73.533	5.2216	437.561	164.351	8.123	102.20
315.2325	10.5500	17.7229	0.7763	73.584	5.2042	437.827	164.854	8.276	102.40
320.5321	10.5425	20.4586	0.7763	73.635	5.1719	436.750	165.785	8.436	103.15
325.8348	10.5351	23.1843	0.7763	73.686	5.1558	436.982	166.161	8.618	103.19
331.0905	10.5278	25.8738	0.7763	73.737	5.1263	436.020	166.900	8.777	103.72
336.3549	10.5203	28.5550	0.7763	73.788	5.0925	434.728	167.879	8.912	104.54
341.6050	10.5129	31.2155	0.7763	73.840	5.0740	434.973	168.337	9.013	104.64
288.8761	10.5868	4.0058	0.7764	73.336	4.2374	349.293	160.857	5.952	99.61
293.1529	10.5809	6.2347	0.7764	73.376	4.2016	347.535	161.841	6.093	100.47
297.4483	10.5749	8.4758	0.7764	73.416	4.1695	346.054	162.955	6.190	101.51
301.7224	10.5689	10.7049	0.7763	73.456	4.2014	349.874	161.580	6.298	99.36
305.9403	10.5630	12.9016	0.7763	73.496	4.1853	349.671	162.105	6.373	99.67
310.1918	10.5571	15.1110	0.7763	73.536	4.1464	347.534	163.503	6.440	101.09
314.4175	10.5511	17.3012	0.7763	73.576	4.1263	346.937	164.237	6.528	101.67
318.6428	10.5452	19.4846	0.7763	73.617	4.1143	346.980	164.761	6.632	101.99
322.8706	10.5393	21.6621	0.7763	73.658	4.0947	346.349	165.171	6.730	102.17
327.0519	10.5385	23.8082	0.7767	73.698	4.0715	345.362	166.230	6.834	103.14
331.2712	10.5275	25.9660	0.7763	73.739	4.0381	343.498	167.369	6.928	104.31
335.4435	10.5216	28.0917	0.7763	73.779	4.0194	342.894	167.970	7.017	104.74
339.6184	10.5157	30.2104	0.7763	73.820	4.0081	343.011	168.725	7.104	105.34

Table 49(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1}	$°F^{-1}$
59.567	79.33	550.0	0.205	4.475	9.675	0.420	0.084	0.0150	0.1968
69.232	79.27	955.8	0.205	4.478	9.605	0.419	0.085	0.0154	0.1986
78.951	79.21	1364.4	0.205	4.481	9.557	0.419	0.085	0.0157	0.1995
88.543	79.16	1767.2	0.205	4.484	9.479	0.417	0.086	0.0159	0.2013
98.178	79.10	2170.9	0.205	4.487	9.399	0.415	0.087	0.0162	0.2035
107.748	79.05	2570.5	0.205	4.490	9.368	0.415	0.087	0.0165	0.2039
117.288	78.99	2967.3	0.205	4.494	9.309	0.414	0.087	0.0168	0.2054
126.833	78.94	3362.6	0.205	4.497	9.280	0.414	0.088	0.0172	0.2055
136.293	78.88	3752.7	0.205	4.500	9.227	0.414	0.088	0.0175	0.2065
145.769	78.82	4141.6	0.205	4.503	9.166	0.412	0.088	0.0177	0.2082
155.219	78.77	4527.4	0.205	4.506	9.133	0.413	0.089	0.0179	0.2084
60.307	79.32	581.0	0.205	4.475	7.627	0.331	0.085	0.0119	0.1984
68.005	79.28	904.3	0.205	4.478	7.563	0.330	0.085	0.0121	0.2001
75.737	79.23	1229.3	0.205	4.480	7.505	0.328	0.086	0.0123	0.2021
83.430	79.19	1552.6	0.205	4.483	7.563	0.332	0.085	0.0125	0.1979
91.023	79.14	1871.2	0.205	4.485	7.534	0.332	0.085	0.0127	0.1985
98.675	79.10	2191.7	0.205	4.487	7.464	0.330	0.086	0.0128	0.2013
106.281	79.06	2509.3	0.205	4.490	7.427	0.329	0.087	0.0130	0.2025
113.887	79.01	2826.0	0.205	4.492	7.406	0.329	0.087	0.0132	0.2031
121.497	78.97	3141.8	0.205	4.495	7.370	0.328	0.087	0.0134	0.2035
129.023	78.96	3453.1	0.206	4.497	7.329	0.328	0.088	0.0136	0.2054
136.618	78.88	3766.1	0.205	4.500	7.269	0.326	0.088	0.0138	0.2077
144.128	78.83	4074.4	0.205	4.502	7.235	0.325	0.089	0.0140	0.2086
151.643	78.79	4381.7	0.205	4.505	7.215	0.325	0.089	0.0141	0.2098

Table 50(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1}	K^{-1}
274.0725	11.1366	3.8317	0.8161	73.285	6.5490	533.193	162.483	12.164	97.47
280.5589	11.1261	7.8191	0.8161	73.351	6.5710	537.956	161.833	13.551	95.92
287.0378	11.1156	11.8615	0.8161	73.419	6.5106	535.873	163.151	13.879	96.93
293.4970	11.1050	15.8752	0.8161	73.487	6.4280	531.831	165.141	13.986	98.80
299.8980	11.0946	19.8149	0.8161	73.554	6.3791	530.467	166.176	14.056	99.53
306.2467	11.0987	23.6876	0.8171	73.621	6.3562	531.166	166.543	14.152	99.32
275.7181	11.1339	4.8303	0.8161	73.301	5.3507	436.253	161.405	10.505	95.90
281.0479	11.1253	8.1235	0.8161	73.356	5.3127	435.122	161.942	10.986	96.01
286.3325	11.1168	11.4215	0.8161	73.411	5.2693	433.453	163.396	11.229	97.29
291.5642	11.1082	14.6779	0.8161	73.466	5.2290	431.963	164.683	11.336	98.40
296.8015	11.0996	17.9139	0.8161	73.521	5.1866	430.252	165.748	11.376	99.26
301.9998	11.0912	21.1005	0.8161	73.576	5.1961	432.801	165.506	11.463	98.54
306.8817	11.0832	24.0734	0.8160	73.628	6.9756	583.204	167.201	15.606	100.20
313.8655	11.0718	28.2995	0.8160	73.703	6.9413	583.377	168.379	15.850	101.06
320.8002	11.0604	32.4633	0.8160	73.777	6.8607	579.473	169.739	16.085	102.16
311.9560	11.0749	27.1470	0.8160	73.682	5.0800	426.350	168.704	11.572	101.61
317.0758	11.0665	30.2318	0.8160	73.737	5.0610	426.346	169.722	11.737	102.44
322.1551	11.0582	33.2717	0.8160	73.792	5.0197	424.377	170.500	11.859	102.98

Table 50(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1}	$°F^{-1}$
33.660	83.44	555.7	0.216	4.472	11.788	0.506	0.086	0.0242	0.1941
45.336	83.36	1134.1	0.216	4.476	11.828	0.510	0.085	0.0270	0.1910
56.998	83.28	1720.4	0.216	4.480	11.719	0.508	0.086	0.0276	0.1930
68.625	83.21	2302.5	0.216	4.484	11.570	0.504	0.087	0.0279	0.1968
80.146	83.13	2873.9	0.216	4.489	11.482	0.503	0.088	0.0280	0.1982
91.574	83.16	3435.6	0.216	4.493	11.441	0.504	0.088	0.0282	0.1978
36.623	83.42	700.6	0.216	4.473	9.631	0.414	0.085	0.0209	0.1910
46.216	83.36	1178.2	0.216	4.476	9.563	0.413	0.085	0.0219	0.1912
55.728	83.29	1656.6	0.216	4.480	9.485	0.411	0.086	0.0224	0.1937
65.146	83.23	2128.9	0.216	4.483	9.412	0.410	0.087	0.0226	0.1960
74.573	83.16	2598.2	0.216	4.487	9.336	0.408	0.087	0.0227	0.1977
83.930	83.10	3060.4	0.216	4.490	9.353	0.410	0.087	0.0228	0.1962
92.717	83.04	3491.6	0.216	4.493	12.556	0.553	0.088	0.0311	0.1995
105.288	82.96	4104.5	0.216	4.498	12.494	0.553	0.089	0.0316	0.2013
117.770	82.87	4708.4	0.216	4.502	12.349	0.550	0.089	0.0320	0.2034
101.851	82.98	3937.3	0.216	4.496	9.144	0.404	0.089	0.0230	0.2023
111.066	82.92	4384.8	0.216	4.500	9.110	0.404	0.089	0.0234	0.2040
120.209	82.85	4825.7	0.216	4.503	9.035	0.403	0.090	0.0236	0.2051

Table 51(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1}	K^{-1}
252.3975	11.8614	3.6978	0.8684	73.212	4.1437	330.456	165.195	9.506	96.10
256.5229	11.8533	6.8320	0.8684	73.260	4.1992	336.309	162.965	10.886	92.85
260.6610	11.8451	10.0711	0.8684	73.309	4.1712	335.444	164.021	11.216	93.59
264.7836	11.8369	13.3216	0.8683	73.359	4.1510	335.137	164.818	11.372	94.09
268.8769	11.8286	16.5325	0.8683	73.408	4.1305	334.737	165.572	11.423	94.58
272.9449	11.8205	19.6895	0.8683	73.458	4.1025	333.678	166.703	11.432	95.53
276.9962	11.8125	22.7961	0.8683	73.506	4.0765	332.728	167.445	11.457	96.03
281.0191	11.8045	25.8492	0.8683	73.555	4.0526	331.911	168.323	11.538	96.69
285.0159	11.7966	28.8617	0.8683	73.604	4.0254	330.773	169.294	11.682	97.44
288.9984	11.7887	31.8550	0.8683	73.652	4.0044	330.117	170.054	11.919	97.93
257.2973	11.8518	7.4336	0.8684	73.269	6.5418	524.330	163.266	17.177	93.09
263.7876	11.8388	12.5367	0.8683	73.347	6.4747	522.247	164.721	17.652	94.08
270.1849	11.8260	17.5516	0.8683	73.424	6.4240	521.219	165.906	17.756	94.86
276.5500	11.8134	22.4556	0.8683	73.501	6.3775	520.344	167.438	17.887	96.06
282.8579	11.8009	27.2370	0.8683	73.577	6.3259	518.881	168.591	18.171	96.83
289.1170	11.7885	31.9441	0.8683	73.653	6.2597	516.091	170.248	18.752	98.13

Table 51(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1}	$°F^{-1}$
-5.355	88.87	536.3	0.230	4.468	7.459	0.313	0.087	0.0189	0.1914
2.071	88.81	990.9	0.230	4.471	7.559	0.319	0.086	0.0217	0.1849
9.520	88.75	1460.7	0.230	4.474	7.508	0.318	0.086	0.0223	0.1864
16.940	88.69	1932.1	0.230	4.477	7.472	0.318	0.087	0.0226	0.1874
24.308	88.63	2397.8	0.230	4.480	7.435	0.317	0.087	0.0227	0.1883
31.631	88.57	2855.7	0.230	4.483	7.384	0.316	0.088	0.0228	0.1902
38.923	88.51	3306.3	0.230	4.486	7.338	0.316	0.088	0.0228	0.1912
46.164	88.45	3749.1	0.230	4.489	7.295	0.315	0.089	0.0230	0.1925
53.359	88.39	4186.0	0.230	4.492	7.246	0.314	0.089	0.0233	0.1940
60.527	88.33	4620.2	0.230	4.495	7.208	0.313	0.090	0.0237	0.1950
3.465	88.80	1078.2	0.230	4.471	11.775	0.497	0.086	0.0342	0.1854
15.148	88.70	1818.3	0.230	4.476	11.654	0.495	0.087	0.0352	0.1874
26.663	88.61	2545.6	0.230	4.481	11.563	0.494	0.087	0.0354	0.1889
38.120	88.51	3256.9	0.230	4.485	11.479	0.494	0.088	0.0356	0.1913
49.474	88.42	3950.4	0.230	4.490	11.387	0.492	0.089	0.0362	0.1928
60.741	88.33	4633.1	0.230	4.495	11.267	0.489	0.090	0.0373	0.1954

Table 52(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1} K^{-1}	
235.2133	12.3448	2.2258	0.9029	73.141	4.1209	322.210	166.411	10.702	95.11
239.3367	12.3357	5.8368	0.9029	73.193	4.2047	330.431	162.981	12.876	90.41
243.4903	12.3263	9.6376	0.9029	73.247	4.1808	330.156	163.836	13.303	90.81
247.6190	12.3168	13.4334	0.9028	73.302	4.1537	329.550	164.820	13.438	91.45
251.7217	12.3074	17.1671	0.9028	73.356	4.1252	328.741	165.837	13.445	92.16
255.7968	12.2982	20.8303	0.9028	73.410	4.1019	328.280	166.626	13.440	92.64
259.8476	12.2890	24.4377	0.9028	73.464	4.0829	328.082	167.342	13.507	93.04
263.8819	12.2798	28.0067	0.9028	73.517	4.0465	326.418	168.704	13.667	94.14
267.8878	12.2708	31.5242	0.9028	73.571	4.0195	325.453	169.686	13.987	94.79
237.1897	12.3406	3.9224	0.9029	73.165	4.1420	324.654	165.199	11.549	93.37
241.3141	12.3312	7.6374	0.9029	73.218	4.1939	330.359	163.569	13.143	90.79
245.4515	12.3218	11.4434	0.9028	73.273	4.1470	328.220	164.878	13.362	91.73
249.5678	12.3123	15.2128	0.9028	73.327	4.1264	328.085	165.482	13.422	91.97
253.6415	12.3031	18.8980	0.9028	73.381	4.1109	328.270	166.577	13.459	92.79
257.7222	12.2938	22.5483	0.9028	73.435	4.0847	327.532	167.526	13.478	93.44
261.7641	12.2846	26.1359	0.9028	73.489	4.0620	327.010	168.366	13.589	93.98
265.7769	12.2755	29.6749	0.9028	73.542	4.0338	325.976	168.875	13.794	94.13
269.7666	12.2665	33.1588	0.9028	73.596	4.0177	325.858	170.021	14.220	94.95

Table 52(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-36.286	92.49	322.8	0.239	4.463	7.418	0.306	0.088	0.0213	0.1894
-28.864	92.43	846.6	0.239	4.467	7.568	0.313	0.086	0.0256	0.1800
-21.387	92.36	1397.8	0.239	4.470	7.525	0.313	0.086	0.0265	0.1808
-13.956	92.28	1948.4	0.239	4.473	7.477	0.313	0.087	0.0268	0.1821
-6.571	92.21	2489.9	0.239	4.476	7.425	0.312	0.087	0.0268	0.1835
0.764	92.15	3021.2	0.239	4.480	7.383	0.311	0.088	0.0268	0.1845
8.056	92.08	3544.4	0.239	4.483	7.349	0.311	0.088	0.0269	0.1853
15.317	92.01	4062.0	0.239	4.486	7.284	0.310	0.089	0.0272	0.1875
22.528	91.94	4572.2	0.239	4.490	7.235	0.309	0.089	0.0279	0.1888
-32.729	92.46	568.9	0.239	4.465	7.456	0.308	0.087	0.0230	0.1859
-25.305	92.39	1107.7	0.239	4.468	7.549	0.313	0.086	0.0262	0.1808
-17.857	92.32	1659.7	0.239	4.471	7.465	0.311	0.087	0.0266	0.1827
-10.448	92.25	2206.4	0.239	4.475	7.428	0.311	0.087	0.0267	0.1831
-3.115	92.18	2740.9	0.239	4.478	7.400	0.311	0.088	0.0268	0.1848
4.230	92.11	3270.4	0.239	4.481	7.352	0.311	0.088	0.0268	0.1861
11.505	92.04	3790.7	0.239	4.485	7.312	0.310	0.089	0.0271	0.1872
18.728	91.98	4304.0	0.239	4.488	7.261	0.309	0.089	0.0275	0.1875
25.910	91.91	4809.3	0.239	4.491	7.232	0.309	0.090	0.0283	0.1891

Table 53(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1} K^{-1}	
223.1082	12.7325	3.2683	0.9309	73.113	4.1108	316.308	166.385	12.936	92.93
227.2418	12.7222	7.4228	0.9309	73.170	4.2287	327.236	162.080	15.275	87.37
231.3817	12.7116	11.7316	0.9309	73.229	4.2257	328.800	162.133	15.521	86.91
235.5012	12.7010	16.0222	0.9308	73.288	4.1678	325.998	164.436	15.489	88.91
239.5908	12.6906	20.2170	0.9308	73.347	4.1185	323.757	166.326	15.409	90.49
243.6725	12.6804	24.3252	0.9308	73.405	4.0995	323.805	166.969	15.432	90.76
247.6968	12.6703	28.3208	0.9308	73.462	4.0560	321.827	168.679	15.600	92.13
251.7159	12.6602	32.3026	0.9308	73.520	4.0208	320.421	170.007	15.979	93.06
225.0081	12.7278	5.1465	0.9309	73.139	4.2173	325.367	162.644	14.930	88.30
229.1724	12.7173	9.4246	0.9309	73.197	4.1969	325.619	163.503	15.416	88.63
233.3074	12.7067	13.7426	0.9308	73.257	4.1653	324.902	164.674	15.499	89.39
237.4140	12.6962	17.9941	0.9308	73.316	4.1232	323.272	166.311	15.421	90.70
241.4949	12.6858	22.1425	0.9308	73.374	4.0971	322.802	167.142	15.381	91.17
245.5405	12.6757	26.1843	0.9308	73.431	4.0723	322.342	168.005	15.461	91.66
249.5681	12.6656	30.1723	0.9308	73.489	4.0472	321.785	168.954	15.747	92.21

Table 53(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-58.075	95.40	474.0	0.246	4.462	7.399	0.300	0.088	0.0258	0.1851
-50.635	95.32	1076.6	0.246	4.465	7.612	0.310	0.085	0.0304	0.1740
-43.183	95.24	1701.5	0.246	4.469	7.606	0.312	0.085	0.0309	0.1731
-35.768	95.16	2323.8	0.246	4.472	7.502	0.309	0.087	0.0308	0.1771
-28.407	95.09	2932.2	0.246	4.476	7.413	0.307	0.088	0.0307	0.1802
-21.060	95.01	3528.1	0.246	4.479	7.379	0.307	0.088	0.0307	0.1807
-13.816	94.93	4107.6	0.246	4.483	7.301	0.305	0.089	0.0311	0.1835
-6.581	94.86	4685.1	0.246	4.486	7.237	0.304	0.090	0.0318	0.1853
-54.655	95.36	746.4	0.246	4.463	7.591	0.309	0.086	0.0297	0.1758
-47.160	95.29	1366.9	0.246	4.467	7.554	0.309	0.086	0.0307	0.1765
-39.717	95.21	1993.2	0.246	4.470	7.498	0.308	0.087	0.0309	0.1780
-32.325	95.13	2609.8	0.246	4.474	7.422	0.307	0.088	0.0307	0.1806
-24.979	95.05	3211.5	0.246	4.478	7.375	0.306	0.088	0.0306	0.1816
-17.697	94.97	3797.7	0.246	4.481	7.330	0.306	0.089	0.0308	0.1825
-10.447	94.90	4376.1	0.246	4.485	7.285	0.305	0.089	0.0314	0.1836

Table 54(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1} K^{-1}	
210.5277	13.0820	3.0500	0.9559	73.072	4.1321	312.034	166.325	14.552	91.48
214.6573	13.0708	7.6500	0.9559	73.132	4.2132	320.209	163.022	17.261	86.94
218.8147	13.0591	12.4935	0.9559	73.195	4.1793	319.606	164.377	17.459	87.78
222.9588	13.0474	17.3100	0.9558	73.259	4.1399	318.481	165.867	17.369	88.85
227.0591	13.0360	21.9707	0.9558	73.322	4.1082	317.836	167.054	17.268	89.63
231.1414	13.0247	26.5135	0.9558	73.384	4.0855	317.794	167.862	17.334	90.00
235.1686	13.0136	30.9793	0.9558	73.445	4.0532	316.900	169.089	17.650	90.75
212.1153	13.0778	4.7731	0.9559	73.094	4.2230	319.696	162.877	16.463	87.30
216.2791	13.0663	9.5297	0.9559	73.156	4.2228	321.727	162.772	17.418	86.46
220.4335	13.0545	14.3842	0.9559	73.220	4.1688	319.556	164.767	17.441	88.00
224.5609	13.0429	19.1450	0.9558	73.284	4.1385	319.085	165.810	17.311	88.62
228.6550	13.0366	23.7552	0.9562	73.346	4.1329	320.427	166.463	17.339	88.81
232.7295	13.0204	28.2700	0.9558	73.408	4.1025	319.769	167.573	17.493	89.51

Table 54(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-80.720	98.02	442.4	0.253	4.459	7.438	0.296	0.088	0.0290	0.1822
-73.287	97.93	1109.5	0.253	4.463	7.584	0.304	0.086	0.0344	0.1731
-65.804	97.85	1812.0	0.253	4.467	7.523	0.303	0.087	0.0348	0.1748
-58.344	97.76	2510.6	0.253	4.471	7.452	0.302	0.087	0.0346	0.1769
-50.964	97.67	3186.6	0.253	4.474	7.395	0.301	0.088	0.0344	0.1785
-43.616	97.59	3845.5	0.253	4.478	7.354	0.301	0.088	0.0345	0.1792
-36.367	97.51	4493.2	0.253	4.482	7.296	0.301	0.089	0.0351	0.1807
-77.862	97.99	692.3	0.253	4.460	7.601	0.303	0.086	0.0328	0.1738
-70.368	97.90	1382.2	0.253	4.464	7.601	0.305	0.086	0.0347	0.1722
-62.890	97.81	2086.3	0.253	4.468	7.504	0.303	0.087	0.0347	0.1752
-55.460	97.73	2776.8	0.253	4.472	7.449	0.303	0.087	0.0345	0.1765
-48.091	97.68	3445.4	0.253	4.476	7.439	0.304	0.088	0.0345	0.1769
-40.757	97.56	4100.2	0.253	4.480	7.384	0.303	0.088	0.0348	0.1782

Table 55(a). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J	J K^{-1}	J mol^{-1} K^{-1}	
196.0028	13.5191	5.2271	0.9875	73.048	4.2523	313.206	162.021	18.733	85.07
200.2258	13.5056	10.8882	0.9875	73.118	4.2297	313.936	162.824	19.488	85.12
204.3906	13.4925	16.4177	0.9875	73.187	4.2067	314.487	163.584	19.517	85.31
208.5233	13.4795	21.8243	0.9875	73.256	4.1592	313.069	165.412	19.358	86.63
212.6287	13.4667	27.1043	0.9874	73.324	4.1095	311.350	167.308	19.328	88.01
216.6938	13.4541	32.2433	0.9874	73.392	4.0671	310.052	168.952	19.663	89.06

Table 55(b). Experimental liquid heat capacity data for HFC-125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-106.865	101.29	758.1	0.261	4.458	7.654	0.297	0.085	0.0373	0.1694
-99.264	101.19	1579.2	0.261	4.462	7.613	0.298	0.086	0.0388	0.1695
-91.767	101.09	2381.2	0.261	4.466	7.572	0.298	0.086	0.0389	0.1699
-84.328	101.00	3165.4	0.261	4.470	7.487	0.297	0.087	0.0385	0.1725
-76.938	100.90	3931.2	0.261	4.475	7.397	0.295	0.088	0.0385	0.1753
-69.621	100.81	4676.5	0.261	4.479	7.321	0.294	0.089	0.0392	0.1774

Table 56(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	C_v [2]	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
178.2938	13.8025	0.0050	0.77749	72.9435	6.4299	167.884	124.604	124.520
184.6476	13.6444	0.0084	0.77749	72.9622	6.3696	169.412	125.274	125.157
190.9409	13.4863	0.0135	0.77749	72.9810	6.2842	171.584	126.866	126.713
197.1488	13.3285	0.0207	0.77749	72.9998	6.2026	173.704	128.480	128.288
203.3100	13.1694	0.0308	0.77749	73.0186	6.1373	175.418	129.643	129.409
209.3844	13.0099	0.0442	0.77749	73.0374	6.0793	176.850	130.512	130.240
215.4020	12.8486	0.0619	0.77749	73.0561	5.9967	179.207	132.629	132.325
221.3770	12.6849	0.0847	0.77749	73.0749	5.9575	180.407	133.308	132.981
227.2622	12.5196	0.1131	0.77749	73.0937	5.8976	181.867	134.375	134.041
233.1046	12.3511	0.1483	0.77749	73.1124	5.8389	183.548	135.771	135.450
238.8647	12.1800	0.1909	0.77749	73.1311	5.7947	185.197	137.172	136.892
244.6039	12.0040	0.2421	0.77749	73.1499	5.7298	187.112	138.951	138.749
250.2920	11.8235	0.3028	0.77749	73.1687	5.6767	188.745	140.407	140.327
255.9238	11.6381	0.3738	0.77749	73.1876	5.6243	190.358	141.874	141.974
261.5051	11.4469	0.4559	0.77749	73.2065	5.5446	192.312	143.813	144.162
267.0220	11.2498	0.5499	0.77748	73.2254	5.5014	193.629	144.964	145.647
272.4828	11.0456	0.6567	0.77748	73.2443	5.4405	196.388	147.997	149.121
277.9599	10.8303	0.7787	0.77748	73.2635	5.3900	197.547	148.986	150.692

Table 56(b). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	C_v [2]	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-138.741	103.42	0.73	0.206	4.451	11.574	0.088	0.2481	0.2480
-127.304	102.23	1.22	0.206	4.452	11.465	0.089	0.2495	0.2492
-115.976	101.05	1.96	0.206	4.454	11.312	0.090	0.2526	0.2523
-104.802	99.87	3.00	0.206	4.455	11.165	0.092	0.2559	0.2555
-93.712	98.67	4.47	0.206	4.456	11.047	0.092	0.2582	0.2577
-82.778	97.48	6.41	0.206	4.457	10.943	0.093	0.2599	0.2594
-71.946	96.27	8.98	0.206	4.458	10.794	0.094	0.2641	0.2635
-61.191	95.04	12.28	0.206	4.459	10.723	0.095	0.2655	0.2648
-50.598	93.80	16.40	0.206	4.460	10.616	0.096	0.2676	0.2669
-40.082	92.54	21.51	0.206	4.462	10.510	0.097	0.2704	0.2697
-29.714	91.26	27.69	0.206	4.463	10.430	0.098	0.2732	0.2726
-19.383	89.94	35.11	0.206	4.464	10.314	0.099	0.2767	0.2763
-9.144	88.59	43.92	0.206	4.465	10.218	0.099	0.2796	0.2794
0.993	87.20	54.22	0.206	4.466	10.124	0.100	0.2825	0.2827
11.039	85.77	66.12	0.206	4.467	9.980	0.101	0.2864	0.2871
20.970	84.29	79.76	0.206	4.469	9.903	0.102	0.2887	0.2900
30.799	82.76	95.25	0.206	4.470	9.793	0.103	0.2947	0.2970
40.658	81.15	112.94	0.206	4.471	9.702	0.104	0.2967	0.3001

Table 57(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	C_v [2]	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
180.5651	13.7461	0.0061	0.81724	72.9501	5.0246	174.080	125.673	125.601
185.5445	13.6220	0.0090	0.81724	72.9649	4.9883	174.998	125.846	125.755
190.4684	13.4982	0.0130	0.81724	72.9796	4.9451	176.490	126.781	126.670
195.3841	13.3735	0.0184	0.81724	72.9945	4.8825	178.773	128.727	128.596
200.2359	13.2491	0.0253	0.81724	73.0092	4.8602	179.693	129.054	128.905
205.0443	13.1242	0.0342	0.81724	73.0240	4.8177	180.974	129.865	129.699
209.8366	12.9979	0.0454	0.81724	73.0388	4.7909	181.905	130.283	130.103
214.5500	12.8717	0.0591	0.81724	73.0535	4.7407	183.422	131.456	131.268
219.2416	12.7439	0.0759	0.81724	73.0682	4.6912	185.258	133.049	132.862
223.8851	12.6150	0.0960	0.81724	73.0829	4.6760	185.994	133.327	133.149
228.4866	12.4847	0.1199	0.81724	73.0976	4.6160	187.805	134.949	134.794
233.0650	12.3522	0.1481	0.81724	73.1123	4.5736	189.619	136.600	136.483
237.6176	12.2175	0.1810	0.81724	73.1270	4.5435	190.835	137.543	137.484
242.1330	12.0805	0.2189	0.81724	73.1418	4.5288	191.328	137.627	137.648
246.5986	11.9414	0.2622	0.81724	73.1565	4.4765	193.487	139.775	139.901
251.0478	11.7990	0.3117	0.81724	73.1712	4.4515	194.323	140.323	140.588
255.4390	11.6543	0.3672	0.81724	73.1859	4.4080	196.135	142.091	142.530
259.8416	11.5047	0.4301	0.81724	73.2008	4.3762	197.403	143.208	143.868
264.1775	11.3525	0.4998	0.81724	73.2156	4.3613	197.944	143.456	144.386

Table 57(b). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	C_v [2]	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu °F^{-1}	Btu lb^{-1} °F^{-1}	
-134.653	102.99	0.88	0.216	4.452	9.044	0.092	0.2503	0.2501
-125.690	102.06	1.31	0.216	4.453	8.979	0.092	0.2506	0.2504
-116.827	101.14	1.89	0.216	4.454	8.901	0.093	0.2525	0.2523
-107.979	100.20	2.67	0.216	4.454	8.788	0.094	0.2563	0.2561
-99.245	99.27	3.67	0.216	4.455	8.748	0.095	0.2570	0.2567
-90.590	98.33	4.96	0.216	4.456	8.672	0.095	0.2586	0.2583
-81.964	97.39	6.58	0.216	4.457	8.624	0.096	0.2594	0.2591
-73.480	96.44	8.57	0.216	4.458	8.533	0.097	0.2618	0.2614
-65.035	95.49	11.01	0.216	4.459	8.444	0.098	0.2650	0.2646
-56.677	94.52	13.92	0.216	4.460	8.417	0.098	0.2655	0.2652
-48.394	93.54	17.39	0.216	4.461	8.309	0.099	0.2687	0.2684
-40.153	92.55	21.48	0.216	4.462	8.232	0.100	0.2720	0.2718
-31.958	91.54	26.25	0.216	4.463	8.178	0.101	0.2739	0.2738
-23.831	90.51	31.75	0.216	4.463	8.152	0.101	0.2741	0.2741
-15.793	89.47	38.03	0.216	4.464	8.058	0.102	0.2783	0.2786
-7.784	88.41	45.21	0.216	4.465	8.013	0.102	0.2794	0.2800
0.120	87.32	53.26	0.216	4.466	7.934	0.103	0.2830	0.2838
8.045	86.20	62.38	0.216	4.467	7.877	0.104	0.2852	0.2865
15.849	85.06	72.49	0.216	4.468	7.850	0.104	0.2857	0.2875

Table 58(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
183.1585	13.6816	0.0075	0.86950	72.958	5.9720	180.801	125.38	125.33
189.0687	13.5335	0.0118	0.86950	72.975	5.9120	182.503	126.31	126.25
194.9050	13.3858	0.0178	0.86950	72.993	5.8399	184.585	127.75	127.68
200.6980	13.2372	0.0261	0.86950	73.011	5.7788	186.463	129.01	128.94
206.4265	13.0879	0.0372	0.86950	73.028	5.7307	187.853	129.77	129.70
212.0807	12.9380	0.0516	0.86950	73.046	5.6586	189.863	131.30	131.23
217.6838	12.7866	0.0700	0.86950	73.063	5.6284	191.289	132.19	132.15
223.2474	12.6329	0.0930	0.86950	73.081	5.5795	192.833	133.26	133.26
228.7619	12.4768	0.1215	0.86950	73.098	5.5135	194.345	134.33	134.39
234.2143	12.3185	0.1559	0.86950	73.116	5.4561	196.306	135.95	136.09
239.6168	12.1572	0.1971	0.86950	73.134	5.4160	197.774	137.04	137.30
244.9882	11.9920	0.2459	0.86949	73.151	5.3738	199.196	138.10	138.52

Table 58(b). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-129.985	102.51	1.09	0.230	4.452	10.750	0.095	0.2497	0.2496
-119.346	101.40	1.71	0.230	4.453	10.642	0.096	0.2515	0.2514
-108.841	100.29	2.58	0.230	4.454	10.512	0.097	0.2544	0.2543
-98.414	99.18	3.79	0.230	4.455	10.402	0.098	0.2569	0.2568
-88.102	98.06	5.40	0.230	4.456	10.315	0.099	0.2584	0.2583
-77.925	96.94	7.48	0.230	4.458	10.185	0.100	0.2615	0.2613
-67.839	95.80	10.15	0.230	4.459	10.131	0.101	0.2632	0.2632
-57.825	94.65	13.49	0.230	4.460	10.043	0.102	0.2654	0.2654
-47.899	93.48	17.62	0.230	4.461	9.924	0.102	0.2675	0.2676
-38.084	92.30	22.61	0.230	4.462	9.821	0.103	0.2707	0.2710
-28.360	91.09	28.59	0.230	4.463	9.749	0.104	0.2729	0.2734
-18.691	89.85	35.66	0.230	4.464	9.673	0.105	0.2750	0.2758

Table 59(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
175.8792	13.8623	0.0041	0.90400	72.9364	3.7730	183.303	124.664	124.639
179.6211	13.7696	0.0056	0.90400	72.9474	3.7476	184.473	125.275	125.246
183.3434	13.6769	0.0076	0.90400	72.9584	3.7279	185.353	125.596	125.564
187.0326	13.5847	0.0101	0.90400	72.9693	3.7040	186.472	126.212	126.178
190.6978	13.4925	0.0132	0.90400	72.9803	3.6760	187.776	127.059	127.024
194.3437	13.4001	0.0171	0.90400	72.9913	3.6510	188.963	127.802	127.767
197.9625	13.3076	0.0219	0.90400	73.0023	3.6349	189.694	128.064	128.031
201.5545	13.2150	0.0276	0.90400	73.0133	3.6097	190.893	128.867	128.839
205.1270	13.1220	0.0344	0.90400	73.0242	3.5867	192.012	129.599	129.579
208.6716	13.0288	0.0425	0.90400	73.0352	3.5558	193.364	130.609	130.602
212.1979	12.9349	0.0519	0.90400	73.0461	3.5471	194.264	131.137	131.146
215.7057	12.8404	0.0630	0.90400	73.0571	3.5142	195.313	131.845	131.877
219.1862	12.7454	0.0757	0.90400	73.0680	3.5066	196.321	132.524	132.585
222.6555	12.6494	0.0903	0.90400	73.0790	3.4889	197.217	133.092	133.189
226.0944	12.5528	0.1070	0.90400	73.0899	3.4605	198.102	133.664	133.807
229.5116	12.4553	0.1258	0.90400	73.1009	3.4391	199.269	134.561	134.759

Table 59(b). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-143.087	103.86	0.59	0.239	4.451	6.791	0.097	0.2483	0.2482
-136.352	103.17	0.81	0.239	4.452	6.746	0.097	0.2495	0.2494
-129.652	102.48	1.10	0.239	4.452	6.710	0.098	0.2501	0.2500
-123.011	101.78	1.46	0.239	4.453	6.667	0.098	0.2513	0.2513
-116.414	101.09	1.91	0.239	4.454	6.617	0.099	0.2530	0.2530
-109.851	100.40	2.48	0.239	4.454	6.572	0.100	0.2545	0.2544
-103.338	99.71	3.18	0.239	4.455	6.543	0.100	0.2550	0.2550
-96.872	99.01	4.00	0.239	4.456	6.497	0.101	0.2566	0.2566
-90.441	98.32	4.99	0.239	4.456	6.456	0.101	0.2581	0.2580
-84.061	97.62	6.16	0.239	4.457	6.400	0.102	0.2601	0.2601
-77.714	96.92	7.53	0.239	4.458	6.385	0.102	0.2611	0.2612
-71.400	96.21	9.14	0.239	4.458	6.326	0.103	0.2626	0.2626
-65.135	95.50	10.98	0.239	4.459	6.312	0.103	0.2639	0.2640
-58.890	94.78	13.10	0.239	4.460	6.280	0.104	0.2650	0.2652
-52.700	94.05	15.52	0.239	4.460	6.229	0.104	0.2662	0.2665
-46.549	93.32	18.25	0.239	4.461	6.190	0.105	0.2680	0.2684

Table 60(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
176.0157	13.8589	0.0041	0.93202	72.9368	3.7130	186.649	124.483	124.467
179.6961	13.7677	0.0057	0.93202	72.9476	3.6821	187.574	124.825	124.808
183.3471	13.6769	0.0076	0.93201	72.9584	3.6585	188.722	125.435	125.418
186.9696	13.5863	0.0101	0.93201	72.9691	3.6356	190.002	126.216	126.200
190.5771	13.4955	0.0131	0.93201	72.9800	3.6139	191.057	126.780	126.766
194.1524	13.4049	0.0169	0.93201	72.9907	3.5951	191.862	127.100	127.090
197.7048	13.3142	0.0215	0.93201	73.0015	3.5640	193.424	128.255	128.252
201.2357	13.2233	0.0270	0.93201	73.0123	3.5484	194.115	128.495	128.502
204.7404	13.1321	0.0336	0.93201	73.0230	3.5214	195.475	129.472	129.492
208.2300	13.0404	0.0414	0.93201	73.0338	3.5021	196.519	130.128	130.165
211.7007	12.9482	0.0505	0.93201	73.0446	3.4789	197.739	130.987	131.047
215.1432	12.8556	0.0611	0.93201	73.0553	3.4632	198.584	131.461	131.550
180.1131	13.7573	0.0059	0.93202	72.9488	3.6730	188.531	125.779	125.762
183.8288	13.6648	0.0079	0.93201	72.9598	3.6497	189.454	126.141	126.124
187.5018	13.5729	0.0105	0.93201	72.9707	3.6374	189.986	126.114	126.098
191.1682	13.4806	0.0137	0.93201	72.9817	3.6327	190.776	126.387	126.374
194.8005	13.3884	0.0177	0.93201	72.9927	3.5927	192.778	127.987	127.978
198.3545	13.2975	0.0224	0.93201	73.0035	3.5647	193.445	128.184	128.183
201.8726	13.2068	0.0281	0.93201	73.0142	3.5634	193.558	127.808	127.817
205.3871	13.1152	0.0349	0.93201	73.0250	3.5206	195.751	129.681	129.704
208.8727	13.0234	0.0430	0.93201	73.0358	3.5065	196.540	130.066	130.107
212.3306	12.9314	0.0523	0.93201	73.0465	3.4765	197.914	131.095	131.160
215.7546	12.8391	0.0631	0.93201	73.0572	3.4572	199.459	132.325	132.420

Table 60(b). Experimental taro-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-142.842	103.84	0.59	0.247	4.451	6.683	0.098	0.2479	0.2479
-136.217	103.16	0.83	0.247	4.452	6.628	0.099	0.2486	0.2485
-129.645	102.48	1.10	0.247	4.452	6.585	0.099	0.2498	0.2498
-123.125	101.80	1.46	0.247	4.453	6.544	0.100	0.2513	0.2513
-116.631	101.12	1.90	0.247	4.454	6.505	0.101	0.2525	0.2524
-110.196	100.44	2.45	0.247	4.454	6.471	0.101	0.2531	0.2531
-103.801	99.76	3.12	0.247	4.455	6.415	0.102	0.2554	0.2554
-97.446	99.08	3.92	0.247	4.456	6.387	0.102	0.2559	0.2559
-91.137	98.39	4.87	0.247	4.456	6.339	0.103	0.2578	0.2579
-84.856	97.71	6.00	0.247	4.457	6.304	0.104	0.2591	0.2592
-78.609	97.02	7.32	0.247	4.457	6.262	0.104	0.2608	0.2610
-72.412	96.32	8.86	0.247	4.458	6.234	0.105	0.2618	0.2620
-135.466	103.08	0.86	0.247	4.452	6.611	0.099	0.2505	0.2504
-128.778	102.38	1.15	0.247	4.452	6.569	0.100	0.2512	0.2512
-122.167	101.70	1.52	0.247	4.453	6.547	0.100	0.2511	0.2511
-115.567	101.00	1.99	0.247	4.454	6.539	0.101	0.2517	0.2517
-109.029	100.31	2.57	0.247	4.454	6.467	0.102	0.2549	0.2549
-102.632	99.63	3.25	0.247	4.455	6.416	0.102	0.2553	0.2553
-96.299	98.95	4.08	0.247	4.456	6.414	0.102	0.2545	0.2545
-89.973	98.27	5.06	0.247	4.456	6.337	0.103	0.2582	0.2583
-83.699	97.58	6.24	0.247	4.457	6.312	0.104	0.2590	0.2591
-77.475	96.89	7.59	0.247	4.458	6.258	0.104	0.2611	0.2612
-71.312	96.20	9.15	0.247	4.458	6.223	0.105	0.2635	0.2637

Table 61(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
181.6078	13.7202	0.0066	0.95703	72.9532	3.6195	191.207	125.039	125.032
185.1823	13.6310	0.0088	0.95703	72.9638	3.5918	192.006	125.293	125.289
188.7303	13.5420	0.0115	0.95703	72.9744	3.5758	192.872	125.644	125.645
192.2662	13.4528	0.0148	0.95703	72.9850	3.5471	194.470	126.781	126.788
195.7638	13.3639	0.0189	0.95703	72.9956	3.5216	195.776	127.635	127.651
199.2581	13.2743	0.0238	0.95703	73.0062	3.4888	197.504	128.949	128.977
202.7162	13.1849	0.0297	0.95703	73.0168	3.4718	198.376	129.389	129.432

Table 61(b). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-132.776	102.80	0.96	0.253	4.452	6.515	0.101	0.2490	0.2490
-126.342	102.13	1.28	0.253	4.453	6.465	0.101	0.2495	0.2495
-119.955	101.46	1.67	0.253	4.453	6.436	0.102	0.2502	0.2502
-113.591	100.80	2.15	0.253	4.454	6.385	0.102	0.2525	0.2525
-107.295	100.13	2.74	0.253	4.454	6.339	0.103	0.2542	0.2542
-101.005	99.46	3.45	0.253	4.455	6.280	0.104	0.2568	0.2568
-94.781	98.79	4.31	0.253	4.456	6.249	0.105	0.2577	0.2578

Table 62(a). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}	J mol^{-1} K^{-1}	
176.9515	13.8357	0.0045	0.98866	72.9395	3.5375	195.188	125.829	125.831
180.4896	13.7480	0.0060	0.98866	72.9499	3.5354	195.493	125.552	125.558
183.9894	13.6608	0.0080	0.98866	72.9603	3.5122	196.605	126.121	126.131
187.4907	13.5732	0.0105	0.98866	72.9707	3.5063	196.883	125.865	125.883

Table 62(b). Experimental two-phase heat capacity data for HFC-125.

T	ρ_σ	P_σ	N	V_{bomb}	ΔT	$Q/\Delta T$	$C_v^{(2)}$	C_σ
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu $°F^{-1}$	Btu lb^{-1} $°F^{-1}$	
-141.157	103.67	0.65	0.262	4.451	6.367	0.103	0.2506	0.2506
-134.789	103.01	0.87	0.262	4.452	6.364	0.103	0.2500	0.2500
-128.489	102.35	1.16	0.262	4.452	6.322	0.104	0.2512	0.2512
-122.187	101.70	1.52	0.262	4.453	6.311	0.104	0.2506	0.2507

Table 63. Coefficients to the MBWR equation of state for HFC-125 (units are K, bar, L, mol)

$$p = \sum_{n=1}^{9} a_n \rho^n + \exp(-\rho^2/\rho_c^2) \sum_{n=10}^{15} a_n \rho^{2n-17}$$

ρ_c = 4.7650 mol/L

$a_1 = RT$
$a_2 = b_1T + b_2T^{0.5} + b_3 + b_4/T + b_5/T^2$
$a_3 = b_6T + b_7 + b_8/T + b_9/T^2$
$a_4 = b_{10}T + b_{11} + b_{12}/T$
$a_5 = b_{13}$
$a_6 = b_{14}/T + b_{15}/T^2$
$a_7 = b_{16}/T$
$a_8 = b_{17}/T + b_{18}/T^2$
$a_9 = b_{19}/T^2$
$a_{10} = b_{20}/T^2 + b_{21}/T^3$
$a_{11} = b_{22}/T^2 + b_{23}/T^4$
$a_{12} = b_{24}/T^2 + b_{25}/T^3$
$a_{13} = b_{26}/T^2 + b_{27}/T^4$
$a_{14} = b_{28}/T^2 + b_{29}/T^3$
$a_{15} = b_{30}/T^2 + b_{31}/T^3 + b_{32}/T^4$

i	b_i
1	0.695150135527E-01
2	-0.109596263920E+02
3	0.289171467191E+03
4	-0.510408655996E+05
5	0.366753946576E+07
6	0.385350808228E-01
7	-0.370988373715E+02
8	0.134556555861E+05
9	0.371143622964E+07
10	-0.123685768773E-02
11	0.130495983411E+01
12	-0.468463056623E+03
13	0.511361375061E-01
14	-0.204695459886E+02
15	-0.414622181605E+04
16	0.219744136091E+01

Table 63. Coefficients to the MBWR equation of state for HFC-125 (units are K, bar, L, mol) (continued)

17	-0.637258406198E-01
18	0.291220108725E+02
19	-0.102197580663E+01
20	-0.560938443772E+07
21	0.770104599552E+08
22	-0.224544749331E+06
23	0.183452398750E+10
24	-0.292476384933E+04
25	-0.388467529252E+05
26	-0.339743229627E+02
27	-0.544169038319E+06
28	-0.168305711698E+00
29	0.115387298598E+02
30	-0.734893856572E-03
31	-0.329200834300E+00
32	-0.403885226023E+01

Table 64a. Refrigerant 125 (pentafluoroethane) Properties of Saturated Liquid and Saturated Vapor (SI units)

Temp* (°C)	Pressure (MPa)	Density (kg/m**3)	Volume (m**3/kg)	Enthalpy (kJ/kg)		Entropy (kJ/kg.K)		Specific Heat, Cp (kJ/kg.K)		Cp/Cv	Vel of Sound (m/s)	
		liq	vap	liq	vap	liq	vap	liq	vap	vap	liq	vap
-70.00	0.03015	1587.4	0.45917	118.75	294.41	0.6595	1.5241	1.074	0.629	1.131	793.	124.
-65.00	0.04085	1571.7	0.34559	124.16	297.36	0.6857	1.5178	1.086	0.640	1.132	792.	125.
-60.00	0.05443	1555.5	0.26415	129.62	300.30	0.7116	1.5123	1.098	0.651	1.133	785.	126.
-55.00	0.07142	1539.0	0.20475	135.14	303.23	0.7372	1.5077	1.110	0.663	1.135	772.	127.
-50.00	0.09238	1522.0	0.16075	140.73	306.13	0.7624	1.5036	1.122	0.676	1.138	755.	127.
-48.14b	0.10132	1515.6	0.14735	142.82	307.20	0.7717	1.5023	1.126	0.680	1.139	748.	128.
-45.00	0.11793	1504.6	0.12769	146.37	309.00	0.7874	1.5002	1.133	0.689	1.141	735.	128.
-40.00	0.14872	1486.7	0.10252	152.08	311.83	0.8120	1.4972	1.145	0.704	1.145	712.	128.
-35.00	0.18545	1468.3	0.08311	157.84	314.62	0.8364	1.4947	1.157	0.720	1.151	686.	128.
-30.00	0.22883	1449.4	0.06798	163.67	317.36	0.8604	1.4925	1.169	0.737	1.157	659.	129.
-25.00	0.27964	1429.9	0.05606	169.55	320.04	0.8843	1.4907	1.181	0.757	1.165	630.	128.
-20.00	0.33865	1409.8	0.04657	175.50	322.66	0.9078	1.4891	1.194	0.778	1.174	601.	128.
-15.00	0.40668	1389.0	0.03894	181.51	325.22	0.9311	1.4878	1.207	0.801	1.184	571.	128.
-10.00	0.48457	1367.5	0.03276	187.60	327.70	0.9543	1.4867	1.222	0.827	1.196	541.	127.
-5.00	0.57318	1345.2	0.02771	193.76	330.10	0.9772	1.4857	1.239	0.857	1.210	511.	127.
0.00	0.67339	1322.0	0.02355	200.00	332.41	1.0000	1.4848	1.258	0.889	1.227	481.	126.
5.00	0.78611	1298.0	0.02010	206.34	334.64	1.0227	1.4840	1.279	0.926	1.246	452.	124.
10.00	0.91229	1272.8	0.01722	212.78	336.77	1.0453	1.4832	1.304	0.968	1.269	422.	123.
15.00	1.05288	1246.6	0.01479	219.34	338.78	1.0678	1.4824	1.333	1.017	1.297	394.	121.
20.00	1.20891	1218.9	0.01273	226.04	340.66	1.0905	1.4815	1.368	1.074	1.330	365.	119.
25.00	1.38144	1189.7	0.01098	232.90	342.40	1.1132	1.4805	1.411	1.142	1.372	337.	117.
30.00	1.57162	1158.5	0.00946	239.97	343.95	1.1362	1.4792	1.465	1.224	1.425	310.	114.
35.00	1.78070	1125.0	0.00815	247.27	345.27	1.1594	1.4775	1.534	1.329	1.496	282.	111.
40.00	2.01009	1088.5	0.00700	254.87	346.30	1.1832	1.4752	1.626	1.469	1.595	254.	107.
45.00	2.26140	1047.9	0.00598	262.85	346.91	1.2078	1.4720	1.755	1.667	1.743	225.	103.
50.00	2.53654	1001.5	0.00506	271.35	346.93	1.2335	1.4673	1.953	1.978	1.983	196.	98.
55.00	2.83788	946.0	0.00422	280.62	345.99	1.2610	1.4602	2.308	2.549	2.442	165.	93.
60.00	3.16851	873.2	0.00340	291.26	343.26	1.2921	1.4481	3.193	3.990	3.632	131.	87.
65.00	3.53322	740.3	0.00244	306.33	334.61	1.3356	1.4192	11.738	16.831	14.446	90.	79.
66.25c	3.63100	571.9	0.00175	320.46	320.46	1.3726	1.3726	inf	inf	inf	0.	0.

* temperatures are on the IPTS-68 scale; b boiling point; c critical point

Table 64b. Refrigerant 125 (pentafluoroethane) Properties of Saturated Liquid and Saturated Vapor (PI units)

Temp* (°F)	Pressure (psia)	Density (lb/ft**3)	Volume (ft**3/lb)	Enthalpy (BTU/lb)		Entropy (BTU/lb.°F)		Specific Heat, Cp (BTU/lb.°F)		Cp/Cv	Vel of Sound (ft/s)	
		liq	vap	liq	vap	liq	vap	liq	vap	vap	liq	vap
-100.00	3.535	99.74	8.9723	-15.872	60.384	-0.04069	0.17133	0.2548	0.1488	1.1314	2590.	405.
-90.00	5.015	98.67	6.4697	-13.307	61.796	-0.03366	0.16950	0.2579	0.1515	1.1316	2603.	409.
-80.00	6.963	97.56	4.7594	-10.710	63.205	-0.02674	0.16794	0.2611	0.1544	1.1326	2588.	412.
-70.00	9.478	96.42	3.5651	-8.081	64.607	-0.01992	0.16662	0.2643	0.1575	1.1344	2549.	415.
-60.00	12.669	95.25	2.7144	-5.420	65.997	-0.01319	0.16550	0.2674	0.1608	1.1370	2492.	417.
-50.00	16.657	94.05	2.0973	-2.726	67.373	-0.00655	0.16456	0.2706	0.1643	1.1407	2419.	419.
-54.65	14.696	94.61	2.3604	-3.982	66.735	-0.00962	0.16498	0.2691	0.1626	1.1388	2455.	418.
-40.00	21.570	92.81	1.6422	0.000	68.728	0.00000	0.16377	0.2737	0.1682	1.1454	2335.	421.
-30.00	27.546	91.54	1.3014	2.757	70.060	0.00646	0.16310	0.2768	0.1725	1.1513	2241.	421.
-20.00	34.730	90.22	1.0426	5.546	71.365	0.01285	0.16255	0.2800	0.1772	1.1586	2141.	422.
-10.00	43.273	88.85	0.8435	8.367	72.639	0.01915	0.16208	0.2832	0.1825	1.1674	2036.	421.
0.00	53.333	87.44	0.6884	11.223	73.879	0.02539	0.16169	0.2867	0.1883	1.1780	1928.	420.
10.00	65.075	85.97	0.5663	14.114	75.082	0.03155	0.16136	0.2905	0.1949	1.1905	1819.	419.
20.00	78.668	84.45	0.4691	17.044	76.245	0.03766	0.16108	0.2947	0.2023	1.2053	1709.	416.
30.00	94.285	82.86	0.3910	20.016	77.364	0.04373	0.16084	0.2995	0.2107	1.2229	1600.	413.
40.00	112.106	81.20	0.3277	23.037	78.436	0.04975	0.16062	0.3051	0.2203	1.2439	1492.	409.
50.00	132.316	79.46	0.2758	26.113	79.454	0.05575	0.16041	0.3116	0.2315	1.2692	1386.	404.
60.00	155.109	77.63	0.2330	29.252	80.413	0.06175	0.16020	0.3195	0.2445	1.3001	1281.	398.
70.00	180.686	75.70	0.1974	32.468	81.303	0.06776	0.15996	0.3291	0.2600	1.3387	1178.	390.
80.00	209.262	73.64	0.1674	35.774	82.110	0.07381	0.15967	0.3413	0.2790	1.3883	1076.	381.
90.00	241.072	71.41	0.1419	39.192	82.812	0.07994	0.15929	0.3569	0.3030	1.4544	975.	371.
100.00	276.375	68.99	0.1200	42.750	83.378	0.08618	0.15878	0.3780	0.3350	1.5470	874.	358.
110.00	315.470	66.29	0.1010	46.489	83.756	0.09262	0.15803	0.4078	0.3806	1.6863	771.	344.
120.00	358.712	63.20	0.0842	50.477	83.854	0.09934	0.15692	0.4541	0.4528	1.9177	665.	327.
130.00	406.543	59.48	0.0690	54.837	83.497	0.10655	0.15515	0.5388	0.5885	2.3717	554.	307.
140.00	459.554	54.51	0.0544	59.879	82.246	0.11474	0.15204	0.7631	0.9536	3.6324	430.	285.
150.00	518.694	44.16	0.0364	67.652	77.382	0.12721	0.14317	5.1175	7.2154	25.7424	277.	254.
151.25	526.632	35.70	0.0280	72.442	72.442	0.13443	0.13443	inf	inf	inf	0.	0.

* temperatures are on the IPTS-68 scale; b boiling point; c critical point

Table 65a. Liquid PVT Data (Isochoric Apparatus) for HCFC-123 1/3

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
176.002	3.932390	11.45541
178.000	7.843969	11.45294
180.000	11.739300	11.45051
182.000	15.603580	11.44811
184.000	19.436470	11.44575
186.000	23.250830	11.44341
188.001	27.043330	11.44108
190.000	30.799040	11.43877
191.999	34.545520	11.43648
189.999	1.769352	11.23748
191.999	5.297392	11.23513
194.000	8.795440	11.23282
195.999	12.283070	11.23054
198.001	15.750070	11.22828
199.999	19.196620	11.22604
202.000	22.624520	11.22382
204.000	26.034240	11.22161
206.000	29.415060	11.21942
207.999	32.774780	11.21725
206.000	2.124055	11.00750
208.002	5.273329	11.00528
210.001	8.411843	11.00310
212.001	11.535470	11.00093
214.000	14.637850	10.99879
216.000	17.722830	10.99666
218.000	20.796100	10.99455
220.000	23.850750	10.99245
222.000	26.891850	10.99036
224.001	29.917650	10.98828
226.000	32.929010	10.98621
225.000	.434245	10.71264
226.002	1.810371	10.71159
228.001	4.549389	10.70951
230.000	7.273252	10.70746
231.999	9.988414	10.70543
234.000	12.691280	10.70342
236.001	15.380230	10.70141
238.000	18.056130	10.69942
240.001	20.727310	10.69743
241.998	23.377690	10.69545
244.001	26.022690	10.69348
245.999	28.650340	10.69152
248.002	31.271920	10.68956
250.001	33.876820	10.68760

Table 65a. Liquid PVT Data (Isochoric Apparatus) for HCFC-123 2/3

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
249.001	0.840899	10.35754
250.002	2.001339	10.35656
252.000	4.321377	10.35464
254.000	6.631163	10.35273
255.999	8.930861	10.35083
258.000	11.225400	10.34895
259.999	13.508870	10.34707
262.001	15.785470	10.34519
263.999	18.049410	10.34333
266.000	20.311120	10.34146
268.001	22.560400	10.33961
270.000	24.798100	10.33776
272.000	27.035190	10.33590
274.000	29.259860	10.33406
276.001	31.475760	10.33221
278.000	33.681210	10.33037
269.999	2.688618	10.06031
272.000	4.698253	10.05849
274.001	6.704591	10.05669
275.998	8.712440	10.05489
278.002	10.701840	10.05309
280.002	12.696030	10.05131
282.001	14.687050	10.04952
284.001	16.671610	10.04774
286.002	18.649080	10.04597
288.001	20.612280	10.04420
290.002	22.580660	10.04242
291.998	24.538400	10.04065
293.999	26.489790	10.03889
296.000	28.434620	10.03712
298.001	30.368990	10.03535
300.000	32.300790	10.03358
302.001	34.214710	10.03182
298.001	3.166692	9.62839
300.001	4.822544	9.62670
302.000	6.475250	9.62502
303.999	8.125226	9.62334
306.001	9.771155	9.62167
307.998	11.406540	9.62002
310.001	13.050340	9.61832
312.001	14.683990	9.61665
313.999	16.310520	9.61499
316.001	17.932590	9.61332
320.000	21.172570	9.60998
324.000	24.392040	9.60664
328.001	27.589630	9.60332

Table 65a. Liquid PVT Data (Isochoric Apparatus) for HCFC-123 3/3

Temperature K	Pressure MPa	Density $mol \cdot dm^{-3}$
332.001	30.772140	9.59997
336.001	33.932900	9.59662
332.002	2.588553	9.04135
336.000	5.132132	9.03826
340.002	7.654527	9.03533
344.001	10.190930	9.03210
348.000	12.699880	9.02904
352.000	15.210770	9.02609
356.002	17.703940	9.02304
360.000	20.191730	9.01995
364.000	22.681310	9.01684
368.000	25.146830	9.01372
372.001	27.601790	9.01061
376.000	30.049470	9.00747
379.999	32.487460	9.00433

Table 65b. Liquid PVT Data (Isochoric Apparatus) for HCFC-123 1/3

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-142.87	570.346	109.366
-139.27	1137.674	109.343
-135.67	1702.645	109.320
-132.07	2263.112	109.297
-128.47	2819.027	109.274
-124.87	3372.254	109.252
-121.27	3922.310	109.230
-117.67	4467.031	109.208
-114.07	5010.413	109.186
-117.67	256.623	107.286
-114.07	768.323	107.263
-110.47	1275.673	107.241
-106.87	1781.512	107.220
-103.27	2284.359	107.198
-99.67	2784.239	107.177
-96.07	3281.415	107.155
-92.47	3775.954	107.134
-88.87	4266.301	107.113
-85.27	4753.588	107.093
-88.87	308.069	105.090
-85.27	764.833	105.069
-81.67	1220.037	105.048
-78.07	1673.081	105.027
-74.47	2123.044	105.007
-70.87	2570.484	104.987
-67.27	3016.225	104.967
-63.67	3459.265	104.947
-60.07	3900.340	104.927
-56.47	4339.196	104.907
-52.87	4775.958	104.887
-54.67	62.982	102.275
-52.87	262.573	102.265
-49.27	659.834	102.245
-45.67	1054.898	102.226
-42.07	1448.700	102.206
-38.47	1840.718	102.187
-34.87	2230.718	102.168
-31.27	2618.825	102.149
-27.67	3006.247	102.130
-24.07	3390.653	102.111
-20.47	3774.279	102.092
-16.87	4155.388	102.073
-13.27	4535.617	102.055
-9.67	4913.426	102.036

Table 65b. Liquid PVT Data (Isochoric Apparatus) for HCFC-123 2/3

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
-11.47	121.962	98.885
-9.67	290.270	98.876
-6.07	626.764	98.857
-2.47	961.771	98.839
1.13	1295.314	98.821
4.73	1628.110	98.803
8.33	1959.299	98.785
11.93	2289.493	98.767
15.53	2617.850	98.749
19.13	2945.884	98.731
22.73	3272.115	98.714
26.33	3596.667	98.696
29.93	3921.130	98.678
33.53	4243.791	98.661
37.13	4565.181	98.643
40.73	4885.055	98.626
26.33	389.952	96.047
29.93	681.425	96.030
33.53	972.420	96.013
37.13	1263.635	95.995
40.73	1552.173	95.978
44.33	1841.407	95.961
47.93	2130.180	95.944
51.53	2418.017	95.927
55.13	2704.825	95.910
58.73	2989.564	95.893
62.33	3275.054	95.876
65.93	3559.000	95.860
69.53	3842.026	95.843
73.13	4124.100	95.826
76.73	4404.657	95.809
80.33	4684.842	95.792
83.93	4962.433	95.775
76.73	459.291	91.924
80.33	699.452	91.907
83.93	939.157	91.891
87.53	1178.466	91.875
91.13	1417.189	91.859
94.73	1654.382	91.844
98.33	1892.795	91.827
101.93	2129.736	91.812
105.53	2365.645	91.796
109.13	2600.907	91.780
116.33	3070.827	91.748
123.53	3537.773	91.716

Table 65b. Liquid PVT Data (Isochoric Apparatus) for HCFC-123 3/3

Temperature °F	Pressure psia	Density $lb \cdot ft^{-3}$
130.73	4001.545	91.684
137.93	4463.129	91.652
145.13	4921.560	91.620
137.93	375.439	86.319
145.13	744.354	86.290
152.33	1110.197	86.262
159.53	1478.072	86.231
166.73	1841.965	86.202
173.93	2206.140	86.173
181.13	2567.744	86.144
188.33	2928.568	86.115
195.53	3289.652	86.085
202.73	3647.246	86.055
209.93	4003.308	86.026
217.13	4358.315	85.996
224.33	4711.916	85.966

Table 66(a). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
257.8615	0.0034	10.241	0.009	3.163	0.033	103.93	0.64	0.62	a
259.8746	0.0032	10.237	0.010	5.244	0.033	104.12	0.39	0.38	b
261.9246	0.0035	10.232	0.011	7.357	0.033	105.04	0.29	0.28	a
263.9040	0.0033	10.228	0.011	9.390	0.033	105.11	0.25	0.24	b
265.9697	0.0036	10.224	0.012	11.502	0.033	106.26	0.22	0.21	a
267.9195	0.0031	10.220	0.013	13.484	0.033	106.39	0.21	0.19	b
269.9803	0.0034	10.216	0.014	15.565	0.033	106.68	0.20	0.19	a
271.9136	0.0032	10.212	0.014	17.504	0.033	106.51	0.19	0.18	b
273.9567	0.0033	10.208	0.015	19.539	0.033	107.52	0.19	0.17	a
275.8598	0.0032	10.204	0.016	21.420	0.033	107.07	0.18	0.17	b
277.9191	0.0032	10.200	0.017	23.440	0.033	108.29	0.18	0.16	a
279.7909	0.0032	10.196	0.017	25.263	0.033	108.26	0.18	0.16	b
283.6947	0.0032	10.188	0.019	29.024	0.033	109.19	0.17	0.16	b
287.5835	0.0033	10.180	0.020	32.720	0.033	110.20	0.17	0.16	b

Table 66(b). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
4.481	0.006	97.77	0.09	458.8	4.8	0.16243	0.00100	0.62	a
8.104	0.006	97.73	0.10	760.6	4.8	0.16272	0.00061	0.38	b
11.794	0.006	97.69	0.11	1067.0	4.8	0.16416	0.00045	0.28	a
15.357	0.006	97.65	0.11	1361.9	4.8	0.16427	0.00039	0.24	b
19.075	0.006	97.61	0.11	1668.2	4.8	0.16607	0.00034	0.21	a
22.585	0.006	97.57	0.12	1955.7	4.8	0.16627	0.00033	0.19	b
26.295	0.006	97.53	0.13	2257.5	4.8	0.16672	0.00031	0.19	a
29.774	0.006	97.49	0.13	2538.7	4.8	0.16646	0.00030	0.18	b
33.452	0.006	97.46	0.14	2833.9	4.8	0.16804	0.00030	0.17	a
36.878	0.006	97.42	0.15	3106.7	4.8	0.16733	0.00028	0.17	b
40.584	0.006	97.38	0.16	3399.7	4.8	0.16924	0.00028	0.16	a
43.954	0.006	97.34	0.16	3664.1	4.8	0.16919	0.00028	0.16	b
50.980	0.006	97.27	0.18	4209.6	4.8	0.17065	0.00027	0.16	b
57.980	0.006	97.19	0.19	4745.6	4.8	0.17223	0.00027	0.16	b

Table 67(a). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
284.2425	0.0035	9.846	0.009	3.642	0.012	108.44	0.54	0.50	a
286.1803	0.0031	9.843	0.009	5.340	0.012	108.36	0.35	0.33	b
288.2634	0.0037	9.839	0.010	7.157	0.012	109.32	0.28	0.25	a
290.1925	0.0032	9.836	0.011	8.832	0.012	109.06	0.23	0.21	b
292.2663	0.0032	9.832	0.011	10.624	0.012	110.08	0.21	0.19	a
294.1864	0.0032	9.828	0.012	12.275	0.012	109.76	0.19	0.18	b
296.2546	0.0032	9.825	0.013	14.044	0.012	110.48	0.18	0.17	a
298.1617	0.0031	9.821	0.013	15.668	0.012	110.60	0.18	0.16	b
300.2107	0.0032	9.818	0.014	17.404	0.012	111.31	0.17	0.16	a
302.1200	0.0032	9.814	0.014	19.013	0.012	111.02	0.17	0.15	b
304.1621	0.0033	9.810	0.015	20.725	0.012	111.47	0.17	0.15	a
306.0576	0.0031	9.807	0.016	22.306	0.012	111.52	0.16	0.15	b
308.0901	0.0034	9.803	0.016	23.992	0.012	111.57	0.17	0.15	a
309.9691	0.0033	9.800	0.017	25.542	0.012	111.91	0.16	0.15	b
311.9977	0.0033	9.797	0.017	27.206	0.012	112.82	0.16	0.15	a
313.8777	0.0032	9.793	0.018	28.738	0.012	113.25	0.16	0.14	b

Table 67(b). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
51.966	0.006	94.00	0.09	528.2	1.7	0.16947	0.00084	0.50	a
55.455	0.006	93.97	0.09	774.5	1.7	0.16935	0.00055	0.33	b
59.204	0.007	93.93	0.10	1038.0	1.7	0.17085	0.00044	0.25	a
62.676	0.006	93.91	0.11	1281.0	1.7	0.17044	0.00036	0.21	b
66.409	0.006	93.87	0.11	1540.9	1.7	0.17204	0.00033	0.19	a
69.865	0.006	93.83	0.11	1780.3	1.7	0.17154	0.00030	0.18	b
73.588	0.006	93.80	0.12	2036.9	1.7	0.17266	0.00028	0.17	a
77.021	0.006	93.76	0.12	2272.5	1.7	0.17285	0.00028	0.16	b
80.709	0.006	93.73	0.13	2524.2	1.7	0.17396	0.00027	0.16	a
84.146	0.006	93.70	0.13	2757.6	1.7	0.17351	0.00027	0.15	b
87.822	0.006	93.66	0.14	3005.9	1.7	0.17421	0.00027	0.15	a
91.234	0.006	93.63	0.15	3235.2	1.7	0.17429	0.00025	0.15	b
94.892	0.006	93.59	0.15	3479.8	1.7	0.17437	0.00027	0.15	a
98.274	0.006	93.56	0.16	3704.6	1.7	0.17490	0.00025	0.15	b
101.926	0.006	93.53	0.16	3945.9	1.7	0.17632	0.00025	0.15	a
105.310	0.006	93.49	0.17	4168.1	1.7	0.17699	0.00025	0.14	b

Table 68(a). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
313.2597	0.0033	9.375	0.008	3.311	0.010	112.31	0.56	0.50	e
315.3753	0.0034	9.372	0.009	4.819	0.010	112.74	0.36	0.32	f
317.3023	0.0031	9.369	0.009	6.188	0.010	112.95	0.28	0.25	e
319.3942	0.0031	9.366	0.010	7.670	0.010	113.07	0.23	0.20	f
321.3426	0.0032	9.363	0.010	9.046	0.010	113.36	0.21	0.18	e
323.3948	0.0032	9.360	0.011	10.491	0.010	114.01	0.19	0.17	f
325.3607	0.0031	9.357	0.011	11.871	0.010	114.06	0.18	0.16	e
327.4009	0.0032	9.354	0.012	13.298	0.010	114.27	0.17	0.15	f
329.3804	0.0030	9.351	0.012	14.678	0.010	114.04	0.16	0.14	e
331.3872	0.0033	9.348	0.013	16.071	0.010	114.69	0.16	0.14	f
333.3849	0.0031	9.344	0.013	17.452	0.010	115.02	0.16	0.14	e
335.3769	0.0031	9.341	0.014	18.824	0.010	115.25	0.16	0.14	f
337.3937	0.0032	9.338	0.014	20.207	0.010	115.36	0.16	0.14	e
339.3594	0.0036	9.335	0.015	21.548	0.010	116.06	0.16	0.14	f
341.3919	0.0031	9.332	0.015	22.928	0.010	115.66	0.15	0.13	e

Table 68(b). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
104.197	0.006	89.50	0.08	480.2	1.5	0.17552	0.00088	0.50	e
108.006	0.006	89.48	0.09	698.9	1.5	0.17619	0.00056	0.32	f
111.474	0.006	89.45	0.09	897.5	1.5	0.17652	0.00044	0.25	e
115.240	0.006	89.42	0.10	1112.4	1.5	0.17671	0.00036	0.20	f
118.747	0.006	89.39	0.10	1312.0	1.5	0.17716	0.00033	0.18	e
122.441	0.006	89.36	0.11	1521.6	1.5	0.17818	0.00030	0.17	f
125.979	0.006	89.33	0.11	1721.7	1.5	0.17826	0.00028	0.16	e
129.652	0.006	89.30	0.11	1928.7	1.5	0.17859	0.00027	0.15	f
133.215	0.005	89.27	0.11	2128.9	1.5	0.17823	0.00025	0.14	e
136.827	0.006	89.25	0.12	2330.9	1.5	0.17924	0.00025	0.14	f
140.423	0.006	89.21	0.12	2531.2	1.5	0.17976	0.00025	0.14	e
144.008	0.006	89.18	0.13	2730.2	1.5	0.18012	0.00025	0.14	f
147.639	0.006	89.15	0.13	2930.8	1.5	0.18029	0.00025	0.14	e
151.177	0.006	89.12	0.14	3125.3	1.5	0.18138	0.00025	0.14	f
154.835	0.006	89.09	0.14	3325.4	1.5	0.18076	0.00023	0.13	e

Table 69(a). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
195.5984	0.0030	11.163	0.010	4.003	0.068	97.54	0.56	0.57	b
197.6426	0.0031	11.157	0.011	7.174	0.068	97.65	0.35	0.36	a
199.8128	0.0031	11.151	0.013	10.491	0.068	98.48	0.29	0.29	b
201.8289	0.0030	11.145	0.014	13.538	0.068	98.44	0.25	0.26	a
203.9834	0.0031	11.139	0.015	16.765	0.068	99.22	0.24	0.24	b
205.9799	0.0030	11.133	0.017	19.729	0.068	99.38	0.22	0.22	a
208.1146	0.0030	11.127	0.018	22.872	0.068	99.82	0.22	0.22	b
210.0943	0.0030	11.122	0.019	25.758	0.068	100.55	0.21	0.21	a
212.2068	0.0032	11.116	0.020	28.803	0.068	100.79	0.21	0.21	b
214.1706	0.0031	11.110	0.022	31.596	0.068	101.74	0.21	0.20	a

Table 69(b). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-107.593	0.005	106.57	0.10	580.6	9.9	0.15244	0.00088	0.57	b
-103.913	0.006	106.52	0.11	1040.5	9.9	0.15261	0.00055	0.36	a
-100.007	0.006	106.46	0.12	1521.6	9.9	0.15391	0.00045	0.29	b
-96.378	0.005	106.40	0.13	1963.5	9.9	0.15385	0.00039	0.26	a
-92.500	0.006	106.35	0.14	2431.6	9.9	0.15507	0.00038	0.24	b
-88.906	0.005	106.29	0.16	2861.5	9.9	0.15532	0.00034	0.22	a
-85.064	0.005	106.23	0.17	3317.3	9.9	0.15600	0.00034	0.22	b
-81.500	0.005	106.18	0.18	3735.9	9.9	0.15714	0.00033	0.21	a
-77.698	0.006	106.13	0.19	4177.5	9.9	0.15752	0.00033	0.21	b
-74.163	0.006	106.07	0.21	4582.6	9.9	0.15900	0.00033	0.20	a

Table 70(a). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
215.2794	0.0030	10.874	0.010	3.334	0.020	99.37	0.63	0.64	a
217.3735	0.0031	10.868	0.011	6.184	0.020	99.71	0.38	0.38	b
219.4251	0.0030	10.863	0.012	8.959	0.020	99.79	0.29	0.29	a
221.5092	0.0030	10.858	0.013	11.760	0.020	100.25	0.25	0.25	b
223.5372	0.0030	10.852	0.014	14.464	0.020	100.93	0.23	0.23	a
225.6081	0.0031	10.847	0.015	17.203	0.020	100.90	0.22	0.22	b
227.6234	0.0031	10.842	0.016	19.845	0.020	101.41	0.21	0.21	a
229.6749	0.0031	10.837	0.017	22.511	0.020	101.75	0.21	0.20	b
231.6692	0.0031	10.831	0.018	25.080	0.020	102.09	0.20	0.20	a
233.7101	0.0030	10.826	0.019	27.686	0.020	102.37	0.20	0.19	b
235.6875	0.0030	10.821	0.020	30.188	0.020	102.90	0.20	0.19	a

Table 70(b). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v,%	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-72.167	0.005	103.82	0.10	483.6	2.9	0.15530	0.00098	0.64	a
-68.398	0.006	103.76	0.11	896.9	2.9	0.15583	0.00059	0.38	b
-64.705	0.005	103.71	0.11	1299.4	2.9	0.15596	0.00045	0.29	a
-60.953	0.005	103.66	0.12	1705.6	2.9	0.15667	0.00039	0.25	b
-57.303	0.005	103.61	0.13	2097.8	2.9	0.15774	0.00036	0.23	a
-53.575	0.006	103.56	0.14	2495.1	2.9	0.15769	0.00034	0.22	b
-49.948	0.006	103.51	0.15	2878.3	2.9	0.15849	0.00033	0.21	a
-46.255	0.006	103.46	0.16	3265.0	2.9	0.15902	0.00033	0.20	b
-42.665	0.006	103.40	0.17	3637.6	2.9	0.15955	0.00031	0.20	a
-38.992	0.005	103.36	0.18	4015.5	2.9	0.15999	0.00031	0.19	b
-35.433	0.005	103.31	0.19	4378.4	2.9	0.16082	0.00031	0.19	a

Table 71(a). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
K		mol dm^{-3}		MPa		J mol^{-1} K^{-1}			
234.1386	0.0030	10.596	0.009	3.134	0.017	101.54	0.66	0.65	b
236.3143	0.0030	10.591	0.010	5.760	0.017	101.73	0.38	0.38	a
238.2504	0.0030	10.586	0.011	8.085	0.017	102.35	0.29	0.29	b
240.4017	0.0030	10.581	0.012	10.654	0.017	102.72	0.25	0.24	a
242.3312	0.0031	10.577	0.013	12.942	0.017	103.07	0.23	0.22	b
244.4587	0.0032	10.572	0.014	15.449	0.017	103.50	0.21	0.21	a
246.3745	0.0031	10.567	0.015	17.689	0.017	104.09	0.20	0.20	b
248.4877	0.0031	10.563	0.016	20.141	0.017	104.17	0.20	0.19	a
250.3971	0.0031	10.558	0.017	22.339	0.017	105.08	0.19	0.18	b
252.4928	0.0031	10.553	0.018	24.733	0.017	104.73	0.19	0.18	a
254.3877	0.0031	10.549	0.019	26.880	0.017	105.35	0.19	0.18	b
256.4665	0.0032	10.544	0.019	29.215	0.017	105.76	0.19	0.18	a
258.3437	0.0032	10.540	0.020	31.307	0.017	105.87	0.18	0.17	b

Table 71(b). Experimental liquid heat capacity data for HCFC-123.

T	δT	ρ	δρ	P	δP	$C_{v,exp}$	δC_v	δC_v, %	Run
°F		lb ft^{-3}		psia		Btu lb^{-1} $°F^{-1}$			
-38.221	0.005	101.16	0.09	454.5	2.5	0.15869	0.00103	0.65	b
-34.304	0.005	101.11	0.10	835.4	2.5	0.15899	0.00059	0.38	a
-30.819	0.005	101.07	0.11	1172.6	2.5	0.15996	0.00045	0.29	b
-26.947	0.005	101.02	0.11	1545.2	2.5	0.16054	0.00039	0.24	a
-23.474	0.006	100.98	0.12	1877.1	2.5	0.16108	0.00036	0.22	b
-19.644	0.006	100.93	0.13	2240.7	2.5	0.16175	0.00033	0.21	a
-16.196	0.006	100.88	0.14	2565.6	2.5	0.16268	0.00031	0.20	b
-12.392	0.006	100.85	0.15	2921.2	2.5	0.16280	0.00031	0.19	a
-8.955	0.006	100.80	0.16	3240.0	2.5	0.16422	0.00030	0.18	b
-5.183	0.006	100.75	0.17	3587.2	2.5	0.16368	0.00030	0.18	a
-1.772	0.006	100.71	0.18	3898.6	2.5	0.16465	0.00030	0.18	b
1.970	0.006	100.66	0.18	4237.3	2.5	0.16529	0.00030	0.18	a
5.349	0.006	100.63	0.19	4540.7	2.5	0.16546	0.00028	0.17	b

Table 72(a). Experimental two-phase heat capacity data for HCFC-123.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
166.9425	0.0030	11.419	0.0001	137.83	0.11	0.08	137.82	0.11	0.08	c
171.0998	0.0030	11.368	0.0001	137.91	0.10	0.08	137.90	0.11	0.08	c
171.7387	0.0030	11.360	0.0002	138.08	0.14	0.10	138.07	0.14	0.10	a
174.8827	0.0030	11.320	0.0002	138.29	0.13	0.10	138.28	0.13	0.10	a
175.2230	0.0030	11.316	0.0002	138.32	0.11	0.08	138.31	0.11	0.08	c
178.0067	0.0033	11.281	0.0003	138.63	0.16	0.11	138.62	0.16	0.11	a
179.3247	0.0030	11.264	0.0004	138.46	0.11	0.08	138.45	0.11	0.08	c
181.5964	0.0030	11.235	0.0005	139.03	0.11	0.08	139.01	0.11	0.08	a
183.3926	0.0030	11.212	0.0006	138.84	0.11	0.08	138.82	0.11	0.08	c
185.6505	0.0030	11.183	0.0008	139.87	0.11	0.08	139.85	0.11	0.08	a
187.4343	0.0030	11.160	0.0009	139.19	0.11	0.08	139.17	0.11	0.08	c
189.6833	0.0030	11.132	0.0012	139.82	0.11	0.08	139.79	0.11	0.08	a
191.4487	0.0030	11.109	0.0014	139.84	0.12	0.08	139.81	0.12	0.08	c
193.6829	0.0031	11.080	0.0017	139.94	0.11	0.08	139.90	0.11	0.08	a
195.4422	0.0031	11.057	0.0020	140.06	0.11	0.08	140.02	0.11	0.08	c
197.6566	0.0030	11.028	0.0025	140.36	0.11	0.08	140.31	0.11	0.08	a
199.3981	0.0030	11.005	0.0029	140.49	0.12	0.08	140.43	0.12	0.08	c
201.5701	0.0031	10.977	0.0035	146.12	0.12	0.09	146.05	0.13	0.09	a
203.3431	0.0032	10.953	0.0041	140.57	0.12	0.08	140.50	0.12	0.09	c
205.4676	0.0032	10.925	0.0049	141.42	0.12	0.08	141.34	0.12	0.09	b
207.2466	0.0030	10.901	0.0057	141.46	0.12	0.08	141.37	0.12	0.09	c
209.3703	0.0031	10.873	0.0068	141.67	0.12	0.09	141.57	0.13	0.09	b
211.1434	0.0031	10.849	0.0078	142.39	0.12	0.08	142.27	0.12	0.09	c
213.2504	0.0032	10.821	0.0092	142.56	0.13	0.09	142.43	0.13	0.09	b
215.0115	0.0030	10.797	0.0106	142.20	0.12	0.08	142.07	0.13	0.09	c
217.1071	0.0031	10.769	0.0124	142.66	0.12	0.08	142.51	0.13	0.09	b
218.8554	0.0030	10.745	0.0141	142.73	0.12	0.08	142.57	0.13	0.09	c
220.9330	0.0033	10.717	0.0164	143.25	0.13	0.09	143.07	0.15	0.10	b
222.6798	0.0030	10.693	0.0186	143.31	0.12	0.08	143.12	0.14	0.09	c
224.7490	0.0033	10.665	0.0215	143.89	0.13	0.09	143.68	0.15	0.11	b
226.4838	0.0031	10.641	0.0243	143.84	0.13	0.09	143.62	0.15	0.10	c
228.5416	0.0034	10.612	0.0279	145.16	0.14	0.10	144.92	0.16	0.11	b
230.2622	0.0030	10.589	0.0313	144.44	0.12	0.09	144.19	0.16	0.11	c
232.3220	0.0031	10.560	0.0358	144.97	0.13	0.09	144.70	0.16	0.11	b
234.0181	0.0034	10.536	0.0399	145.03	0.14	0.10	144.74	0.18	0.12	d
236.0689	0.0031	10.507	0.0454	144.90	0.13	0.09	144.59	0.17	0.12	b
237.7526	0.0032	10.484	0.0504	145.33	0.13	0.09	145.01	0.18	0.13	d
239.7937	0.0031	10.455	0.0571	145.45	0.13	0.09	145.11	0.19	0.13	b
241.4666	0.0032	10.431	0.0632	145.99	0.14	0.10	145.64	0.20	0.14	d
243.5063	0.0032	10.402	0.0712	146.23	0.13	0.09	145.86	0.20	0.14	b
245.1696	0.0031	10.378	0.0785	145.91	0.13	0.09	145.53	0.21	0.14	d
247.1947	0.0031	10.349	0.0881	147.01	0.14	0.10	146.62	0.22	0.15	b
248.8370	0.0032	10.325	0.0966	147.03	0.14	0.10	146.63	0.23	0.16	d
250.8710	0.0032	10.296	0.1080	147.63	0.15	0.10	147.21	0.24	0.16	b
252.5090	0.0032	10.272	0.1181	147.37	0.14	0.09	146.95	0.24	0.16	d
254.5302	0.0032	10.243	0.1316	147.56	0.15	0.10	147.13	0.25	0.17	b
256.1441	0.0031	10.219	0.1432	147.90	0.16	0.11	147.48	0.27	0.18	d
258.1638	0.0031	10.189	0.1590	148.03	0.14	0.10	147.61	0.27	0.18	b
259.7729	0.0034	10.165	0.1726	148.83	0.17	0.11	148.41	0.29	0.19	d
261.7865	0.0032	10.135	0.1910	139.03	5.99	4.31	138.62	5.99	4.32	b
263.3859	0.0032	10.112	0.2067	139.84	5.96	4.27	139.42	5.97	4.28	d
265.3879	0.0031	10.082	0.2279	149.60	0.14	0.09	149.19	0.29	0.20	b
266.9878	0.0031	10.057	0.2460	150.01	0.14	0.09	149.62	0.30	0.20	d
268.9728	0.0034	10.027	0.2702	151.07	0.15	0.10	150.70	0.31	0.21	b

Table 72 (a) (continued). Experimental two-phase heat capacity data for HCFC-123.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
270.5732	0.0031	10.003	0.2911	150.28	0.14	0.09	149.95	0.31	0.21	d
272.5468	0.0032	9.973	0.3187	151.61	0.15	0.10	151.31	0.32	0.21	b
274.1380	0.0032	9.949	0.3424	150.90	0.14	0.10	150.64	0.32	0.21	d
276.1054	0.0031	9.918	0.3737	151.86	0.14	0.09	151.65	0.32	0.21	b
277.6859	0.0031	9.894	0.4006	152.35	0.14	0.09	152.19	0.33	0.21	d
279.6487	0.0036	9.863	0.4361	152.03	0.16	0.11	151.94	0.34	0.22	b
281.2308	0.0032	9.839	0.4665	152.98	0.15	0.10	152.95	0.33	0.22	d
283.1806	0.0032	9.808	0.5063	152.50	0.15	0.10	152.57	0.33	0.22	b
284.7545	0.0033	9.783	0.5404	153.09	0.15	0.10	153.23	0.33	0.22	d
286.6920	0.0033	9.753	0.5850	153.25	0.15	0.10	153.51	0.33	0.22	b
288.2690	0.0032	9.728	0.6233	153.80	0.15	0.10	154.15	0.33	0.21	d
290.1942	0.0033	9.697	0.6729	154.00	0.15	0.10	154.48	0.33	0.21	b
291.7702	0.0033	9.672	0.7158	154.68	0.15	0.10	155.28	0.32	0.21	d
293.6878	0.0035	9.641	0.7709	154.09	0.16	0.11	154.86	0.32	0.21	b
295.2590	0.0032	9.615	0.8185	155.20	0.15	0.10	156.11	0.31	0.20	d
297.1620	0.0033	9.584	0.8793	154.61	0.15	0.10	155.71	0.31	0.20	b
298.7470	0.0032	9.558	0.9326	155.27	0.15	0.10	156.54	0.30	0.19	d
300.6368	0.0038	9.527	0.9994	155.04	0.17	0.11	156.52	0.31	0.20	b
302.2147	0.0035	9.501	1.0581	156.55	0.17	0.11	158.24	0.30	0.19	d
304.0893	0.0034	9.470	1.1313	155.48	0.16	0.10	157.41	0.29	0.19	b
307.5811	0.0035	9.411	1.2783	151.27	0.16	0.11	153.73	0.30	0.20	b

Table 72(b). Experimental taro-phase heat capacity data for HCFC-123.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
-159.174	0.005	109.02	0.0	0.21541	0.00017	0.08	0.21539	0.00017	0.08	c
-151.690	0.005	108.53	0.0	0.21553	0.00016	0.08	0.21552	0.00017	0.08	c
-150.540	0.005	108.46	0.0	0.21580	0.00022	0.10	0.21578	0.00022	0.10	a
-144.881	0.005	108.07	0.0	0.21613	0.00020	0.10	0.21611	0.00020	0.10	a
-144.269	0.005	108.03	0.0	0.21617	0.00017	0.08	0.21616	0.00017	0.08	c
-139.258	0.006	107.70	0.0	0.21666	0.00025	0.11	0.21664	0.00025	0.11	a
-136.886	0.005	107.54	0.1	0.21639	0.00017	0.08	0.21638	0.00017	0.08	c
-132.797	0.005	107.26	0.1	0.21728	0.00017	0.08	0.21725	0.00017	0.08	a
-129.563	0.005	107.04	0.1	0.21698	0.00017	0.08	0.21695	0.00017	0.08	c
-125.499	0.005	106.77	0.1	0.21859	0.00017	0.08	0.21856	0.00017	0.08	a
-122.288	0.005	106.55	0.1	0.21753	0.00017	0.08	0.21750	0.00017	0.08	c
-118.240	0.005	106.28	0.2	0.21852	0.00017	0.08	0.21847	0.00017	0.08	a
-115.062	0.005	106.06	0.2	0.21855	0.00019	0.08	0.21850	0.00019	0.08	c
-111.041	0.006	105.78	0.2	0.21870	0.00017	0.08	0.21864	0.00017	0.08	a
-107.874	0.006	105.56	0.3	0.21889	0.00017	0.08	0.21883	0.00017	0.08	c
-103.888	0.005	105.29	0.4	0.21936	0.00017	0.08	0.21928	0.00017	0.08	a
-100.753	0.005	105.07	0.4	0.21956	0.00019	0.08	0.21947	0.00019	0.08	c
-96.844	0.006	104.80	0.5	0.22836	0.00019	0.09	0.22825	0.00020	0.09	a
-93.652	0.006	104.57	0.6	0.21969	0.00019	0.08	0.21958	0.00019	0.09	c
-89.828	0.006	104.30	0.7	0.22102	0.00019	0.08	0.22089	0.00019	0.09	b
-86.626	0.005	104.07	0.8	0.22108	0.00019	0.08	0.22094	0.00019	0.09	c
-82.803	0.006	103.81	1.0	0.22141	0.00019	0.09	0.22125	0.00020	0.09	b
-79.612	0.006	103.58	1.1	0.22253	0.00019	0.08	0.22235	0.00019	0.09	c
-75.819	0.006	103.31	1.3	0.22280	0.00020	0.09	0.22260	0.00020	0.09	b
-72.649	0.005	103.08	1.5	0.22224	0.00019	0.08	0.22203	0.00020	0.09	c
-68.877	0.006	102.81	1.8	0.22296	0.00019	0.08	0.22272	0.00020	0.09	b
-65.730	0.005	102.58	2.0	0.22306	0.00019	0.08	0.22281	0.00020	0.09	c
-61.991	0.006	102.32	2.4	0.22388	0.00020	0.09	0.22360	0.00023	0.10	b
-58.846	0.005	102.09	2.7	0.22397	0.00019	0.08	0.22367	0.00022	0.09	c
-55.122	0.006	101.82	3.1	0.22488	0.00020	0.09	0.22455	0.00023	0.11	b
-51.999	0.006	101.59	3.5	0.22480	0.00020	0.09	0.22446	0.00023	0.10	c
-48.295	0.006	101.31	4.0	0.22686	0.00022	0.10	0.22649	0.00025	0.11	b
-45.198	0.005	101.09	4.5	0.22574	0.00019	0.09	0.22535	0.00025	0.11	c
-41.490	0.006	100.82	5.2	0.22657	0.00020	0.09	0.22614	0.00025	0.11	b
-38.437	0.006	100.59	5.8	0.22666	0.00022	0.10	0.22621	0.00028	0.12	d
-34.746	0.006	100.31	6.6	0.22646	0.00020	0.09	0.22597	0.00027	0.12	b
-31.715	0.006	100.09	7.3	0.22713	0.00020	0.09	0.22663	0.00028	0.13	d
-28.041	0.006	99.81	8.3	0.22732	0.00020	0.09	0.22678	0.00030	0.13	b
-25.030	0.006	99.59	9.2	0.22816	0.00022	0.10	0.22761	0.00031	0.14	d
-21.359	0.006	99.31	10.3	0.22853	0.00020	0.09	0.22796	0.00031	0.14	b
-18.365	0.006	99.08	11.4	0.22803	0.00020	0.09	0.22744	0.00033	0.14	d
-14.720	0.006	98.80	12.8	0.22975	0.00022	0.10	0.22914	0.00034	0.15	b
-11.763	0.006	98.57	14.0	0.22978	0.00022	0.10	0.22916	0.00036	0.16	d
-8.102	0.006	98.30	15.7	0.23072	0.00023	0.10	0.23007	0.00038	0.16	b
-5.154	0.006	98.07	17.1	0.23032	0.00022	0.09	0.22966	0.00038	0.16	d
-1.516	0.006	97.79	19.1	0.23061	0.00023	0.10	0.22994	0.00039	0.17	b
1.389	0.006	97.56	20.8	0.23114	0.00025	0.11	0.23049	0.00042	0.18	d
5.025	0.006	97.28	23.1	0.23135	0.00022	0.10	0.23069	0.00042	0.18	b
7.921	0.006	97.05	25.0	0.23260	0.00027	0.11	0.23194	0.00045	0.19	d
11.546	0.006	96.76	27.7	0.21728	0.00936	4.31	0.21664	0.00936	4.32	b
14.425	0.006	96.54	30.0	0.21855	0.00931	4.27	0.21789	0.00933	4.28	d
18.028	0.006	96.25	33.1	0.23380	0.00022	0.09	0.23316	0.00045	0.20	b
20.908	0.006	96.02	35.7	0.23444	0.00022	0.09	0.23383	0.00047	0.20	d
24.481	0.006	95.73	39.2	0.23610	0.00023	0.10	0.23552	0.00048	0.21	b
27.362	0.006	95.50	42.2	0.23486	0.00022	0.09	0.23435	0.00048	0.21	d

Table 72(b)(continued). Experimental two-phase heat capacity data for HCFC-123.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
30.914	0.006	95.21	46.2	0.23694	0.00023	0.10	0.23647	0.00050	0.21	b
33.778	0.006	94.98	49.7	0.23583	0.00022	0.10	0.23543	0.00050	0.21	d
37.320	0.006	94.69	54.2	0.23733	0.00022	0.09	0.23700	0.00050	0.21	b
40.165	0.006	94.46	58.1	0.23810	0.00022	0.09	0.23785	0.00052	0.21	d
43.698	0.006	94.16	63.3	0.23760	0.00025	0.11	0.23746	0.00053	0.22	b
46.545	0.006	93.93	67.7	0.23908	0.00023	0.10	0.23904	0.00052	0.22	d
50.055	0.006	93.64	73.4	0.23833	0.00023	0.10	0.23844	0.00052	0.22	b
52.888	0.006	93.40	78.4	0.23926	0.00023	0.10	0.23947	0.00052	0.22	d
56.376	0.006	93.11	84.8	0.23951	0.00023	0.10	0.23991	0.00052	0.22	b
59.214	0.006	92.87	90.4	0.24037	0.00023	0.10	0.24091	0.00052	0.21	d
62.680	0.006	92.58	97.6	0.24068	0.00023	0.10	0.24143	0.00052	0.21	b
65.516	0.006	92.34	103.8	0.24174	0.00023	0.10	0.24268	0.00050	0.21	d
68.968	0.006	92.04	111.8	0.24082	0.00025	0.11	0.24202	0.00050	0.21	b
71.796	0.006	91.80	118.7	0.24255	0.00023	0.10	0.24398	0.00048	0.20	d
75.222	0.006	91.50	127.5	0.24163	0.00023	0.10	0.24335	0.00048	0.20	b
78.075	0.006	91.25	135.3	0.24266	0.00023	0.10	0.24465	0.00047	0.19	d
81.476	0.007	90.96	145.0	0.24230	0.00027	0.11	0.24462	0.00048	0.20	b
84.316	0.006	90.71	153.5	0.24466	0.00027	0.11	0.24730	0.00047	0.19	d
87.691	0.006	90.41	164.1	0.24299	0.00025	0.10	0.24601	0.00045	0.19	b
93.976	0.006	89.85	185.4	0.23641	0.00025	0.11	0.24026	0.00047	0.20	b

Table 73(a). Experimental two-phase heat capacity data for HCFC-123.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
K		mol dm^{-3}	MPa	J mol^{-1} K^{-1}						
168.7184	0.0031	11.397	0.0001	137.80	0.11	0.08	137.80	0.11	0.08	c
172.5740	0.0031	11.349	0.0002	138.26	0.11	0.08	138.25	0.11	0.08	c
176.4120	0.0030	11.301	0.0003	138.61	0.12	0.08	138.61	0.12	0.08	c
180.2215	0.0031	11.253	0.0004	139.11	0.12	0.08	139.11	0.12	0.08	c
184.0196	0.0030	11.204	0.0006	139.40	0.11	0.08	139.40	0.11	0.08	c
187.7881	0.0030	11.156	0.0010	139.64	0.11	0.08	139.63	0.11	0.08	c
191.5341	0.0030	11.108	0.0014	139.74	0.12	0.09	139.74	0.12	0.09	c
195.2573	0.0030	11.059	0.0020	140.40	0.12	0.08	140.39	0.12	0.08	c
198.9580	0.0031	11.011	0.0028	141.09	0.12	0.09	141.08	0.12	0.09	c
202.6360	0.0031	10.963	0.0039	141.41	0.12	0.09	141.40	0.12	0.09	c
206.2941	0.0031	10.914	0.0053	141.68	0.13	0.09	141.68	0.13	0.09	c
209.9295	0.0030	10.866	0.0071	141.76	0.12	0.09	141.76	0.12	0.09	c
213.5374	0.0030	10.817	0.0094	142.03	0.12	0.09	142.03	0.12	0.09	c
217.1351	0.0030	10.769	0.0124	142.54	0.12	0.09	142.55	0.12	0.09	c
220.7050	0.0032	10.720	0.0162	143.23	0.14	0.09	143.25	0.14	0.09	c
224.2648	0.0030	10.671	0.0208	143.69	0.13	0.09	143.72	0.13	0.09	c
227.8030	0.0031	10.623	0.0265	144.10	0.13	0.09	144.15	0.13	0.09	c

Table 73(b). Experimental two-phase heat capacity data for HCFC-123.

T	δT	ρ_σ	P_σ	$C_v^{(2)}$	$\delta C_v^{(2)}$	$\delta C_v^{(2)}$,%	C_σ	δC_σ	δC_σ,%	Run
°F		lb ft^{-3}	psia	Btu lb^{-1} °F^{-1}						
-155.977	0.006	108.81	0.0	0.21536	0.00017	0.08	0.21536	0.00017	0.08	c
-149.037	0.006	108.35	0.0	0.21608	0.00017	0.08	0.21606	0.00017	0.08	c
-142.128	0.005	107.89	0.0	0.21663	0.00019	0.08	0.21663	0.00019	0.08	c
-135.271	0.006	107.43	0.1	0.21741	0.00019	0.08	0.21741	0.00019	0.08	c
-128.435	0.005	106.97	0.1	0.21786	0.00017	0.08	0.21786	0.00017	0.08	c
-121.651	0.005	106.51	0.1	0.21824	0.00017	0.08	0.21822	0.00017	0.08	c
-114.909	0.005	106.05	0.2	0.21839	0.00019	0.09	0.21839	0.00019	0.09	c
-108.207	0.005	105.58	0.3	0.21942	0.00019	0.08	0.21941	0.00019	0.08	c
-101.546	0.006	105.12	0.4	0.22050	0.00019	0.09	0.22049	0.00019	0.09	c
-94.925	0.006	104.66	0.6	0.22100	0.00019	0.09	0.22099	0.00019	0.09	c
-88.341	0.006	104.20	0.8	0.22142	0.00020	0.09	0.22142	0.00020	0.09	c
-81.797	0.005	103.74	1.0	0.22155	0.00019	0.09	0.22155	0.00019	0.09	c
-75.303	0.005	103.27	1.4	0.22197	0.00019	0.09	0.22197	0.00019	0.09	c
-68.827	0.005	102.81	1.8	0.22277	0.00019	0.09	0.22278	0.00019	0.09	c
-62.401	0.006	102.34	2.3	0.22385	0.00022	0.09	0.22388	0.00022	0.09	c
-55.993	0.005	101.88	3.0	0.22456	0.00020	0.09	0.22461	0.00020	0.09	c
-49.625	0.006	101.42	3.8	0.22521	0.00020	0.09	0.22528	0.00020	0.09	c

Table 74. Coefficients to the MBWR equation of state for HCFC-123 (units are K, bar, L, mol)

$$p = \sum_{n=1}^{9} a_n \rho^n + \exp(-\rho^2/\rho_c^2) \sum_{n=10}^{15} a_n \rho^{2n-17}$$

ρ_c = 3.596417 mol/L

$a_1 = RT$
$a_2 = b_1T + b_2T^{0.5} + b_3 + b_4/T + b_5/T^2$
$a_3 = b_6T + b_7 + b_8/T + b_9/T^2$
$a_4 = b_{10}T + b_{11} + b_{12}/T$
$a_5 = b_{13}$
$a_6 = b_{14}/T + b_{15}/T^2$
$a_7 = b_{16}/T$
$a_8 = b_{17}/T + b_{18}/T^2$
$a_9 = b_{19}/T^2$
$a_{10} = b_{20}/T^2 + b_{21}/T^3$
$a_{11} = b_{22}/T^2 + b_{23}/T^4$
$a_{12} = b_{24}/T^2 + b_{25}/T^3$
$a_{13} = b_{26}/T^2 + b_{27}/T^4$
$a_{14} = b_{28}/T^2 + b_{29}/T^3$
$a_{15} = b_{30}/T^2 + b_{31}/T^3 + b_{32}/T^4$

i	b_i
1	-0.193042434973E-01
2	-0.263410206086E+00
3	0.266439262928E+02
4	-0.102447174272E+05
5	-0.714962376060E+06
6	0.179594735089E-01
7	-0.106601466621E+02
8	-0.106973465680E+04
9	-0.150556666672E+07
10	-0.126504809410E-02
11	-0.123264787943E+00
12	0.293238981229E+03
13	0.134389339775E+00
14	0.745030119681E+01
15	0.413916532768E+04
16	-0.212267981526E+01

Table 74. Coefficients to the MBWR equation of state for HCFC-123 (units are K, bar, L, mol) (continued)

17	0.106201732381E+00
18	-0.401991529370E+02
19	0.156703568146E+01
20	0.395804226685E+07
21	-0.490428403406E+09
22	0.171175389582E+06
23	0.376067424212E+10
24	0.719667521763E+04
25	-0.110348184730E+07
26	0.571211837951E+02
27	0.642498617888E+07
28	0.227383595657E+01
29	-0.670239087161E+03
30	-0.162446239669E-01
31	0.190850894641E+02
32	-0.267293932199E+04

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{o}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
17001	183.092	66.424	0.12112	-130.104	9633.98	0.07003
17002	182.579	66.419	0.12132	-131.028	9633.30	0.07014
17003	182.120	66.423	0.12146	-131.854	9633.86	0.07023
17004	181.704	66.423	0.12178	-132.603	9633.83	0.07041
17005	183.191	52.668	0.11908	-129.926	7638.90	0.06885
17006	182.635	52.687	0.11924	-130.927	7641.62	0.06894
17007	182.168	52.695	0.11943	-131.768	7642.81	0.06905
17008	181.744	52.698	0.11960	-132.531	7643.22	0.06915
17010	182.705	38.682	0.11697	-130.801	5610.38	0.06763
17011	182.220	38.683	0.11724	-131.674	5610.48	0.06779
17012	181.798	38.687	0.11740	-132.434	5611.04	0.06788
17013	182.913	24.866	0.11437	-130.427	3606.48	0.06613
17014	182.411	24.883	0.11466	-131.330	3608.96	0.06629
17015	181.959	24.891	0.11494	-132.144	3610.15	0.06646
17016	181.554	24.898	0.11509	-132.873	3611.17	0.06654
17017	182.984	12.494	0.11212	-130.299	1812.10	0.06483
17018	182.473	12.498	0.11234	-131.219	1812.65	0.06495
17019	182.012	12.496	0.11265	-132.048	1812.41	0.06513
17020	181.605	12.509	0.11293	-132.781	1814.25	0.06529
17021	183.029	0.827	0.10987	-130.218	119.94	0.06352
17022	182.505	0.847	0.11015	-131.161	122.83	0.06369
17023	182.048	0.828	0.11064	-131.984	120.16	0.06397
17024	181.614	0.822	0.11076	-132.765	119.23	0.06404
18002	202.672	68.629	0.11870	-94.860	9953.78	0.06863
18003	202.138	68.613	0.11899	-95.822	9951.46	0.06880
18004	201.669	68.589	0.11911	-96.666	9948.05	0.06887
18005	202.925	54.558	0.11621	-94.405	7912.97	0.06719
18006	202.372	54.555	0.11648	-95.400	7912.56	0.06735
18007	201.867	54.540	0.11668	-96.309	7910.44	0.06746
18008	201.428	54.536	0.11705	-97.100	7909.87	0.06768
18009	203.056	40.804	0.11388	-94.169	5918.09	0.06584
18010	202.488	40.778	0.11420	-95.192	5914.35	0.06603
18011	201.976	40.771	0.11450	-96.113	5913.36	0.06620
18012	201.527	40.775	0.11498	-96.921	5913.97	0.06648
18013	203.023	27.178	0.11084	-94.229	3941.79	0.06409
18014	202.443	27.176	0.11120	-95.273	3941.60	0.06429
18015	201.929	27.176	0.11141	-96.198	3941.51	0.06442
18016	201.472	27.170	0.11183	-97.020	3940.76	0.06466
18017	202.683	13.327	0.10808	-94.841	1932.94	0.06249
18018	202.204	13.337	0.10830	-95.703	1934.34	0.06262
18019	201.801	13.343	0.10903	-96.428	1935.30	0.06304
18020	201.368	13.349	0.10881	-97.208	1936.10	0.06291
18021	202.702	1.732	0.10542	-94.806	251.26	0.06095
18022	202.234	1.715	0.10592	-95.649	248.70	0.06124
18023	201.779	1.711	0.10556	-96.468	248.09	0.06103
18025	202.707	1.721	0.10484	-94.797	249.58	0.06062
18026	202.217	1.722	0.10570	-95.679	249.77	0.06111
18027	201.774	1.723	0.10598	-96.477	249.87	0.06128
18028	201.391	1.727	0.10627	-97.166	250.46	0.06144

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
19001	223.275	67.411	0.11514	-57.775	9777.21	0.06657
19002	222.740	67.398	0.11543	-58.738	9775.23	0.06674
19003	222.249	67.405	0.11576	-59.622	9776.25	0.06693
19004	221.808	67.387	0.11605	-60.416	9773.68	0.06710
19005	223.354	56.074	0.11287	-57.633	8132.93	0.06526
19006	222.806	56.065	0.11315	-58.619	8131.56	0.06542
19007	222.312	56.065	0.11338	-59.508	8131.62	0.06555
19008	221.859	56.069	0.11385	-60.324	8132.14	0.06583
19009	223.435	45.413	0.11057	-57.487	6586.63	0.06393
19010	222.838	45.418	0.11095	-58.562	6587.35	0.06415
19011	222.333	45.418	0.11119	-59.471	6587.39	0.06429
19012	221.877	45.426	0.11166	-60.291	6588.47	0.06456
19013	222.998	34.705	0.10850	-58.274	5033.58	0.06273
19014	222.477	34.701	0.10877	-59.211	5032.99	0.06289
19015	222.002	34.699	0.10927	-60.066	5032.61	0.06318
19016	221.574	34.698	0.10969	-60.837	5032.55	0.06342
19017	223.066	23.950	0.10592	-58.151	3473.67	0.06124
19018	222.530	23.960	0.10646	-59.116	3475.17	0.06155
19019	222.044	23.968	0.10658	-59.991	3476.28	0.06162
19020	221.613	23.972	0.10709	-60.767	3476.79	0.06192
19021	223.121	13.069	0.10321	-58.052	1895.55	0.05967
19022	222.573	13.078	0.10364	-59.039	1896.77	0.05992
19023	222.073	13.082	0.10389	-59.939	1897.37	0.06007
19024	221.632	13.081	0.10444	-60.732	1897.21	0.06039
19025	223.144	2.049	0.10020	-58.011	297.17	0.05793
19026	222.610	2.059	0.10067	-58.972	298.65	0.05821
19027	222.100	2.067	0.10097	-59.890	299.86	0.05838
19028	221.649	2.070	0.10152	-60.702	300.17	0.05870
20001	243.187	66.560	0.11104	-21.933	9653.70	0.06420
20002	242.620	66.554	0.11136	-22.954	9652.87	0.06439
20003	242.110	66.550	0.11165	-23.872	9652.27	0.06455
20004	241.656	66.541	0.11227	-24.689	9651.05	0.06491
20005	243.263	55.286	0.10846	-21.797	8018.65	0.06271
20006	242.687	55.289	0.10882	-22.833	8018.96	0.06292
20007	242.168	55.290	0.10916	-23.768	8019.17	0.06311
20008	241.703	55.292	0.10976	-24.605	8019.45	0.06346
20009	243.345	44.157	0.10548	-21.649	6404.42	0.06099
20010	242.757	44.160	0.10571	-22.707	6404.87	0.06112
20011	242.225	44.167	0.10639	-23.665	6405.90	0.06151
20012	241.752	44.165	0.10701	-24.516	6405.61	0.06187
20013	242.886	33.502	0.10350	-22.475	4859.01	0.05984
20014	242.423	33.503	0.10381	-23.309	4859.23	0.06002
20015	241.992	33.506	0.10423	-24.084	4859.65	0.06026
20016	241.614	33.510	0.10471	-24.765	4860.21	0.06054
20017	242.948	22.767	0.10064	-22.364	3302.03	0.05819
20018	242.445	22.766	0.10090	-23.269	3301.99	0.05834
20019	242.007	22.768	0.10143	-24.057	3302.24	0.05864
20020	241.619	22.770	0.10187	-24.756	3302.56	0.05890
20021	242.995	11.728	0.09746	-22.279	1700.96	0.05635

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
20022	242.507	11.729	0.09783	-23.157	1701.20	0.05656
20023	242.067	11.733	0.09826	-23.949	1701.77	0.05681
20024	241.655	11.733	0.09870	-24.691	1701.70	0.05707
20025	243.078	1.955	0.09440	-22.130	283.62	0.05458
20026	242.574	1.957	0.09487	-23.037	283.89	0.05485
20027	242.117	1.959	0.09516	-23.859	284.13	0.05502
20028	241.706	1.965	0.09570	-24.599	284.96	0.05533
21001	264.017	67.199	0.10627	15.561	9746.46	0.06144
21002	263.373	67.194	0.10679	14.401	9745.70	0.06174
21003	262.799	67.194	0.10723	13.368	9745.77	0.06200
21004	262.285	67.189	0.10764	12.443	9744.97	0.06224
21005	264.091	55.971	0.10374	15.694	8118.00	0.05998
21006	263.433	55.973	0.10408	14.509	8118.21	0.06018
21007	262.844	55.977	0.10452	13.449	8118.84	0.06043
21008	262.311	55.967	0.10500	12.490	8117.39	0.06071
21009	264.164	44.816	0.10067	15.825	6499.99	0.05821
21010	263.499	44.820	0.10098	14.628	6500.59	0.05838
21011	262.894	44.819	0.10142	13.539	6500.48	0.05864
21012	262.356	44.821	0.10217	12.571	6500.83	0.05907
21013	263.689	33.999	0.09818	14.970	4931.13	0.05677
21014	263.162	34.002	0.09843	14.022	4931.58	0.05691
21015	262.676	34.000	0.09883	13.147	4931.30	0.05714
21016	262.238	34.002	0.09930	12.358	4931.63	0.05741
21017	263.745	23.281	0.09505	15.071	3376.68	0.05496
21018	263.202	23.292	0.09530	14.094	3378.23	0.05510
21019	262.707	23.289	0.09579	13.203	3377.83	0.05538
21020	262.257	23.290	0.09598	12.393	3377.95	0.05549
21021	263.799	12.524	0.09168	15.168	1816.42	0.05301
21022	263.240	12.526	0.09195	14.162	1816.76	0.05316
21023	262.731	12.529	0.09240	13.246	1817.12	0.05342
21024	262.268	12.526	0.09268	12.412	1816.77	0.05359
21025	263.875	1.717	0.08796	15.305	249.02	0.05086
21026	263.292	1.721	0.08836	14.256	249.54	0.05109
21027	262.764	1.720	0.08871	13.305	249.43	0.05129
21028	262.283	1.724	0.08903	12.439	249.99	0.05148
22001	284.205	66.072	0.10171	51.899	9582.93	0.05881
22002	283.491	66.071	0.10194	50.614	9582.78	0.05894
22003	282.837	66.067	0.10210	49.437	9582.26	0.05903
22004	282.261	66.067	0.10273	48.400	9582.27	0.05940
22005	284.286	54.558	0.09870	52.045	7913.05	0.05707
22006	283.554	54.556	0.09874	50.727	7912.74	0.05709
22007	282.885	54.563	0.09890	49.523	7913.67	0.05718
22008	282.291	54.562	0.09945	48.454	7913.61	0.05750
22009	284.358	43.600	0.09604	52.174	6323.63	0.05553
22010	283.604	43.599	0.09610	50.817	6323.59	0.05556
22011	282.924	43.604	0.09545	49.593	6324.21	0.05519
22012	282.312	43.603	0.09646	48.492	6324.15	0.05577
22013	284.527	32.317	0.09225	52.479	4687.17	0.05334
22014	283.743	32.320	0.09243	51.067	4687.60	0.05344

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
22015	283.039	32.319	0.09268	49.800	4687.42	0.05359
22016	282.412	32.322	0.09302	48.672	4687.90	0.05378
22018	283.923	21.124	0.08905	51.391	3063.82	0.05149
22019	283.301	21.119	0.08910	50.272	3062.99	0.05152
22020	282.729	21.117	0.08918	49.242	3062.78	0.05156
22021	282.209	21.115	0.08987	48.306	3062.50	0.05196
22022	283.968	11.339	0.08553	51.472	1644.60	0.04945
22023	283.326	11.340	0.08529	50.317	1644.70	0.04931
22024	282.732	11.344	0.08562	49.248	1645.34	0.04950
22025	282.195	11.349	0.08638	48.281	1646.06	0.04994
22026	284.064	1.615	0.08163	51.645	234.20	0.04720
22027	283.394	1.615	0.08166	50.439	234.28	0.04721
22028	282.783	1.619	0.08217	49.339	234.84	0.04751
22029	282.235	1.621	0.08280	48.353	235.05	0.04787
8001	283.712	0.040	0.00963	51.012	5.84	0.00557
8002	283.281	0.040	0.00955	50.236	5.85	0.00552
8003	282.873	0.040	0.00946	49.501	5.85	0.00547
8004	282.500	0.040	0.00942	48.830	5.85	0.00545
8005	283.766	0.037	0.01006	51.109	5.30	0.00582
8006	283.311	0.037	0.01007	50.290	5.30	0.00582
8007	282.905	0.037	0.01001	49.559	5.31	0.00579
8008	282.517	0.037	0.01002	48.861	5.30	0.00579
8009	283.789	0.029	0.01076	51.150	4.27	0.00622
8010	283.344	0.030	0.01068	50.349	4.30	0.00617
8011	282.912	0.030	0.01067	49.572	4.29	0.00617
8012	282.532	0.030	0.01063	48.888	4.31	0.00615
8013	283.847	0.030	0.01074	51.255	4.30	0.00621
8014	283.373	0.030	0.01015	50.401	4.29	0.00587
8015	282.963	0.029	0.01066	49.663	4.27	0.00616
8016	282.563	0.029	0.01080	48.943	4.27	0.00624
8017	283.820	0.031	0.01090	51.206	4.50	0.00630
8018	283.359	0.030	0.01087	50.376	4.42	0.00628
8019	282.916	0.030	0.01050	49.579	4.40	0.00607
8020	282.527	0.030	0.01082	48.879	4.37	0.00626
8021	283.731	0.042	0.00867	51.046	6.10	0.00501
8022	283.277	0.042	0.00856	50.229	6.11	0.00495
8023	282.860	0.042	0.00847	49.478	6.10	0.00490
8024	282.468	0.042	0.00838	48.772	6.11	0.00485
9001	288.398	0.052	0.00621	59.446	7.58	0.00359
9002	287.951	0.052	0.00606	58.642	7.59	0.00350
9003	287.545	0.052	0.00584	57.911	7.59	0.00338
9004	287.203	0.052	0.00576	57.295	7.57	0.00333
9005	288.559	0.048	0.00773	59.736	7.02	0.00447
9006	288.110	0.048	0.00781	58.928	7.02	0.00452
9007	287.677	0.048	0.00771	58.149	7.01	0.00446
9008	287.277	0.048	0.00763	57.429	7.02	0.00441
9009	288.625	0.044	0.00874	59.855	6.37	0.00505
9010	288.117	0.044	0.00872	58.941	6.38	0.00504
9011	287.732	0.044	0.00866	58.248	6.36	0.00501

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
9012	287.311	0.044	0.00866	57.490	6.37	0.00501
9013	288.676	0.038	0.00924	59.947	5.56	0.00534
9014	288.206	0.038	0.00920	59.101	5.57	0.00532
9015	287.758	0.038	0.00920	58.294	5.57	0.00532
9016	287.353	0.038	0.00920	57.565	5.56	0.00532
9017	288.684	0.033	0.00953	59.961	4.73	0.00551
9018	288.244	0.033	0.00950	59.169	4.74	0.00549
9019	287.836	0.033	0.00936	58.435	4.72	0.00541
9020	287.387	0.033	0.00946	57.627	4.73	0.00547
10001	293.214	0.066	0.00576	68.115	9.53	0.00333
10002	292.772	0.066	0.00560	67.320	9.51	0.00324
10003	292.362	0.066	0.00545	66.582	9.51	0.00315
10004	292.019	0.066	0.00528	65.964	9.52	0.00305
10005	293.333	0.063	0.00730	68.329	9.10	0.00422
10006	292.908	0.063	0.00700	67.564	9.11	0.00405
10007	292.492	0.063	0.00683	66.816	9.12	0.00395
10008	292.100	0.063	0.00666	66.110	9.13	0.00385
10009	293.434	0.058	0.00850	68.511	8.42	0.00491
10010	292.982	0.058	0.00842	67.698	8.40	0.00487
10011	292.561	0.058	0.00831	66.940	8.41	0.00480
10012	292.171	0.058	0.00828	66.238	8.42	0.00479
10013	293.500	0.051	0.00934	68.630	7.34	0.00540
10014	293.041	0.051	0.00929	67.804	7.33	0.00537
10015	292.612	0.051	0.00926	67.032	7.34	0.00535
10016	292.173	0.051	0.00914	66.241	7.34	0.00528
10017	293.558	0.043	0.00970	68.734	6.26	0.00561
10018	293.090	0.043	0.00970	67.892	6.26	0.00561
10019	292.657	0.043	0.00968	67.113	6.25	0.00560
10020	292.247	0.043	0.00965	66.375	6.24	0.00558
11001	298.278	0.080	0.00635	77.230	11.66	0.00367
11002	297.894	0.080	0.00615	76.539	11.64	0.00356
11003	297.494	0.080	0.00606	75.819	11.63	0.00350
11004	297.116	0.080	0.00591	75.139	11.63	0.00342
11005	298.440	0.076	0.00818	77.522	10.98	0.00473
11006	297.997	0.076	0.00804	76.725	10.99	0.00465
11007	297.587	0.076	0.00791	75.987	10.99	0.00457
11008	297.166	0.076	0.00772	75.229	10.97	0.00446
11009	298.484	0.070	0.00920	77.601	10.19	0.00532
11010	298.042	0.070	0.00913	76.806	10.19	0.00528
11011	297.624	0.070	0.00909	76.053	10.19	0.00526
11012	297.235	0.070	0.00905	75.353	10.18	0.00523
11013	298.523	0.064	0.00968	77.671	9.24	0.00560
11014	298.069	0.064	0.00965	76.854	9.24	0.00558
11015	297.636	0.064	0.00967	76.075	9.24	0.00559
11016	297.238	0.064	0.00963	75.358	9.24	0.00557
11017	298.560	0.057	0.00998	77.738	8.20	0.00577
11018	298.110	0.057	0.00998	76.928	8.21	0.00577
11019	297.683	0.056	0.00993	76.159	8.19	0.00574
11020	297.239	0.057	0.00995	75.360	8.20	0.00575

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
11021	298.625	0.049	0.01018	77.855	7.05	0.00589
11022	298.163	0.049	0.01015	77.023	7.07	0.00587
11023	297.738	0.049	0.01013	76.258	7.05	0.00586
11024	297.336	0.049	0.01011	75.535	7.06	0.00585
1001	304.488	66.312	0.09591	88.408	9617.78	0.05545
1002	303.801	66.316	0.09611	87.172	9618.32	0.05557
1003	303.142	66.323	0.09645	85.986	9619.41	0.05577
1004	302.571	66.331	0.09671	84.958	9620.50	0.05592
1005	304.610	46.683	0.09074	88.628	6770.86	0.05246
1006	303.887	46.679	0.09082	87.327	6770.22	0.05251
1007	303.220	46.677	0.09094	86.126	6769.94	0.05258
1008	302.609	46.675	0.09114	85.026	6769.67	0.05270
1009	304.188	29.483	0.08543	87.868	4276.12	0.04939
1010	303.485	29.488	0.08568	86.603	4276.95	0.04954
1011	302.852	29.494	0.08570	85.464	4277.69	0.04955
1012	302.265	29.497	0.08563	84.407	4278.15	0.04951
1013	304.356	15.106	0.08045	88.171	2191.01	0.04651
1014	303.612	15.107	0.08053	86.832	2191.10	0.04656
1015	302.934	15.110	0.08093	85.611	2191.57	0.04679
1016	302.328	15.113	0.08125	84.520	2191.94	0.04698
1017	304.543	4.023	0.07601	88.507	583.42	0.04395
1018	303.763	4.011	0.07662	87.103	581.73	0.04430
1019	303.068	4.021	0.07667	85.852	583.14	0.04433
1020	302.423	4.026	0.07680	84.691	583.98	0.04440
12001	303.273	0.091	0.00849	86.221	13.26	0.00491
12002	302.847	0.091	0.00841	85.455	13.24	0.00486
12003	302.444	0.091	0.00827	84.729	13.24	0.00478
12004	302.067	0.091	0.00818	84.051	13.24	0.00473
12005	303.307	0.088	0.00928	86.283	12.70	0.00537
12006	302.873	0.088	0.00916	85.501	12.70	0.00530
12007	302.468	0.088	0.00911	84.772	12.70	0.00527
12008	302.085	0.088	0.00910	84.083	12.71	0.00526
12009	303.341	0.081	0.00986	86.344	11.68	0.00570
12010	302.907	0.081	0.00978	85.563	11.68	0.00565
12011	302.497	0.081	0.00977	84.825	11.70	0.00565
12012	302.114	0.081	0.00976	84.135	11.70	0.00564
12013	303.370	0.073	0.01020	86.396	10.56	0.00590
12014	302.924	0.073	0.01018	85.593	10.56	0.00589
12015	302.518	0.073	0.01017	84.862	10.58	0.00588
12016	302.131	0.073	0.01016	84.166	10.57	0.00587
12017	303.378	0.065	0.01044	86.410	9.38	0.00604
12018	302.938	0.065	0.01044	85.618	9.39	0.00604
12019	302.519	0.065	0.01044	84.864	9.39	0.00604
12020	302.138	0.065	0.01045	84.178	9.39	0.00604
12021	303.447	0.057	0.01054	86.535	8.22	0.00609
12022	302.995	0.057	0.01052	85.721	8.22	0.00608
12023	302.573	0.057	0.01047	84.961	8.23	0.00605
12024	302.181	0.057	0.01047	84.256	8.22	0.00605
13001	307.969	0.113	0.00864	94.674	16.34	0.00500

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
13002	307.562	0.113	0.00846	93.942	16.34	0.00489
13003	307.167	0.113	0.00834	93.231	16.36	0.00482
13004	306.806	0.113	0.00818	92.581	16.38	0.00473
13005	307.995	0.109	0.00950	94.721	15.75	0.00549
13006	307.580	0.109	0.00933	93.974	15.80	0.00539
13007	307.193	0.109	0.00917	93.277	15.82	0.00530
13008	306.833	0.109	0.00927	92.629	15.81	0.00536
13009	308.021	0.105	0.00997	94.768	15.17	0.00576
13010	307.641	0.105	0.00987	94.084	15.17	0.00571
13011	307.216	0.105	0.00984	93.319	15.19	0.00569
13012	306.891	0.106	0.00969	92.734	15.35	0.00560
13013	308.017	0.106	0.00996	94.761	15.34	0.00576
13014	307.651	0.106	0.00990	94.102	15.34	0.00572
13015	307.260	0.106	0.00984	93.398	15.40	0.00569
13016	306.893	0.106	0.00976	92.737	15.41	0.00564
13017	308.116	0.095	0.01048	94.939	13.82	0.00606
13018	307.686	0.096	0.01040	94.165	13.88	0.00601
13019	307.293	0.096	0.01041	93.457	13.86	0.00602
13020	306.915	0.096	0.01045	92.777	13.88	0.00604
13021	308.140	0.088	0.01063	94.982	12.75	0.00615
13022	307.713	0.088	0.01062	94.213	12.76	0.00614
13023	307.308	0.088	0.01062	93.484	12.76	0.00614
13024	306.940	0.088	0.01060	92.822	12.78	0.00613
13025	308.115	0.079	0.01085	94.937	11.48	0.00627
13026	307.723	0.079	0.01082	94.231	11.47	0.00626
13027	307.320	0.079	0.01083	93.506	11.46	0.00626
13028	306.947	0.079	0.01081	92.835	11.46	0.00625
13029	308.207	0.069	0.01097	95.103	10.05	0.00634
13030	307.768	0.069	0.01096	94.312	10.07	0.00634
13031	307.354	0.070	0.01095	93.567	10.09	0.00633
13032	306.974	0.070	0.01094	92.883	10.10	0.00633
13033	308.199	0.058	0.01106	95.088	8.44	0.00639
13034	307.754	0.058	0.01103	94.287	8.37	0.00638
13035	307.340	0.058	0.01104	93.542	8.34	0.00638
13036	306.953	0.058	0.01103	92.845	8.35	0.00638
13037	308.294	0.049	0.01116	95.259	7.04	0.00645
13038	307.794	0.049	0.01118	94.359	7.06	0.00646
13039	307.377	0.049	0.01113	93.609	7.08	0.00644
13040	306.986	0.049	0.01110	92.905	7.09	0.00642
14001	312.962	0.132	0.01072	103.662	19.09	0.00620
14002	312.563	0.132	0.01062	102.943	19.10	0.00614
14003	312.183	0.132	0.01059	102.259	19.13	0.00612
14004	311.838	0.132	0.01054	101.638	19.11	0.00609
14005	312.984	0.123	0.01116	103.701	17.85	0.00645
14006	312.576	0.123	0.01104	102.967	17.86	0.00638
14007	312.193	0.123	0.01102	102.277	17.85	0.00637
14008	311.851	0.123	0.01088	101.662	17.88	0.00629
14009	312.975	0.114	0.01134	103.685	16.54	0.00656
14010	312.583	0.114	0.01120	102.979	16.57	0.00648

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
14011	312.166	0.114	0.01120	102.229	16.56	0.00648
14012	311.857	0.114	0.01121	101.673	16.59	0.00648
14013	313.021	0.106	0.01138	103.768	15.39	0.00658
14014	312.605	0.106	0.01141	103.019	15.40	0.00660
14015	312.216	0.106	0.01136	102.319	15.40	0.00657
14016	311.859	0.106	0.01131	101.676	15.42	0.00654
14017	313.060	0.092	0.01151	103.838	13.28	0.00665
14018	312.637	0.092	0.01150	103.077	13.30	0.00665
14019	312.239	0.092	0.01147	102.360	13.29	0.00663
14020	311.882	0.092	0.01153	101.718	13.31	0.00667
14021	313.126	0.071	0.01176	103.957	10.25	0.00680
14022	312.697	0.071	0.01173	103.185	10.24	0.00678
14023	312.292	0.071	0.01168	102.456	10.26	0.00675
14024	311.924	0.071	0.01173	101.793	10.27	0.00678
14025	313.211	0.052	0.01200	104.110	7.47	0.00694
14026	312.771	0.052	0.01197	103.318	7.47	0.00692
14027	312.357	0.052	0.01197	102.573	7.48	0.00692
14028	311.975	0.052	0.01195	101.885	7.47	0.00691
15001	317.811	0.165	0.01118	112.390	23.86	0.00646
15002	317.401	0.165	0.01112	111.652	23.86	0.00643
15003	317.089	0.165	0.01112	111.090	23.86	0.00643
15004	316.758	0.165	0.01105	110.494	23.86	0.00639
15005	317.845	0.151	0.01216	112.451	21.84	0.00703
15006	317.458	0.151	0.01214	111.754	21.85	0.00702
15007	317.099	0.151	0.01205	111.108	21.83	0.00697
15008	316.764	0.151	0.01211	110.505	21.85	0.00700
15009	317.853	0.139	0.01231	112.465	20.16	0.00712
15010	317.458	0.139	0.01224	111.754	20.20	0.00708
15011	317.104	0.139	0.01230	111.117	20.20	0.00711
15012	316.770	0.139	0.01228	110.516	20.22	0.00710
15013	317.891	0.117	0.01255	112.534	17.00	0.00726
15014	317.489	0.117	0.01245	111.810	17.00	0.00720
15015	317.131	0.117	0.01246	111.166	17.01	0.00720
15016	316.798	0.117	0.01241	110.566	16.99	0.00718
15017	317.918	0.105	0.01259	112.582	15.21	0.00728
15018	317.527	0.105	0.01247	111.879	15.21	0.00721
15019	317.151	0.105	0.01248	111.202	15.24	0.00722
15020	316.805	0.105	0.01251	110.579	15.25	0.00723
15021	317.968	0.088	0.01265	112.672	12.72	0.00731
15022	317.580	0.088	0.01258	111.974	12.72	0.00727
15023	317.203	0.088	0.01260	111.295	12.72	0.00729
15024	316.846	0.088	0.01256	110.653	12.72	0.00726
15025	318.086	0.070	0.01290	112.885	10.14	0.00746
15026	317.667	0.070	0.01285	112.131	10.13	0.00743
15027	317.285	0.070	0.01282	111.443	10.11	0.00741
15028	316.925	0.070	0.01276	110.795	10.09	0.00738
15029	318.121	0.054	0.01331	112.948	7.82	0.00770
15030	317.700	0.054	0.01330	112.190	7.82	0.00769
15031	317.339	0.054	0.01323	111.540	7.81	0.00765

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
15032	316.960	0.054	0.01325	110.858	7.81	0.00766
15033	318.234	0.038	0.01393	113.151	5.58	0.00805
15034	317.794	0.038	0.01387	112.359	5.58	0.00802
15035	317.383	0.039	0.01386	111.619	5.59	0.00801
15036	317.008	0.038	0.01385	110.944	5.58	0.00801
16001	322.859	0.188	0.01046	121.476	27.32	0.00605
16002	322.468	0.188	0.01030	120.772	27.32	0.00596
16003	322.105	0.188	0.01021	120.119	27.32	0.00590
16004	321.769	0.188	0.01017	119.514	27.32	0.00588
16005	322.881	0.176	0.01131	121.516	25.51	0.00654
16006	322.482	0.176	0.01130	120.798	25.51	0.00653
16007	322.118	0.176	0.01123	120.142	25.51	0.00649
16008	321.785	0.176	0.01125	119.543	25.48	0.00650
16009	322.885	0.166	0.01164	121.523	24.04	0.00673
16010	322.488	0.166	0.01156	120.808	24.03	0.00668
16011	322.133	0.166	0.01149	120.169	24.02	0.00664
16012	321.779	0.166	0.01161	119.532	24.05	0.00671
16013	322.946	0.148	0.01182	121.633	21.42	0.00683
16014	322.543	0.148	0.01180	120.907	21.43	0.00682
16015	322.177	0.148	0.01186	120.249	21.46	0.00686
16016	321.834	0.148	0.01185	119.631	21.46	0.00685
16017	322.952	0.131	0.01192	121.644	18.94	0.00689
16018	322.557	0.131	0.01188	120.933	18.97	0.00687
16019	322.212	0.131	0.01197	120.312	18.93	0.00692
16020	321.847	0.131	0.01194	119.655	18.96	0.00690
16021	323.020	0.110	0.01219	121.766	15.98	0.00705
16022	322.616	0.110	0.01207	121.039	15.96	0.00698
16023	322.231	0.110	0.01204	120.346	15.98	0.00696
16024	321.864	0.110	0.01214	119.685	15.99	0.00702
16025	323.049	0.095	0.01217	121.818	13.82	0.00704
16026	322.632	0.096	0.01210	121.068	13.86	0.00700
16027	322.245	0.096	0.01226	120.371	13.88	0.00709
16028	321.874	0.096	0.01211	119.703	13.89	0.00700
16029	323.195	0.066	0.01204	122.081	9.58	0.00696
16030	322.752	0.066	0.01201	121.284	9.59	0.00694
16031	322.343	0.066	0.01201	120.547	9.58	0.00694
16032	321.960	0.066	0.01200	119.858	9.59	0.00694
16033	323.298	0.047	0.01218	122.266	6.77	0.00704
16034	322.842	0.047	0.01216	121.446	6.78	0.00703
16035	322.416	0.047	0.01217	120.679	6.78	0.00704
16036	322.030	0.047	0.01211	119.984	6.78	0.00700
2001	327.403	66.509	0.09183	129.655	9646.41	0.05309
2002	326.633	66.508	0.09218	128.269	9646.14	0.05330
2003	325.911	66.505	0.09232	126.970	9645.77	0.05338
2004	325.289	66.504	0.08989	125.850	9645.68	0.05197
2005	326.749	48.679	0.08674	128.478	7060.24	0.05015
2006	325.992	48.675	0.08710	127.116	7059.70	0.05036
2007	325.326	48.680	0.08709	125.917	7060.43	0.05035
2008	324.709	48.681	0.08742	124.806	7060.61	0.05054

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
2009	326.935	33.881	0.08198	128.813	4914.09	0.04740
2010	326.144	33.882	0.08216	127.389	4914.19	0.04750
2011	325.424	33.885	0.08218	126.093	4914.65	0.04751
2012	324.783	33.885	0.08191	124.939	4914.65	0.04736
2013	326.328	19.664	0.07683	127.720	2852.03	0.04442
2014	325.564	19.665	0.07739	126.345	2852.21	0.04475
2015	324.893	19.665	0.07751	125.137	2852.21	0.04481
2016	324.286	19.665	0.07759	124.045	2852.21	0.04486
2017	326.508	8.749	0.07277	128.044	1268.89	0.04207
2018	325.721	8.749	0.07307	126.628	1268.89	0.04225
2019	325.005	8.747	0.07314	125.339	1268.61	0.04229
2020	324.371	8.748	0.07321	124.198	1268.80	0.04233
24002	332.102	0.262	0.01158	138.114	37.95	0.00670
24003	331.673	0.262	0.01137	137.341	37.97	0.00657
24004	331.278	0.262	0.01141	136.630	37.99	0.00660
24005	332.588	0.238	0.01208	138.988	34.55	0.00698
24006	332.152	0.238	0.01204	138.204	34.49	0.00696
24007	331.719	0.238	0.01202	137.424	34.52	0.00695
24008	331.320	0.237	0.01198	136.706	34.42	0.00693
24009	332.662	0.202	0.01208	139.122	29.28	0.00698
24010	332.190	0.201	0.01214	138.272	29.21	0.00702
24011	331.754	0.201	0.01210	137.487	29.14	0.00700
24012	331.352	0.201	0.01200	136.764	29.11	0.00694
24013	332.729	0.167	0.01212	139.242	24.24	0.00701
24014	332.267	0.167	0.01220	138.411	24.18	0.00705
24015	331.826	0.167	0.01215	137.617	24.15	0.00702
24016	331.421	0.166	0.01213	136.888	24.08	0.00701
24017	332.799	0.143	0.01235	139.368	20.67	0.00714
24018	332.304	0.142	0.01223	138.477	20.66	0.00707
24019	331.853	0.142	0.01226	137.665	20.64	0.00709
24020	331.435	0.142	0.01224	136.913	20.62	0.00708
24021	332.872	0.117	0.01246	139.500	16.90	0.00720
24022	332.381	0.117	0.01240	138.616	16.90	0.00717
24023	331.917	0.116	0.01241	137.781	16.89	0.00718
24024	331.472	0.117	0.01273	136.980	16.91	0.00736
3001	343.532	66.812	0.08933	158.688	9690.25	0.05165
3002	342.781	66.810	0.08947	157.336	9689.97	0.05173
3003	342.063	66.800	0.08954	156.043	9688.52	0.05177
3004	341.422	66.800	0.08954	154.890	9688.52	0.05177
3005	343.685	51.197	0.08457	158.963	7425.53	0.04890
3007	342.149	51.201	0.08479	156.198	7426.08	0.04902
3008	341.495	51.204	0.08497	155.021	7426.54	0.04913
3009	343.038	36.309	0.07982	157.798	5266.13	0.04615
3010	342.269	36.312	0.08004	156.414	5266.68	0.04628
3011	341.586	36.314	0.08015	155.185	5266.87	0.04634
3012	340.959	36.316	0.08014	154.056	5267.23	0.04634
3013	343.238	23.308	0.07515	158.158	3380.53	0.04345
3014	342.438	23.311	0.07522	156.718	3380.99	0.04349
3015	341.713	23.313	0.07532	155.413	3381.27	0.04355

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
3016	341.038	23.313	0.07557	154.198	3381.27	0.04369
3017	343.460	12.875	0.07074	158.558	1867.37	0.04090
3018	342.611	12.876	0.07086	157.030	1867.46	0.04097
3019	341.830	12.870	0.07109	155.624	1866.71	0.04110
3020	341.138	12.873	0.07116	154.378	1867.09	0.04114
3021	342.811	5.010	0.06507	157.390	726.64	0.03762
3022	341.960	5.011	0.06735	155.858	726.83	0.03894
3023	341.257	5.012	0.06768	154.593	726.92	0.03913
3024	340.615	5.014	0.06765	153.437	727.21	0.03911
25001	342.899	0.355	0.01219	157.548	51.56	0.00705
25002	342.519	0.355	0.01222	156.864	51.55	0.00707
25004	342.133	0.355	0.01217	156.169	51.55	0.00704
25004	341.800	0.355	0.01217	155.570	51.55	0.00704
25005	342.942	0.306	0.01262	157.626	44.36	0.00730
25006	342.527	0.306	0.01262	156.879	44.34	0.00730
25007	342.136	0.306	0.01265	156.175	44.31	0.00731
25008	341.815	0.305	0.01258	155.597	44.28	0.00727
25009	342.998	0.259	0.01264	157.726	37.61	0.00731
25010	342.592	0.259	0.01266	156.996	37.57	0.00732
25011	342.195	0.259	0.01268	156.281	37.53	0.00733
25012	341.836	0.258	0.01260	155.635	37.49	0.00729
25013	343.044	0.224	0.01279	157.809	32.47	0.00739
25014	342.633	0.224	0.01287	157.069	32.47	0.00744
25015	342.242	0.224	0.01276	156.366	32.47	0.00738
25016	341.859	0.224	0.01254	155.676	32.42	0.00725
25017	343.106	0.177	0.01293	157.921	25.68	0.00748
25018	342.678	0.177	0.01298	157.150	25.63	0.00750
25019	342.277	0.176	0.01289	156.429	25.56	0.00745
25020	341.899	0.176	0.01288	155.748	25.54	0.00745
25022	343.223	0.135	0.01304	158.131	19.63	0.00754
25022	342.776	0.135	0.01312	157.327	19.57	0.00759
25023	342.370	0.134	0.01310	156.596	19.50	0.00757
25024	341.979	0.134	0.01299	155.892	19.44	0.00751
25025	343.287	0.101	0.01329	158.247	14.58	0.00768
25026	342.840	0.100	0.01319	157.442	14.53	0.00763
25027	342.431	0.100	0.01324	156.706	14.54	0.00766
25028	342.036	0.100	0.01320	155.995	14.55	0.00763
26001	353.222	0.456	0.01333	176.130	66.12	0.00771
26002	352.815	0.456	0.01277	175.397	66.18	0.00738
26003	352.487	0.456	0.01316	174.807	66.19	0.00761
26004	352.165	0.456	0.01327	174.227	66.21	0.00767
26005	353.241	0.425	0.01336	176.164	61.60	0.00772
26006	352.859	0.425	0.01319	175.476	61.65	0.00763
26007	352.491	0.425	0.01324	174.814	61.63	0.00766
26008	352.166	0.425	0.01322	174.229	61.63	0.00764
26009	353.297	0.372	0.01332	176.265	53.99	0.00770
26010	352.881	0.372	0.01320	175.516	53.99	0.00763
26011	352.524	0.372	0.01320	174.873	53.96	0.00763
26012	352.169	0.372	0.01326	174.234	53.95	0.00767

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
26013	353.383	0.316	0.01338	176.419	45.87	0.00774
26014	352.978	0.316	0.01338	175.690	45.83	0.00774
26015	352.592	0.316	0.01335	174.996	45.79	0.00772
26016	352.236	0.316	0.01327	174.355	45.78	0.00767
26017	353.432	0.261	0.01342	176.508	37.91	0.00776
26018	353.023	0.261	0.01344	175.771	37.90	0.00777
26019	352.616	0.261	0.01345	175.039	37.88	0.00778
26020	352.239	0.261	0.01343	174.360	37.86	0.00776
26021	353.470	0.219	0.01358	176.576	31.75	0.00785
26022	353.053	0.218	0.01356	175.825	31.68	0.00784
26024	352.655	0.218	0.01350	175.109	31.63	0.00781
26024	352.309	0.218	0.01353	174.486	31.60	0.00782
26025	353.542	0.173	0.01371	176.706	25.12	0.00793
26026	353.128	0.173	0.01367	175.960	25.02	0.00790
26027	352.726	0.172	0.01369	175.237	24.97	0.00792
26027	352.362	0.172	0.01360	174.582	24.90	0.00786
26029	353.637	0.133	0.01390	176.877	19.32	0.00804
26030	353.174	0.131	0.01397	176.043	18.93	0.00808
26031	352.773	0.130	0.01383	175.321	18.90	0.00800
26032	352.400	0.130	0.01389	174.650	18.87	0.00803
26033	353.710	0.101	0.01402	177.008	14.59	0.00811
26034	353.241	0.101	0.01403	176.164	14.60	0.00811
26035	352.839	0.101	0.01397	175.440	14.61	0.00808
26036	352.469	0.101	0.01410	174.774	14.66	0.00815
4001	363.200	66.074	0.08557	194.090	9583.26	0.04947
4002	362.398	66.063	0.08607	192.646	9581.62	0.04976
4003	361.721	66.058	0.08640	191.428	9580.89	0.04995
4004	361.073	66.053	0.08620	190.261	9580.26	0.04984
4005	363.172	51.570	0.08142	194.040	7479.58	0.04708
4006	362.372	51.570	0.08163	192.600	7479.67	0.04720
4007	361.654	51.565	0.08183	191.307	7478.95	0.04731
4008	360.974	51.565	0.08184	190.083	7478.95	0.04732
4009	363.334	38.124	0.07675	194.331	5529.43	0.04438
4010	362.482	38.125	0.07676	192.798	5529.52	0.04438
4011	361.721	38.124	0.07715	191.428	5529.43	0.04461
4012	361.034	38.123	0.07745	190.191	5529.25	0.04478
4013	363.521	26.603	0.07237	194.668	3858.43	0.04184
4014	362.630	26.603	0.07264	193.064	3858.43	0.04200
4015	361.838	26.603	0.07283	191.638	3858.52	0.04211
4016	361.109	26.605	0.07310	190.326	3858.71	0.04226
4017	362.925	16.858	0.06844	193.595	2445.07	0.03957
4018	362.067	16.857	0.06846	192.051	2444.97	0.03958
4019	361.316	16.859	0.06879	190.699	2445.25	0.03977
4020	360.645	16.861	0.06881	189.491	2445.53	0.03978
4021	363.081	9.276	0.06480	193.876	1345.44	0.03747
4022	362.207	9.278	0.06500	192.303	1345.72	0.03758
4023	361.423	9.278	0.06521	190.891	1345.72	0.03770
4024	360.708	9.278	0.06537	189.604	1345.72	0.03780
4025	363.250	3.236	0.06149	194.180	469.40	0.03555

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
4026	362.325	3.236	0.06163	192.515	469.31	0.03563
4027	361.508	3.237	0.06186	191.044	469.49	0.03577
4028	360.774	3.238	0.06193	189.723	469.68	0.03581
27001	362.516	0.488	0.01385	192.859	70.81	0.00801
27002	362.105	0.489	0.01397	192.119	70.87	0.00808
27003	361.762	0.489	0.01390	191.502	70.93	0.00804
27004	361.418	0.489	0.01371	190.882	70.95	0.00793
27005	362.572	0.421	0.01389	192.960	61.04	0.00803
27006	362.179	0.421	0.01375	192.252	61.03	0.00795
27007	361.825	0.421	0.01383	191.615	61.02	0.00800
27008	361.500	0.420	0.01382	191.030	60.97	0.00799
27009	362.668	0.317	0.01404	193.132	46.03	0.00812
27010	362.259	0.317	0.01402	192.396	45.92	0.00811
27011	361.898	0.316	0.01404	191.746	45.88	0.00812
27012	361.568	0.316	0.01402	191.152	45.85	0.00811
27013	362.750	0.248	0.01409	193.280	35.95	0.00815
27014	362.360	0.248	0.01423	192.578	35.90	0.00823
27015	361.966	0.247	0.01418	191.869	35.84	0.00820
27016	361.624	0.247	0.01401	191.253	35.79	0.00810
27017	362.885	0.171	0.01438	193.523	24.77	0.00831
27018	362.425	0.170	0.01446	192.695	24.71	0.00836
27019	362.034	0.170	0.01444	191.991	24.63	0.00835
27020	361.684	0.169	0.01434	191.361	24.53	0.00829
27021	362.987	0.122	0.01468	193.707	17.72	0.00849
27022	362.518	0.122	0.01454	192.862	17.71	0.00841
27023	362.104	0.122	0.01462	192.117	17.70	0.00845
27024	361.736	0.122	0.01452	191.455	17.72	0.00840
28001	373.082	0.750	0.01391	211.878	108.73	0.00804
28002	372.726	0.750	0.01391	211.237	108.80	0.00804
28003	372.405	0.750	0.01386	210.659	108.80	0.00801
28004	372.087	0.750	0.01397	210.087	108.84	0.00808
28005	373.155	0.641	0.01459	212.009	92.98	0.00844
28006	372.772	0.641	0.01461	211.320	93.02	0.00845
28007	372.451	0.641	0.01457	210.742	93.03	0.00842
28008	372.130	0.641	0.01458	210.164	93.01	0.00843
28009	373.241	0.548	0.01459	212.164	79.42	0.00844
28010	372.860	0.547	0.01448	211.478	79.40	0.00837
28011	372.494	0.547	0.01455	210.819	79.39	0.00841
28012	372.198	0.547	0.01456	210.286	79.38	0.00842
28013	373.331	0.440	0.01466	212.326	63.84	0.00848
28014	372.957	0.440	0.01460	211.653	63.85	0.00844
28015	372.586	0.440	0.01463	210.985	63.86	0.00846
28016	372.297	0.440	0.01465	210.465	63.83	0.00847
28017	373.469	0.276	0.01489	212.574	40.06	0.00861
28018	373.055	0.276	0.01494	211.829	40.03	0.00864
28019	372.685	0.276	0.01479	211.163	40.01	0.00855
28020	372.333	0.275	0.01488	210.529	39.94	0.00860
28021	373.657	0.146	0.01528	212.913	21.17	0.00883
28022	373.236	0.146	0.01541	212.155	21.12	0.00891

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
28023	372.851	0.145	0.01536	211.462	20.99	0.00888
28024	372.476	0.145	0.01526	210.787	20.97	0.00882
5001	382.556	67.276	0.08326	228.931	9757.58	0.04814
5002	381.708	67.273	0.08345	227.404	9757.12	0.04825
5003	380.947	67.268	0.08360	226.035	9756.49	0.04834
5004	380.263	67.242	0.08384	224.803	9752.67	0.04847
5005	382.691	52.358	0.07864	229.174	7593.84	0.04547
5006	381.803	52.355	0.07867	227.575	7593.48	0.04549
5007	381.011	52.355	0.07898	226.150	7593.48	0.04566
5008	380.283	52.356	0.07872	224.839	7593.57	0.04551
5009	382.009	37.199	0.07323	227.946	5395.31	0.04234
5010	381.153	37.201	0.07359	226.405	5395.59	0.04255
5011	380.435	37.202	0.07062	225.113	5395.68	0.04083
5012	379.727	37.203	0.07387	223.839	5395.86	0.04271
5013	382.029	37.209	0.07329	227.982	5396.78	0.04237
5014	381.173	37.211	0.07343	226.441	5397.05	0.04246
5015	380.424	37.207	0.07367	225.093	5396.50	0.04259
5016	379.769	37.212	0.07392	223.914	5397.14	0.04274
5017	382.211	28.571	0.06995	228.310	4143.94	0.04044
5018	381.317	28.566	0.07024	226.701	4143.20	0.04061
5019	380.537	28.566	0.07015	225.297	4143.20	0.04056
5020	379.845	28.562	0.07056	224.051	4142.55	0.04080
5021	382.395	20.339	0.06645	228.641	2949.99	0.03842
5022	381.500	20.352	0.06654	227.030	2951.75	0.03847
5023	380.662	20.356	0.06669	225.522	2952.40	0.03856
5024	379.951	20.355	0.06701	224.242	2952.31	0.03874
5025	382.598	13.320	0.06307	229.006	1931.97	0.03647
5026	381.637	13.319	0.06319	227.277	1931.78	0.03654
5027	380.792	13.318	0.06332	225.756	1931.60	0.03661
5028	380.063	13.319	0.06343	224.443	1931.69	0.03667
5029	381.940	6.690	0.05950	227.822	970.25	0.03440
5030	381.021	6.690	0.05972	226.168	970.25	0.03453
5031	380.229	6.692	0.05997	224.742	970.53	0.03467
5032	379.523	6.692	0.06008	223.471	970.62	0.03474
5033	382.068	2.760	0.05686	228.052	400.37	0.03288
5034	381.124	2.760	0.05718	226.353	400.28	0.03306
5035	380.277	2.760	0.05724	224.829	400.28	0.03310
5036	379.588	2.760	0.05747	223.588	400.37	0.03323
29001	382.543	0.913	0.01425	228.907	132.48	0.00824
29002	382.216	0.914	0.01405	228.319	132.51	0.00812
29003	381.900	0.914	0.01374	227.750	132.51	0.00794
29004	381.581	0.914	0.01333	227.176	132.53	0.00771
29005	382.638	0.835	0.01529	229.078	121.07	0.00884
29006	382.277	0.835	0.01525	228.429	121.11	0.00882
29007	381.947	0.835	0.01518	227.835	121.04	0.00878
29008	381.628	0.835	0.01527	227.260	121.06	0.00883
29009	382.730	0.718	0.01522	229.244	104.10	0.00880
29010	382.355	0.718	0.01528	228.569	104.15	0.00883
29011	382.042	0.718	0.01508	228.006	104.12	0.00872

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
29012	381.718	0.718	0.01504	227.422	104.13	0.00870
29013	382.817	0.618	0.01520	229.401	89.65	0.00879
29014	382.436	0.618	0.01515	228.715	89.66	0.00876
29015	382.076	0.618	0.01509	228.067	89.66	0.00872
29016	381.734	0.618	0.01519	227.451	89.64	0.00878
29017	382.876	0.519	0.01528	229.507	75.32	0.00883
29018	382.536	0.519	0.01524	228.895	75.32	0.00881
29019	382.154	0.519	0.01514	228.207	75.26	0.00875
29020	381.827	0.519	0.01514	227.619	75.29	0.00875
29021	383.016	0.397	0.01539	229.759	57.56	0.00890
29022	382.630	0.397	0.01529	229.064	57.54	0.00884
29033	382.266	0.397	0.01536	228.409	57.53	0.00888
29024	381.890	0.397	0.01523	227.732	57.52	0.00881
29025	382.695	0.312	0.01545	229.181	45.31	0.00893
29026	382.303	0.312	0.01532	228.475	45.27	0.00886
29027	381.932	0.312	0.01547	227.808	45.24	0.00894
29028	381.633	0.311	0.01550	227.269	45.16	0.00896
29029	382.819	0.193	0.01581	229.404	27.98	0.00914
29030	382.423	0.193	0.01585	228.691	27.98	0.00916
29031	382.049	0.192	0.01587	228.018	27.91	0.00918
29032	381.623	0.192	0.01578	227.251	27.90	0.00912
29033	383.014	0.106	0.01624	229.755	15.40	0.00939
29034	382.605	0.106	0.01621	229.019	15.42	0.00937
29035	382.196	0.106	0.01601	228.283	15.42	0.00926
29036	381.796	0.106	0.01625	227.563	15.41	0.00940
30001	392.949	1.123	0.01541	247.638	162.82	0.00891
30002	392.622	1.123	0.01530	247.050	162.85	0.00885
30003	392.307	1.123	0.01508	246.483	162.89	0.00872
30004	392.020	1.123	0.01491	245.966	162.86	0.00862
30005	393.076	0.951	0.01593	247.867	137.89	0.00921
30006	392.716	0.951	0.01593	247.219	137.90	0.00921
30007	392.388	0.951	0.01603	246.628	137.92	0.00927
30008	392.117	0.951	0.01579	246.141	137.93	0.00913
30009	393.109	0.869	0.01593	247.926	126.10	0.00921
30010	392.791	0.869	0.01587	247.354	126.08	0.00918
30011	392.429	0.869	0.01578	246.702	126.09	0.00912
30012	392.116	0.869	0.01583	246.139	126.10	0.00915
30013	393.207	0.735	0.01595	248.103	106.63	0.00922
30014	392.848	0.735	0.01589	247.456	106.60	0.00919
30015	392.489	0.735	0.01573	246.810	106.64	0.00909
30016	392.173	0.735	0.01590	246.241	106.67	0.00919
30017	393.300	0.616	0.01592	248.270	89.37	0.00920
30018	392.934	0.616	0.01582	247.611	89.32	0.00915
30019	392.558	0.616	0.01583	246.934	89.31	0.00915
30020	392.248	0.616	0.01582	246.376	89.33	0.00915
30021	393.423	0.494	0.01595	248.491	71.63	0.00922
30022	393.035	0.494	0.01604	247.793	71.59	0.00927
30023	392.651	0.494	0.01597	247.102	71.60	0.00923
30024	392.354	0.493	0.01600	246.567	71.55	0.00925

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
30025	393.097	0.390	0.01603	247.905	56.53	0.00927
30026	392.738	0.389	0.01606	247.258	56.46	0.00929
30027	392.379	0.389	0.01614	246.612	56.42	0.00933
30028	392.066	0.388	0.01588	246.049	56.34	0.00918
30029	393.229	0.291	0.01627	248.142	42.20	0.00941
30030	392.803	0.290	0.01622	247.375	42.08	0.00938
30031	392.449	0.290	0.01637	246.738	42.01	0.00946
30032	392.113	0.290	0.01638	246.133	42.00	0.00947
30033	393.292	0.216	0.01658	248.256	31.27	0.00959
30035	392.874	0.215	0.01653	247.503	31.21	0.00956
30035	392.488	0.214	0.01649	246.808	31.08	0.00953
30036	392.174	0.213	0.01644	246.243	30.95	0.00951
30037	393.469	0.106	0.01700	248.574	15.43	0.00983
30038	393.029	0.106	0.01701	247.782	15.41	0.00983
30039	392.654	0.106	0.01709	247.107	15.37	0.00988
30040	392.280	0.106	0.01704	246.434	15.43	0.00985
6001	402.024	67.179	0.08114	263.973	9743.53	0.04691
6002	401.157	67.166	0.08109	262.413	9741.71	0.04688
6003	400.397	67.168	0.08100	261.045	9741.89	0.04683
6004	399.718	67.168	0.08113	259.822	9741.98	0.04691
6005	402.114	54.020	0.07647	264.135	7835.00	0.04421
6006	401.229	54.022	0.07660	262.542	7835.19	0.04429
6007	400.447	54.023	0.07663	261.135	7835.46	0.04431
6008	399.751	54.023	0.07691	259.882	7835.37	0.04447
6009	402.321	41.889	0.07239	264.508	6075.53	0.04185
6010	401.411	41.890	0.07242	262.870	6075.62	0.04187
6011	400.570	41.892	0.07239	261.356	6075.90	0.04185
6012	399.837	41.893	0.07258	260.037	6076.08	0.04196
6013	401.618	31.198	0.06826	263.242	4524.90	0.03947
6014	400.724	31.199	0.06858	261.633	4525.08	0.03965
6015	399.945	31.198	0.06810	260.231	4524.90	0.03937
6016	399.265	31.199	0.06845	259.007	4525.08	0.03958
6017	401.597	31.202	0.06849	263.205	4525.45	0.03960
6018	400.719	31.206	0.06848	261.624	4526.00	0.03959
6019	399.966	31.209	0.06822	260.269	4526.46	0.03944
6020	399.254	31.211	0.06840	258.987	4526.83	0.03955
6021	401.810	23.290	0.06468	263.588	3377.94	0.03740
6022	400.880	23.293	0.06472	261.914	3378.32	0.03742
6023	400.071	23.293	0.06480	260.458	3378.32	0.03747
6024	399.342	23.291	0.06520	259.146	3378.13	0.03770
6025	402.223	16.258	0.06110	264.331	2358.01	0.03533
6025	402.196	16.253	0.06111	264.283	2357.27	0.03533
6026	401.238	16.252	0.06131	262.558	2357.18	0.03545
6027	400.374	16.252	0.06131	261.003	2357.18	0.03545
6028	399.590	16.255	0.06158	259.592	2357.55	0.03560
6029	402.368	10.752	0.05825	264.592	1559.49	0.03368
6030	401.367	10.752	0.05822	262.791	1559.49	0.03366
6031	400.467	10.752	0.05843	261.171	1559.40	0.03378
6032	399.667	10.754	0.05844	259.731	1559.67	0.03379

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
6033	401.480	7.125	0.05573	262.994	1033.45	0.03222
6034	400.561	7.125	0.05601	261.340	1033.45	0.03238
6035	399.746	7.126	0.05618	259.873	1033.54	0.03248
6036	399.032	7.127	0.05632	258.588	1033.64	0.03256
6037	401.665	3.690	0.05322	263.327	535.19	0.03077
6038	400.710	3.690	0.05354	261.608	535.19	0.03096
6039	399.850	3.691	0.05360	260.060	535.28	0.03099
6040	399.115	3.692	0.05394	258.737	535.47	0.03119
6041	401.785	1.578	0.05170	263.543	228.85	0.02989
6042	400.792	1.579	0.05184	261.756	228.95	0.02997
6043	399.887	1.577	0.05204	260.127	228.76	0.03009
6044	399.150	1.578	0.05219	258.800	228.85	0.03018
31001	403.215	1.334	0.01693	266.117	193.55	0.00979
31002	402.906	1.335	0.01690	265.561	193.60	0.00977
31003	402.607	1.335	0.01685	265.023	193.69	0.00974
31004	402.317	1.336	0.01682	264.501	193.70	0.00972
31005	403.284	1.215	0.01682	266.241	176.21	0.00972
31006	402.969	1.215	0.01680	265.674	176.23	0.00971
31007	402.683	1.215	0.01674	265.159	176.24	0.00968
31008	402.387	1.215	0.01676	264.627	176.23	0.00969
31009	403.382	1.079	0.01668	266.418	156.54	0.00964
31010	403.050	1.079	0.01666	265.820	156.52	0.00963
31011	402.790	1.079	0.01658	265.352	156.51	0.00959
31012	402.475	1.079	0.01658	264.785	156.52	0.00959
31013	403.547	0.881	0.01658	266.715	127.78	0.00959
31014	403.186	0.881	0.01650	266.065	127.73	0.00954
31015	402.841	0.880	0.01643	265.444	127.70	0.00950
31016	402.551	0.880	0.01647	264.922	127.68	0.00952
31017	403.638	0.753	0.01657	266.878	109.28	0.00958
31018	403.288	0.753	0.01652	266.248	109.22	0.00955
31019	402.945	0.753	0.01649	265.631	109.20	0.00953
31020	402.615	0.753	0.01645	265.037	109.15	0.00951
31021	403.323	0.638	0.01663	266.311	92.48	0.00962
31022	402.993	0.637	0.01655	265.717	92.43	0.00957
31023	402.656	0.637	0.01654	265.111	92.44	0.00956
31024	402.380	0.637	0.01652	264.614	92.43	0.00955
31025	403.420	0.502	0.01662	266.486	72.87	0.00961
31026	403.090	0.502	0.01665	265.892	72.79	0.00963
31027	402.745	0.501	0.01666	265.271	72.71	0.00963
31028	402.437	0.501	0.01662	264.717	72.68	0.00961
31029	403.517	0.385	0.01684	266.661	55.81	0.00974
31030	403.163	0.385	0.01686	266.023	55.77	0.00975
31031	402.829	0.384	0.01698	265.422	55.75	0.00982
31032	402.493	0.384	0.01677	264.817	55.72	0.00970
31033	403.611	0.273	0.01716	266.830	39.55	0.00992
31034	403.256	0.272	0.01716	266.191	39.50	0.00992
31035	402.933	0.273	0.01724	265.609	39.54	0.00997
31036	402.559	0.272	0.01711	264.936	39.44	0.00989
31037	403.839	0.132	0.01789	267.240	19.11	0.01034

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
31038	403.433	0.131	0.01787	266.509	19.03	0.01033
31039	403.060	0.131	0.01784	265.838	18.97	0.01031
31040	402.717	0.130	0.01791	265.221	18.91	0.01036
32001	411.953	1.585	0.01820	281.845	229.87	0.01052
32002	411.702	1.584	0.01839	281.394	229.70	0.01063
32003	411.472	1.583	0.01811	280.980	229.63	0.01047
32004	411.242	1.583	0.01807	280.566	229.60	0.01045
32005	412.078	1.451	0.01818	282.070	210.46	0.01051
32006	411.796	1.451	0.01796	281.563	210.45	0.01038
32007	411.560	1.451	0.01799	281.138	210.46	0.01040
32008	411.314	1.451	0.01783	280.695	210.46	0.01031
32000	412.174	1.299	0.01784	282.243	188.38	0.01031
32009	412.185	1.299	0.01763	282.263	188.35	0.01019
32010	411.918	1.299	0.01745	281.782	188.38	0.01009
32011	411.643	1.299	0.01776	281.287	188.38	0.01027
32012	411.400	1.299	0.01750	280.850	188.38	0.01012
32013	412.306	1.150	0.01746	282.481	166.75	0.01010
32014	411.992	1.150	0.01748	281.916	166.79	0.01011
32015	411.718	1.150	0.01746	281.422	166.79	0.01010
32016	411.470	1.150	0.01731	280.976	166.79	0.01001
32017	412.413	0.997	0.01735	282.673	144.61	0.01003
32018	412.109	0.998	0.01745	282.126	144.75	0.01009
32019	411.815	0.999	0.01733	281.597	144.93	0.01002
32020	411.556	1.000	0.01729	281.131	145.00	0.01000
32021	412.508	0.823	0.01729	282.844	119.30	0.01000
32022	412.194	0.822	0.01727	282.279	119.23	0.00999
32023	411.901	0.822	0.01724	281.752	119.16	0.00997
32024	411.600	0.821	0.01722	281.210	119.14	0.00996
32025	412.592	0.649	0.01731	282.996	94.17	0.01001
32026	412.278	0.649	0.01736	282.430	94.11	0.01004
32027	411.978	0.648	0.01744	281.890	94.03	0.01008
32028	411.688	0.648	0.01731	281.368	94.01	0.01001
32029	412.721	0.497	0.01735	283.228	72.13	0.01003
32030	412.402	0.496	0.01754	282.654	72.01	0.01014
32031	412.063	0.496	0.01745	282.043	71.94	0.01009
32032	411.786	0.495	0.01737	281.545	71.84	0.01004
32033	412.836	0.371	0.01765	283.435	53.80	0.01020
32034	412.495	0.370	0.01773	282.821	53.70	0.01025
32035	412.165	0.370	0.01768	282.227	53.65	0.01022
32036	411.847	0.370	0.01762	281.655	53.69	0.01019
32037	412.997	0.221	0.01811	283.725	32.08	0.01047
32038	412.631	0.221	0.01815	283.066	32.00	0.01049
32039	412.262	0.220	0.01821	282.402	31.91	0.01053
32040	411.954	0.220	0.01826	281.847	31.96	0.01056
32041	413.197	0.119	0.01879	284.085	17.29	0.01086
32042	412.805	0.121	0.01854	283.379	17.50	0.01072
32043	412.439	0.124	0.01880	282.720	17.94	0.01087
32044	412.073	0.125	0.01875	282.061	18.08	0.01084
42001	423.161	69.189	0.08065	302.020	10035.06	0.04663

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
42002	422.751	69.186	0.08066	301.282	10034.56	0.04664
42003	422.373	69.186	0.08070	300.601	10034.56	0.04666
42004	422.030	69.179	0.08064	299.984	10033.59	0.04662
42005	423.072	55.832	0.07572	301.860	8097.77	0.04378
42006	422.638	55.835	0.07570	301.078	8098.17	0.04377
42007	422.248	55.838	0.07555	300.376	8098.61	0.04368
42008	421.892	55.842	0.07584	299.736	8099.25	0.04385
42009	423.046	45.258	0.07187	301.813	6564.09	0.04155
42010	422.601	45.262	0.07169	301.012	6564.79	0.04145
42011	422.191	45.269	0.07169	300.274	6565.77	0.04145
42012	421.817	45.272	0.07166	299.601	6566.24	0.04143
42013	423.091	35.851	0.06704	301.894	5199.70	0.03876
42014	422.622	35.855	0.06698	301.050	5200.29	0.03873
42015	422.189	35.860	0.06723	300.270	5201.01	0.03887
42016	421.795	35.859	0.06685	299.561	5200.98	0.03865
42017	423.131	27.874	0.06322	301.966	4042.84	0.03655
42018	422.634	27.877	0.06327	301.071	4043.28	0.03658
42019	422.175	27.874	0.06311	300.245	4042.83	0.03649
42020	421.762	27.871	0.06318	299.502	4042.34	0.03653
42021	422.799	21.545	0.05981	301.368	3124.82	0.03458
42022	422.306	21.546	0.05992	300.481	3124.97	0.03464
42023	421.859	21.547	0.05971	299.676	3125.13	0.03452
42024	421.450	21.549	0.06000	298.940	3125.49	0.03469
42025	422.832	15.917	0.05662	301.428	2308.64	0.03274
42026	422.319	15.918	0.05668	300.504	2308.69	0.03277
42027	421.852	15.918	0.05652	299.664	2308.71	0.03268
42028	421.423	15.920	0.05662	298.891	2309.05	0.03274
42029	422.962	8.321	0.05151	301.662	1206.85	0.02978
42030	422.404	8.320	0.05148	300.657	1206.68	0.02976
42031	421.898	8.319	0.05165	299.746	1206.51	0.02986
42032	421.439	8.317	0.05166	298.920	1206.23	0.02987
42033	422.989	11.649	0.05390	301.710	1689.50	0.03116
42034	422.449	11.650	0.05387	300.738	1689.69	0.03115
42035	421.958	11.650	0.05391	299.854	1689.76	0.03117
42036	421.510	11.648	0.05397	299.048	1689.47	0.03120
42037	422.677	5.393	0.04915	301.149	782.16	0.02842
42038	422.119	5.393	0.04910	300.144	782.26	0.02839
42039	421.625	5.395	0.04918	299.255	782.52	0.02843
42040	421.180	5.396	0.04902	298.454	782.62	0.02834
42041	422.727	3.797	0.04762	301.239	550.73	0.02753
42042	422.168	3.798	0.04772	300.232	550.81	0.02759
42043	421.667	3.799	0.04761	299.331	551.05	0.02753
42044	421.205	3.800	0.04783	298.499	551.10	0.02765
42045	422.800	2.343	0.04608	301.370	339.86	0.02664
42046	422.225	2.344	0.04611	300.335	339.95	0.02666
42047	421.707	2.345	0.04606	299.403	340.05	0.02663
42048	421.239	2.345	0.04594	298.560	340.14	0.02656
33001	423.816	2.007	0.01890	303.199	291.10	0.01093
33002	423.513	2.009	0.01842	302.653	291.40	0.01065

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
33003	423.253	2.009	0.01803	302.185	291.42	0.01042
33004	422.965	2.010	0.01773	301.667	291.49	0.01025
33005	423.769	1.939	0.01942	303.114	281.16	0.01123
33006	423.485	1.938	0.01946	302.603	281.11	0.01125
33007	423.216	1.938	0.01953	302.119	281.15	0.01129
33008	422.951	1.938	0.01916	301.642	281.14	0.01108
33009	423.867	1.886	0.01920	303.291	273.53	0.01110
33010	423.526	1.886	0.01983	302.677	273.56	0.01147
33011	423.250	1.886	0.01955	302.180	273.56	0.01130
33012	423.005	1.886	0.01947	301.739	273.58	0.01126
33013	423.923	1.764	0.01937	303.391	255.84	0.01120
33014	423.621	1.764	0.01935	302.848	255.87	0.01119
33015	423.366	1.764	0.01941	302.389	255.88	0.01122
33016	423.118	1.764	0.01916	301.942	255.85	0.01108
33017	423.873	1.672	0.01903	303.301	242.49	0.01100
33018	423.555	1.672	0.01888	302.729	242.52	0.01092
33019	423.280	1.672	0.01891	302.234	242.50	0.01093
33020	423.026	1.672	0.01893	301.777	242.53	0.01094
33021	423.943	1.558	0.01879	303.427	226.01	0.01086
33023	423.347	1.558	0.01873	302.355	225.96	0.01083
33022	423.642	1.558	0.01873	302.886	225.95	0.01083
33024	423.066	1.558	0.01865	301.849	225.91	0.01078
33025	423.919	1.369	0.01835	303.384	198.60	0.01061
33026	423.614	1.369	0.01832	302.835	198.59	0.01059
33027	423.315	1.369	0.01832	302.297	198.51	0.01059
33028	423.047	1.369	0.01836	301.815	198.54	0.01062
33029	423.995	1.265	0.01824	303.521	183.41	0.01055
33030	423.681	1.264	0.01827	302.956	183.39	0.01056
33031	423.361	1.264	0.01829	302.380	183.37	0.01057
33032	423.080	1.264	0.01822	301.874	183.37	0.01053
33033	424.038	1.148	0.01816	303.598	166.44	0.01050
33034	423.718	1.147	0.01807	303.022	166.41	0.01045
33035	423.460	1.148	0.01801	302.558	166.44	0.01041
33036	423.121	1.148	0.01800	301.948	166.49	0.01041
33037	424.138	1.021	0.01798	303.778	148.09	0.01040
33038	423.808	1.020	0.01795	303.184	148.01	0.01038
33039	423.494	1.021	0.01797	302.619	148.06	0.01039
33040	423.193	1.021	0.01797	302.077	148.03	0.01039
33041	423.861	0.899	0.01800	303.280	130.44	0.01041
33042	423.541	0.899	0.01803	302.704	130.38	0.01042
33043	423.233	0.899	0.01791	302.149	130.35	0.01036
33044	422.951	0.899	0.01800	301.642	130.40	0.01041
33045	423.927	0.795	0.01791	303.399	115.33	0.01036
33046	423.575	0.796	0.01799	302.765	115.44	0.01040
33047	423.258	0.796	0.01788	302.194	115.52	0.01034
33048	422.977	0.797	0.01796	301.689	115.59	0.01038
33049	423.595	0.691	0.01870	302.801	100.18	0.01081
33050	423.293	0.691	0.01847	302.257	100.23	0.01068
33051	422.989	0.691	0.01830	301.710	100.21	0.01058

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
33052	422.734	0.691	0.01818	301.251	100.23	0.01051
33053	423.685	0.557	0.01827	302.963	80.78	0.01056
33054	423.359	0.557	0.01837	302.376	80.79	0.01062
33055	423.057	0.557	0.01828	301.833	80.76	0.01057
33056	422.766	0.557	0.01815	301.309	80.73	0.01049
33057	423.788	0.390	0.01848	303.148	56.59	0.01068
33058	423.464	0.390	0.01846	302.565	56.54	0.01067
33059	423.145	0.389	0.01837	301.991	56.45	0.01062
33060	422.863	0.389	0.01849	301.483	56.46	0.01069
33061	423.925	0.266	0.01882	303.395	38.54	0.01088
33062	423.585	0.266	0.01889	302.783	38.52	0.01092
33063	423.261	0.265	0.01872	302.200	38.48	0.01082
33064	422.947	0.265	0.01865	301.635	38.47	0.01078
33065	423.982	0.119	0.01961	303.498	17.24	0.01134
33066	423.622	0.119	0.01975	302.850	17.26	0.01142
33067	423.277	0.120	0.01988	302.229	17.38	0.01149
33068	422.934	0.121	0.01964	301.611	17.52	0.01136
34025	433.111	2.069	0.02011	319.930	300.11	0.01163
34026	432.829	2.041	0.01996	319.422	295.97	0.01154
34027	432.573	2.098	0.02000	318.961	304.23	0.01156
34028	432.320	2.069	0.01980	318.506	300.11	0.01145
34029	432.890	1.993	0.01956	319.532	289.08	0.01131
34030	432.624	1.963	0.01966	319.053	284.76	0.01137
34031	432.380	1.991	0.01966	318.614	288.83	0.01137
34032	432.124	1.963	0.01963	318.153	284.72	0.01135
34033	432.931	1.900	0.01964	319.606	275.62	0.01136
34034	432.658	1.899	0.01963	319.114	275.50	0.01135
34035	432.397	1.899	0.01946	318.645	275.42	0.01125
34036	432.159	1.899	0.01961	318.216	275.39	0.01134
34037	432.977	1.838	0.01937	319.689	266.55	0.01120
34038	432.706	1.838	0.01943	319.201	266.52	0.01123
34039	432.439	1.837	0.01936	318.720	266.50	0.01119
34040	432.195	1.837	0.01937	318.281	266.49	0.01120
34041	433.047	1.732	0.01909	319.815	251.19	0.01104
34042	432.769	1.732	0.01914	319.314	251.17	0.01107
34043	432.494	1.732	0.01921	318.819	251.20	0.01111
34044	432.228	1.732	0.01916	318.340	251.16	0.01108
34045	433.108	1.645	0.01905	319.924	238.65	0.01101
34046	432.808	1.645	0.01904	319.384	238.65	0.01101
34047	432.542	1.645	0.01887	318.906	238.63	0.01091
34048	432.278	1.645	0.01913	318.430	238.62	0.01106
34049	433.171	1.540	0.01890	320.038	223.42	0.01093
34050	432.873	1.540	0.01878	319.501	223.43	0.01086
34051	432.604	1.541	0.01900	319.017	223.44	0.01099
34052	432.322	1.540	0.01876	318.510	223.41	0.01085
34053	433.250	1.420	0.01874	320.180	205.92	0.01084
34054	432.940	1.419	0.01886	319.622	205.85	0.01090
34055	432.653	1.419	0.01885	319.105	205.78	0.01090
34056	432.384	1.418	0.01874	318.621	205.69	0.01084

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
34057	433.292	1.339	0.01864	320.256	194.21	0.01078
34058	432.987	1.339	0.01869	319.707	194.15	0.01081
34059	432.682	1.339	0.01857	319.158	194.14	0.01074
34060	432.415	1.338	0.01855	318.677	194.12	0.01073
34061	433.037	1.223	0.01857	319.797	177.34	0.01074
34062	432.744	1.222	0.01865	319.269	177.28	0.01078
34063	432.447	1.222	0.01843	318.735	177.28	0.01066
34064	432.194	1.221	0.01850	318.279	177.15	0.01070
34065	433.189	1.072	0.01862	320.070	155.46	0.01077
34066	432.887	1.072	0.01865	319.527	155.43	0.01078
34067	432.594	1.071	0.01839	318.999	155.40	0.01063
34068	432.324	1.072	0.01847	318.513	155.44	0.01068
34069	433.245	0.954	0.01845	320.171	138.31	0.01067
34070	432.922	0.951	0.01857	319.590	137.96	0.01074
34071	432.639	0.949	0.01841	319.080	137.71	0.01064
34072	432.386	0.951	0.01858	318.625	137.90	0.01074
34073	433.330	0.793	0.01868	320.324	115.00	0.01080
34074	433.017	0.793	0.01851	319.761	115.00	0.01070
34075	432.697	0.793	0.01845	319.185	114.98	0.01067
34076	432.414	0.792	0.01839	318.675	114.94	0.01063
34077	433.063	0.661	0.01870	319.843	95.82	0.01081
34078	432.748	0.658	0.01856	319.276	95.50	0.01073
34079	432.458	0.656	0.01860	318.754	95.17	0.01075
34080	432.180	0.654	0.01847	318.254	94.79	0.01068
34081	433.097	0.563	0.01878	319.905	81.71	0.01086
34082	432.759	0.563	0.01864	319.296	81.61	0.01078
34083	432.465	0.562	0.01873	318.767	81.53	0.01083
34084	432.188	0.561	0.01893	318.268	81.42	0.01094
34085	433.218	0.384	0.01905	320.122	55.64	0.01101
34086	432.889	0.385	0.01918	319.530	55.77	0.01109
34087	432.573	0.386	0.01912	318.961	55.92	0.01105
34088	432.274	0.386	0.01903	318.423	55.97	0.01100
34089	433.374	0.235	0.01974	320.403	34.12	0.01141
34090	433.041	0.235	0.01988	319.804	34.06	0.01149
34091	432.699	0.235	0.01968	319.188	34.05	0.01138
34092	432.385	0.235	0.01965	318.623	34.03	0.01136
34093	433.584	0.117	0.02047	320.781	16.98	0.01184
34094	433.207	0.119	0.02028	320.103	17.19	0.01173
34095	432.859	0.120	0.02026	319.476	17.34	0.01171
34096	432.530	0.122	0.02016	318.884	17.70	0.01166
38001	430.901	2.250	0.02113	315.952	326.33	0.01222
38003	430.643	2.250	0.02094	315.487	326.39	0.01211
38005	430.420	2.251	0.02093	315.086	326.47	0.01210
38007	430.194	2.251	0.02098	314.679	326.52	0.01213
38009	430.196	2.252	0.02085	314.683	326.64	0.01206
38011	429.986	2.252	0.02071	314.305	326.67	0.01197
38013	429.789	2.253	0.02078	313.950	326.70	0.01201
38015	429.607	2.252	0.02054	313.623	326.68	0.01188
38017	430.779	2.105	0.01995	315.732	305.30	0.01153

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
38019	430.542	2.105	0.01994	315.306	305.30	0.01153
38021	430.307	2.105	0.01988	314.883	305.30	0.01149
38023	430.090	2.105	0.01981	314.492	305.31	0.01145
38025	430.906	1.954	0.01936	315.961	283.34	0.01119
38027	430.651	1.954	0.01934	315.502	283.37	0.01118
38029	430.418	1.954	0.01930	315.082	283.37	0.01116
38031	430.183	1.954	0.01938	314.659	283.41	0.01121
38033	430.998	1.818	0.01915	316.126	263.61	0.01107
38035	430.742	1.818	0.01901	315.666	263.61	0.01099
38037	430.495	1.818	0.01903	315.221	263.65	0.01100
38039	430.260	1.818	0.01888	314.798	263.66	0.01092
38041	431.116	1.619	0.01873	316.339	234.88	0.01083
38043	430.838	1.619	0.01879	315.838	234.82	0.01086
38045	430.584	1.618	0.01870	315.381	234.69	0.01081
38047	430.338	1.617	0.01853	314.938	234.59	0.01071
38049	431.260	1.386	0.01841	316.598	201.04	0.01064
38051	430.975	1.386	0.01844	316.085	200.99	0.01066
38053	430.707	1.386	0.01837	315.603	201.01	0.01062
38055	430.447	1.386	0.01824	315.135	201.00	0.01055
38057	431.052	1.187	0.01831	316.224	172.13	0.01059
38059	430.772	1.181	0.01827	315.720	171.26	0.01056
38061	430.514	1.175	0.01831	315.255	170.41	0.01059
38063	430.259	1.169	0.01838	314.796	169.57	0.01063
38065	431.049	1.078	0.01824	316.218	156.42	0.01055
38067	430.764	1.079	0.01825	315.705	156.48	0.01055
38069	430.492	1.079	0.01814	315.216	156.54	0.01049
38071	430.233	1.079	0.01830	314.749	156.55	0.01058
38073	431.144	0.906	0.01835	316.389	131.36	0.01061
38075	430.851	0.906	0.01823	315.862	131.37	0.01054
38077	430.571	0.905	0.01822	315.358	131.31	0.01053
38079	430.302	0.905	0.01811	314.874	131.31	0.01047
38081	431.243	0.688	0.01844	316.567	99.72	0.01066
38083	430.948	0.677	0.01847	316.036	98.23	0.01068
38085	430.665	0.668	0.01823	315.527	96.90	0.01054
38087	430.389	0.659	0.01846	315.030	95.61	0.01067
38089	431.371	0.510	0.01855	316.798	73.99	0.01073
38091	431.055	0.510	0.01860	316.229	73.99	0.01075
38093	430.751	0.510	0.01843	315.682	73.97	0.01066
38095	430.467	0.510	0.01861	315.171	73.96	0.01076
38097	431.542	0.299	0.01921	317.106	43.31	0.01111
38099	431.205	0.299	0.01924	316.499	43.30	0.01112
38101	430.887	0.299	0.01904	315.927	43.30	0.01101
38103	430.588	0.298	0.01908	315.388	43.28	0.01103
38105	431.406	0.143	0.01998	316.861	20.76	0.01155
38107	431.066	0.142	0.01993	316.249	20.61	0.01152
38109	430.743	0.142	0.01989	315.667	20.53	0.01150
38111	430.442	0.141	0.01984	315.126	20.44	0.01147
38113	430.618	2.287	0.02153	315.442	331.67	0.01245
38115	430.378	2.287	0.02146	315.010	331.77	0.01241

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
38117	430.157	2.288	0.02138	314.613	331.84	0.01236
38119	429.940	2.288	0.02106	314.222	331.90	0.01218
38121	430.803	2.124	0.02003	315.775	308.12	0.01158
38123	430.563	2.123	0.02007	315.343	307.93	0.01160
38125	430.332	2.122	0.01998	314.928	307.78	0.01155
38127	430.107	2.121	0.01997	314.523	307.66	0.01155
38129	430.718	1.959	0.01954	315.622	284.19	0.01130
38131	430.466	1.960	0.01935	315.169	284.25	0.01119
38133	430.235	1.959	0.01946	314.753	284.19	0.01125
38135	430.005	1.960	0.01935	314.339	284.25	0.01119
38137	430.820	1.832	0.01914	315.806	265.76	0.01107
38139	430.560	1.832	0.01904	315.338	265.76	0.01101
38141	430.314	1.833	0.01894	314.895	265.79	0.01095
38143	430.089	1.832	0.01897	314.490	265.77	0.01097
38145	430.923	1.680	0.01885	315.991	243.73	0.01090
38147	430.656	1.681	0.01883	315.511	243.76	0.01089
38149	430.404	1.681	0.01879	315.057	243.75	0.01086
38151	430.159	1.681	0.01886	314.616	243.75	0.01090
38153	430.995	1.556	0.01861	316.121	225.74	0.01076
38155	430.715	1.556	0.01865	315.617	225.65	0.01078
38157	430.457	1.556	0.01849	315.153	225.66	0.01069
38159	430.212	1.556	0.01860	314.712	225.69	0.01075
38161	431.080	1.393	0.01843	316.274	202.00	0.01066
38163	430.796	1.392	0.01848	315.763	201.91	0.01068
38165	430.520	1.392	0.01845	315.266	201.93	0.01067
38167	430.269	1.392	0.01836	314.814	201.93	0.01062
40002	444.924	68.492	0.07808	341.193	9934.01	0.04514
40003	444.474	68.485	0.07808	340.383	9932.97	0.04514
40004	444.045	68.479	0.07816	339.611	9932.12	0.04519
40005	445.526	57.608	0.07388	342.277	8355.38	0.04272
40006	445.009	57.606	0.07394	341.346	8355.01	0.04275
40007	444.528	57.603	0.07398	340.480	8354.68	0.04277
40008	444.096	57.601	0.07395	339.703	8354.40	0.04276
40009	445.662	46.977	0.06963	342.522	6813.51	0.04026
40010	445.128	46.979	0.06957	341.560	6813.68	0.04022
40011	444.636	46.978	0.06962	340.675	6813.64	0.04025
40012	444.179	46.978	0.06974	339.852	6813.58	0.04032
40013	445.841	37.614	0.06551	342.844	5455.46	0.03788
40014	445.284	37.615	0.06570	341.841	5455.61	0.03799
40015	444.762	37.617	0.06556	340.902	5455.85	0.03791
40016	444.284	37.618	0.06577	340.041	5456.11	0.03803
40017	445.180	30.594	0.06234	341.654	4437.23	0.03604
40018	444.654	30.592	0.06235	340.707	4437.04	0.03605
40019	444.170	30.591	0.06249	339.836	4436.82	0.03613
40020	443.728	30.591	0.06239	339.040	4436.88	0.03607
40021	445.318	23.886	0.05892	341.902	3464.45	0.03407
40022	444.766	23.887	0.05904	340.909	3464.60	0.03414
40023	444.262	23.889	0.05893	340.002	3464.80	0.03407
40024	443.800	23.890	0.05905	339.170	3464.94	0.03414

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{o}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
40025	444.694	19.680	0.05650	340.779	2854.28	0.03267
40026	444.188	19.681	0.05652	339.868	2854.51	0.03268
40027	443.723	19.681	0.05663	339.031	2854.52	0.03274
40028	443.306	19.681	0.05659	338.281	2854.54	0.03272
40029	444.786	15.411	0.05409	340.945	2235.22	0.03127
40030	444.259	15.412	0.05391	339.996	2235.35	0.03117
40031	443.774	15.414	0.05403	339.123	2235.64	0.03124
40032	443.349	15.415	0.05410	338.358	2235.72	0.03128
40033	444.904	11.817	0.05137	341.157	1713.91	0.02970
40034	444.351	11.818	0.05138	340.162	1714.03	0.02971
40035	443.856	11.819	0.05155	339.271	1714.20	0.02981
40036	443.408	11.820	0.05135	338.464	1714.31	0.02969
40037	445.009	8.932	0.04909	341.346	1295.50	0.02838
40038	444.434	8.933	0.04903	340.311	1295.57	0.02835
40039	443.919	8.933	0.04920	339.384	1295.61	0.02845
40040	443.449	8.933	0.04918	338.538	1295.69	0.02843
40041	444.687	6.961	0.04726	340.767	1009.59	0.02732
40042	444.134	6.961	0.04736	339.771	1009.57	0.02738
40043	443.642	6.962	0.04729	338.886	1009.70	0.02734
40044	443.196	6.962	0.04744	338.083	1009.79	0.02743
40045	444.770	5.550	0.04579	340.916	804.98	0.02647
40046	444.208	5.550	0.04577	339.904	805.03	0.02646
40047	443.694	5.551	0.04593	338.979	805.07	0.02656
40048	443.240	5.551	0.04607	338.162	805.12	0.02664
40049	444.827	4.357	0.04439	341.019	631.90	0.02567
40050	444.250	4.357	0.04430	339.980	631.89	0.02561
40051	443.727	4.356	0.04433	339.039	631.84	0.02563
40052	443.264	4.357	0.04453	338.205	631.93	0.02575
40053	444.869	3.319	0.04298	341.094	481.45	0.02485
40054	444.281	3.319	0.04285	340.036	481.42	0.02478
40055	443.747	3.320	0.04281	339.075	481.47	0.02475
40056	443.274	3.320	0.04291	338.223	481.55	0.02481
44009	442.552	2.797	0.02335	336.924	405.74	0.01350
44011	442.382	2.798	0.02330	336.618	405.75	0.01347
44013	442.220	2.797	0.02327	336.326	405.71	0.01345
44015	442.062	2.798	0.02322	336.042	405.77	0.01343
44017	442.651	2.753	0.02299	337.102	399.30	0.01329
44019	442.480	2.753	0.02286	336.794	399.23	0.01322
44021	442.309	2.753	0.02293	336.486	399.27	0.01326
44023	442.149	2.753	0.02291	336.198	399.32	0.01325
44025	442.513	2.722	0.02270	336.853	394.79	0.01312
44027	442.337	2.722	0.02260	336.537	394.75	0.01307
44029	442.169	2.722	0.02269	336.234	394.74	0.01312
44031	442.016	2.722	0.02251	335.959	394.73	0.01301
44033	442.544	2.679	0.02235	336.909	388.56	0.01292
44035	442.364	2.679	0.02234	336.585	388.60	0.01292
44037	442.204	2.679	0.02245	336.297	388.60	0.01298
44039	442.048	2.679	0.02235	336.016	388.58	0.01292
44041	442.577	2.623	0.02211	336.969	380.50	0.01278

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
44043	442.386	2.623	0.02198	336.625	380.47	0.01271
44045	442.217	2.623	0.02212	336.321	380.44	0.01279
44047	442.055	2.623	0.02206	336.029	380.43	0.01275
44049	442.588	2.578	0.02188	336.988	373.98	0.01265
44051	442.404	2.578	0.02167	336.657	373.98	0.01253
44053	442.223	2.578	0.02178	336.331	373.96	0.01259
44055	442.040	2.578	0.02165	336.002	373.95	0.01252
44057	442.664	2.531	0.02163	337.125	367.07	0.01251
44059	442.473	2.531	0.02150	336.781	367.07	0.01243
44061	442.289	2.531	0.02152	336.450	367.11	0.01244
44063	442.129	2.531	0.02171	336.162	367.09	0.01255
44065	442.512	2.472	0.02134	336.852	358.53	0.01234
44067	442.329	2.472	0.02146	336.522	358.58	0.01241
44069	442.152	2.472	0.02135	336.204	358.57	0.01234
44071	442.005	2.472	0.02164	335.939	358.60	0.01251
44073	442.562	2.419	0.02113	336.942	350.92	0.01222
44075	442.359	2.420	0.02131	336.576	350.95	0.01232
44077	442.192	2.420	0.02113	336.276	350.99	0.01222
44079	442.017	2.420	0.02120	335.961	351.01	0.01226
44081	442.592	2.357	0.02093	336.996	341.85	0.01210
44083	442.404	2.357	0.02110	336.657	341.88	0.01220
44085	442.222	2.357	0.02101	336.330	341.90	0.01215
44087	442.054	2.358	0.02094	336.027	341.93	0.01211
44089	442.626	2.301	0.02082	337.057	333.70	0.01204
44091	442.431	2.302	0.02067	336.706	333.84	0.01195
44093	442.243	2.303	0.02068	336.367	333.96	0.01196
44095	442.066	2.304	0.02052	336.049	334.10	0.01186
44097	442.642	2.208	0.02053	337.086	320.21	0.01187
44099	442.451	2.208	0.02058	336.742	320.25	0.01190
44101	442.253	2.209	0.02038	336.385	320.35	0.01178
44103	442.085	2.209	0.02036	336.083	320.39	0.01177
44105	442.254	2.147	0.02027	336.387	311.38	0.01172
44107	442.081	2.146	0.02040	336.076	311.31	0.01179
44109	441.906	2.146	0.02015	335.761	311.30	0.01165
44111	441.748	2.146	0.02002	335.476	311.29	0.01158
39090	444.265	2.186	0.02068	340.007	317.04	0.01196
39092	444.140	2.186	0.02063	339.782	317.03	0.01193
39094	444.012	2.186	0.02062	339.552	317.04	0.01192
39096	444.427	2.114	0.02045	340.299	306.63	0.01182
39098	444.295	2.114	0.02052	340.061	306.62	0.01186
39100	444.166	2.114	0.02053	339.829	306.62	0.01187
39102	444.038	2.115	0.02044	339.598	306.69	0.01182
39104	444.490	2.011	0.02025	340.412	291.66	0.01171
39106	444.355	2.011	0.02026	340.169	291.67	0.01171
39108	444.225	2.011	0.02027	339.935	291.67	0.01172
39110	444.095	2.011	0.02026	339.701	291.65	0.01171
39112	444.540	1.921	0.02010	340.502	278.55	0.01162
39114	444.394	1.920	0.02006	340.239	278.50	0.01160
39116	444.261	1.920	0.02007	340.000	278.44	0.01160

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
39118	444.130	1.920	0.02005	339.764	278.45	0.01159
39120	444.301	1.804	0.01991	340.072	261.66	0.01151
39122	444.037	1.804	0.01994	339.597	261.66	0.01153
39124	443.787	1.804	0.01982	339.147	261.65	0.01146
39126	443.553	1.804	0.01986	338.725	261.59	0.01148
39128	444.340	1.687	0.01973	340.142	244.65	0.01141
39130	444.071	1.687	0.01978	339.658	244.63	0.01144
39132	443.814	1.686	0.01981	339.195	244.55	0.01145
39134	443.572	1.686	0.01964	338.760	244.58	0.01136
39136	444.366	1.594	0.01960	340.189	231.19	0.01133
39138	444.095	1.594	0.01957	339.701	231.16	0.01131
39140	443.839	1.594	0.01961	339.240	231.13	0.01134
39142	443.584	1.594	0.01968	338.781	231.12	0.01138
39144	444.441	1.444	0.01956	340.324	209.37	0.01131
39146	444.161	1.443	0.01960	339.820	209.34	0.01133
39148	443.899	1.443	0.01950	339.348	209.34	0.01127
39150	443.645	1.443	0.01933	338.891	209.35	0.01118
39152	444.488	1.322	0.01948	340.408	191.76	0.01126
39154	444.209	1.322	0.01952	339.906	191.80	0.01129
39156	443.940	1.322	0.01947	339.422	191.77	0.01126
39158	443.681	1.322	0.01940	338.956	191.75	0.01122
39160	444.252	1.194	0.01952	339.984	173.17	0.01129
39162	443.975	1.193	0.01926	339.485	173.06	0.01114
39164	443.715	1.193	0.01949	339.017	173.00	0.01127
39166	443.463	1.193	0.01945	338.563	172.96	0.01125
39168	444.320	0.992	0.01950	340.106	143.95	0.01127
39170	444.042	0.992	0.01946	339.606	143.85	0.01125
39172	443.771	0.992	0.01958	339.118	143.82	0.01132
39174	443.515	0.991	0.01952	338.657	143.77	0.01129
39176	444.391	0.821	0.01960	340.234	119.09	0.01133
39178	444.102	0.821	0.01953	339.714	119.01	0.01129
39180	443.816	0.820	0.01944	339.199	118.96	0.01124
39182	443.560	0.820	0.01962	338.738	118.93	0.01134
39184	444.156	0.681	0.01956	339.811	98.74	0.01131
39186	443.863	0.681	0.01970	339.283	98.71	0.01139
39188	443.592	0.680	0.01958	338.796	98.67	0.01132
39190	443.344	0.680	0.01967	338.349	98.64	0.01137
39192	444.232	0.517	0.01985	339.948	74.99	0.01148
39194	443.941	0.516	0.01987	339.424	74.86	0.01149
39196	443.659	0.516	0.01972	338.916	74.79	0.01140
39198	443.394	0.515	0.01968	338.439	74.74	0.01138
39200	444.343	0.348	0.02042	340.147	50.47	0.01181
39202	444.034	0.347	0.01995	339.591	50.40	0.01153
39204	443.747	0.347	0.02013	339.075	50.33	0.01164
39206	443.464	0.347	0.02007	338.565	50.30	0.01160
39208	444.587	0.126	0.02158	340.587	18.33	0.01248
39210	444.254	0.125	0.02140	339.987	18.14	0.01237
39212	443.938	0.124	0.02153	339.418	18.03	0.01245
39214	443.640	0.123	0.02142	338.882	17.91	0.01238

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
43001	480.638	69.367	0.07683	405.478	10060.80	0.04442
43002	480.219	69.369	0.07677	404.724	10061.12	0.04439
43003	479.832	69.365	0.07684	404.028	10060.61	0.04443
43004	479.484	69.366	0.07707	403.401	10060.71	0.04456
43005	480.740	59.192	0.07304	405.662	8585.16	0.04223
43006	480.311	59.195	0.07294	404.890	8585.48	0.04217
43007	479.919	59.197	0.07296	404.184	8585.78	0.04218
43008	479.561	59.197	0.07296	403.540	8585.84	0.04218
43009	480.944	50.366	0.06936	406.029	7304.93	0.04010
43010	480.498	50.365	0.06933	405.226	7304.87	0.04009
43011	480.094	50.367	0.06936	404.499	7305.17	0.04010
43012	479.716	50.371	0.06936	403.819	7305.72	0.04010
43013	480.956	50.393	0.06928	406.051	7308.97	0.04006
43014	480.510	50.395	0.06936	405.248	7309.20	0.04010
43015	480.103	50.398	0.06953	404.515	7309.68	0.04020
43016	479.732	50.400	0.06949	403.848	7309.94	0.04018
43017	480.814	43.264	0.06647	405.795	6274.87	0.03843
43018	480.377	43.263	0.06653	405.009	6274.85	0.03847
43019	479.973	43.263	0.06618	404.281	6274.85	0.03826
43020	479.611	43.262	0.06635	403.630	6274.63	0.03836
43021	480.991	37.083	0.06366	406.114	5378.47	0.03681
43022	480.526	37.085	0.06350	405.277	5378.69	0.03671
43023	480.110	37.084	0.06353	404.528	5378.60	0.03673
43024	479.734	37.085	0.06358	403.851	5378.71	0.03676
43025	480.840	30.492	0.06036	405.842	4422.53	0.03490
43026	480.396	30.493	0.06039	405.043	4422.65	0.03492
43027	479.988	30.493	0.06017	404.308	4422.61	0.03479
43028	479.621	30.493	0.06009	403.648	4422.71	0.03474
43029	480.971	26.937	0.05842	406.078	3906.87	0.03378
43030	480.512	26.938	0.05826	405.252	3907.04	0.03368
43031	480.094	26.937	0.05845	404.499	3906.90	0.03379
43032	479.702	26.939	0.05848	403.794	3907.19	0.03381
43033	481.107	23.074	0.05613	406.323	3346.67	0.03245
43034	480.642	22.801	0.05601	405.486	3306.96	0.03238
43035	480.206	22.800	0.05600	404.701	3306.91	0.03238
43036	479.818	22.801	0.05606	404.002	3306.99	0.03241
43037	481.231	19.421	0.05400	406.546	2816.83	0.03122
43038	480.740	19.420	0.05398	405.662	2816.68	0.03121
43039	480.288	19.421	0.05380	404.848	2816.72	0.03111
43040	479.888	19.421	0.05375	404.128	2816.74	0.03108
43041	481.334	16.720	0.05214	406.731	2425.04	0.03015
43042	480.825	16.721	0.05207	405.815	2425.18	0.03011
43043	480.360	16.723	0.05191	404.978	2425.51	0.03001
43044	479.937	16.724	0.05191	404.217	2425.61	0.03001
43045	481.051	14.596	0.05041	406.222	2116.98	0.02915
43046	480.558	14.598	0.05030	405.334	2117.29	0.02908
43047	480.118	14.599	0.05046	404.542	2117.46	0.02917
43048	479.719	14.600	0.05041	403.824	2117.53	0.02915
43050	481.151	12.591	0.04878	406.402	1826.11	0.02820

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
43051	480.643	12.591	0.04872	405.487	1826.17	0.02817
43052	480.191	12.591	0.04887	404.674	1826.22	0.02826
43053	479.773	12.593	0.04874	403.921	1826.44	0.02818
43054	481.239	10.923	0.04730	406.560	1584.29	0.02735
43055	480.714	10.924	0.04717	405.615	1584.38	0.02727
43056	480.249	10.925	0.04711	404.778	1584.49	0.02724
43057	479.832	10.925	0.04692	404.028	1584.49	0.02713
43058	481.326	9.839	0.04615	406.717	1426.96	0.02668
43059	480.797	9.840	0.04605	405.765	1427.14	0.02663
43060	480.317	9.840	0.04608	404.901	1427.14	0.02664
43061	479.889	9.840	0.04596	404.130	1427.18	0.02657
43062	481.388	8.788	0.04491	406.828	1274.63	0.02597
43063	480.840	8.788	0.04485	405.842	1274.61	0.02593
43064	480.353	8.788	0.04488	404.965	1274.63	0.02595
43065	479.914	8.789	0.04483	404.175	1274.71	0.02592
43066	481.417	8.001	0.04393	406.881	1160.52	0.02540
43067	480.854	8.002	0.04381	405.867	1160.58	0.02533
43068	480.363	8.002	0.04378	404.983	1160.58	0.02531
43069	479.912	8.002	0.04375	404.172	1160.60	0.02530
43070	481.461	7.190	0.04284	406.960	1042.83	0.02477
43071	480.903	7.190	0.04272	405.955	1042.82	0.02470
43072	480.401	7.190	0.04288	405.052	1042.83	0.02479
43073	479.937	7.190	0.04270	404.217	1042.86	0.02469
43074	481.064	6.825	0.04214	406.245	989.90	0.02436
43075	480.547	6.826	0.04226	405.315	989.97	0.02443
43076	480.073	6.825	0.04211	404.461	989.92	0.02435
43077	479.656	6.825	0.04232	403.711	989.91	0.02447
43078	481.084	6.623	0.04199	406.281	960.61	0.02428
43079	480.563	6.623	0.04192	405.343	960.60	0.02424
43080	480.074	6.623	0.04166	404.463	960.64	0.02409
43081	479.663	6.623	0.04192	403.723	960.65	0.02424
43082	481.105	6.449	0.04168	406.319	935.36	0.02410
43083	480.571	6.449	0.04169	405.358	935.41	0.02410
43084	480.081	6.449	0.04160	404.476	935.38	0.02405
43085	479.673	6.449	0.04168	403.741	935.42	0.02410
43086	480.727	6.272	0.04136	405.639	909.65	0.02391
43087	480.231	6.272	0.04127	404.746	909.62	0.02386
43088	479.789	6.272	0.04124	403.950	909.65	0.02384
43089	479.404	6.272	0.04121	403.257	909.67	0.02383
43090	480.679	6.133	0.04125	405.552	889.53	0.02385
43091	480.184	6.133	0.04106	404.661	889.58	0.02374
43092	479.742	6.133	0.04107	403.866	889.59	0.02375
43093	479.349	6.134	0.04130	403.158	889.66	0.02388
43094	480.345	6.005	0.04110	404.951	870.97	0.02376
43095	479.888	6.005	0.04085	404.128	871.01	0.02362
43096	479.478	6.005	0.04080	403.390	871.02	0.02359
43097	479.142	6.006	0.04106	402.786	871.04	0.02374
43098	480.357	5.889	0.04080	404.973	854.15	0.02359
43099	479.892	5.890	0.04070	404.136	854.21	0.02353

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
43100	479.487	5.890	0.04046	403.407	854.21	0.02339
43101	479.135	5.890	0.04082	402.773	854.27	0.02360
43102	480.351	5.796	0.04067	404.962	840.57	0.02351
43103	479.885	5.796	0.04055	404.123	840.59	0.02345
43104	479.483	5.795	0.04040	403.399	840.54	0.02336
43105	479.140	5.795	0.04053	402.782	840.51	0.02343
43106	480.346	5.699	0.04057	404.953	826.54	0.02346
43107	479.889	5.699	0.04027	404.130	826.59	0.02328
43108	479.475	5.699	0.04011	403.385	826.55	0.02319
43109	479.127	5.699	0.04048	402.759	826.61	0.02340
43110	480.331	5.623	0.04043	404.926	815.51	0.02338
43111	479.876	5.622	0.04044	404.107	815.46	0.02338
43112	479.463	5.622	0.04004	403.363	815.45	0.02315
43113	479.120	5.622	0.04042	402.746	815.40	0.02337
43114	480.346	5.548	0.04037	404.953	804.61	0.02334
43115	479.883	5.548	0.04018	404.119	804.61	0.02323
43116	479.475	5.548	0.04013	403.385	804.63	0.02320
43117	479.122	5.548	0.03998	402.750	804.62	0.02312
43118	480.234	5.465	0.04051	404.751	792.58	0.02342
43119	479.771	5.465	0.04034	403.918	792.62	0.02332
43120	479.367	5.465	0.04008	403.191	792.60	0.02317
43121	479.004	5.465	0.03997	402.537	792.61	0.02311
43122	480.254	5.420	0.04052	404.787	786.09	0.02343
43123	479.794	5.420	0.04003	403.959	786.11	0.02314
43124	479.390	5.420	0.03970	403.232	786.08	0.02295
43125	479.033	5.420	0.03984	402.589	786.06	0.02303
43126	480.266	5.359	0.04035	404.809	777.27	0.02333
43127	479.802	5.359	0.03998	403.974	777.27	0.02312
43128	479.389	5.359	0.03982	403.230	777.32	0.02302
43129	479.041	5.360	0.03992	402.604	777.34	0.02308
43130	480.291	5.316	0.04039	404.854	771.06	0.02335
43131	479.821	5.316	0.03991	404.008	771.07	0.02308
43132	479.414	5.316	0.03975	403.275	771.08	0.02298
43133	479.058	5.316	0.03979	402.634	771.08	0.02301
43134	480.294	5.271	0.04038	404.859	764.56	0.02335
43135	479.826	5.271	0.03982	404.017	764.54	0.02302
43136	479.424	5.271	0.03963	403.293	764.55	0.02291
43137	479.072	5.271	0.03944	402.660	764.55	0.02280
43138	480.303	5.224	0.04030	404.875	757.64	0.02330
43139	479.843	5.224	0.03978	404.047	757.64	0.02300
43140	479.429	5.224	0.03939	403.302	757.66	0.02277
43141	479.064	5.224	0.03960	402.645	757.66	0.02290
43142	480.178	5.183	0.04002	404.650	751.77	0.02314
43143	479.783	5.183	0.03969	403.939	751.77	0.02295
43144	479.433	5.183	0.03929	403.309	751.80	0.02272
43145	479.125	5.183	0.03933	402.755	751.76	0.02274
43146	480.180	5.147	0.04013	404.654	746.51	0.02320
43147	479.788	5.147	0.03958	403.948	746.51	0.02288
43148	479.429	5.147	0.03926	403.302	746.50	0.02270

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
43149	479.116	5.147	0.03891	402.739	746.52	0.02250
43150	480.178	5.102	0.03985	404.650	739.96	0.02304
43151	479.779	5.102	0.03952	403.932	739.92	0.02285
43152	479.428	5.102	0.03904	403.300	739.94	0.02257
43153	479.126	5.102	0.03919	402.757	739.92	0.02266
43154	480.177	5.061	0.03993	404.649	733.99	0.02309
43155	479.784	5.061	0.03943	403.941	734.04	0.02280
43156	479.427	5.061	0.03882	403.299	734.00	0.02244
43157	479.117	5.061	0.03889	402.741	734.05	0.02249
43158	480.196	5.026	0.03966	404.683	728.92	0.02293
43159	479.791	5.026	0.03901	403.954	728.94	0.02255
43160	479.438	5.026	0.03884	403.318	728.91	0.02246
43161	479.126	5.026	0.03902	402.757	728.90	0.02256
43162	480.217	4.986	0.03959	404.721	723.12	0.02289
43163	479.812	4.986	0.03884	403.992	723.13	0.02246
43164	479.462	4.986	0.03855	403.362	723.13	0.02229
43165	479.142	4.986	0.03845	402.786	723.12	0.02223
43166	480.039	4.953	0.03908	404.400	718.38	0.02260
43167	479.656	4.953	0.03865	403.711	718.38	0.02235
43168	479.314	4.953	0.03832	403.095	718.39	0.02216
43169	479.012	4.953	0.03796	402.552	718.36	0.02195
43170	480.078	4.907	0.03868	404.470	711.73	0.02236
43171	479.685	4.907	0.03791	403.763	711.73	0.02192
43172	479.333	4.907	0.03764	403.129	711.76	0.02176
43173	479.038	4.908	0.03742	402.598	711.78	0.02164
43174	480.113	4.868	0.03809	404.533	705.99	0.02202
43175	479.713	4.868	0.03753	403.813	705.98	0.02170
43176	479.359	4.867	0.03708	403.176	705.95	0.02144
43177	479.059	4.867	0.03733	402.636	705.96	0.02158
43178	480.046	4.822	0.03773	404.413	699.33	0.02181
43179	479.639	4.822	0.03717	403.680	699.31	0.02149
43180	479.276	4.822	0.03692	403.027	699.34	0.02135
43181	478.969	4.822	0.03681	402.474	699.36	0.02128
43182	480.116	4.782	0.03714	404.539	693.64	0.02147
43183	479.704	4.782	0.03648	403.797	693.62	0.02109
43184	479.332	4.782	0.03643	403.128	693.60	0.02106
43185	479.008	4.782	0.03591	402.544	693.58	0.02076
43186	480.185	4.737	0.03658	404.663	687.08	0.02115
43187	479.761	4.737	0.03589	403.900	686.99	0.02075
43188	479.388	4.736	0.03545	403.228	686.92	0.02050
43189	479.049	4.735	0.03572	402.618	686.80	0.02065
43190	480.251	4.692	0.03577	404.782	680.57	0.02068
43191	479.814	4.692	0.03522	403.995	680.55	0.02036
43192	479.425	4.692	0.03500	403.295	680.54	0.02024
43193	479.081	4.692	0.03477	402.676	680.53	0.02010
43194	480.309	4.645	0.03513	404.886	673.69	0.02031
43195	479.864	4.645	0.03447	404.085	673.68	0.01993
43196	479.458	4.645	0.03392	403.354	673.69	0.01961
43197	479.117	4.645	0.03396	402.741	673.68	0.01963

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (°F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
43198	480.387	4.579	0.03415	405.027	664.16	0.01974
43199	479.920	4.579	0.03355	404.186	664.16	0.01940
43200	479.503	4.579	0.03329	403.435	664.17	0.01925
43201	479.149	4.579	0.03339	402.798	664.19	0.01931
43202	480.455	4.524	0.03338	405.149	656.19	0.01930
43203	479.979	4.524	0.03288	404.292	656.18	0.01901
43204	479.547	4.524	0.03270	403.515	656.19	0.01891
43205	479.180	4.524	0.03222	402.854	656.19	0.01863
43206	480.373	4.449	0.03214	405.001	645.27	0.01858
43207	479.894	4.449	0.03169	404.139	645.30	0.01832
43208	479.453	4.449	0.03139	403.345	645.31	0.01815
43209	479.107	4.449	0.03176	402.723	645.30	0.01836
43210	480.424	4.396	0.03154	405.093	637.57	0.01824
43211	479.933	4.396	0.03110	404.209	637.55	0.01798
43212	479.502	4.396	0.03087	403.434	637.54	0.01785
43213	479.126	4.396	0.03098	402.757	637.58	0.01791
43214	480.507	4.319	0.03077	405.243	626.39	0.01779
43215	479.995	4.319	0.03035	404.321	626.43	0.01755
43216	479.550	4.319	0.03017	403.520	626.41	0.01744
43217	479.151	4.319	0.03006	402.802	626.46	0.01738
43218	480.558	4.247	0.02983	405.334	616.04	0.01725
43219	480.048	4.247	0.02978	404.416	616.01	0.01722
43220	479.578	4.247	0.02942	403.570	615.98	0.01701
43221	479.172	4.247	0.02946	402.840	615.99	0.01703
43222	480.650	4.170	0.02924	405.500	604.83	0.01691
43223	480.105	4.170	0.02891	404.519	604.82	0.01672
43224	479.620	4.170	0.02877	403.646	604.87	0.01663
43225	479.213	4.170	0.02861	402.913	604.87	0.01654
43226	480.751	4.064	0.02842	405.682	589.45	0.01643
43227	480.192	4.064	0.02817	404.676	589.48	0.01629
43228	479.688	4.064	0.02835	403.768	589.45	0.01639
43229	479.254	4.064	0.02811	402.987	589.46	0.01625
43230	480.828	3.985	0.02785	405.820	578.03	0.01610
43231	480.253	3.985	0.02778	404.785	577.98	0.01606
43232	479.746	3.985	0.02788	403.873	577.99	0.01612
43233	479.300	3.985	0.02770	403.070	577.96	0.01602
43234	480.958	3.795	0.02692	406.054	550.49	0.01556
43235	480.357	3.795	0.02683	404.973	550.48	0.01551
43236	479.824	3.795	0.02682	404.013	550.46	0.01551
43237	479.354	3.795	0.02690	403.167	550.47	0.01555
43238	480.752	3.677	0.02629	405.684	533.26	0.01520
43239	480.263	3.677	0.02623	404.803	533.25	0.01517
43240	479.812	3.676	0.02605	403.992	533.22	0.01506
43241	479.420	3.676	0.02645	403.286	533.17	0.01529
43242	480.850	3.527	0.02573	405.860	511.52	0.01488
43243	480.338	3.527	0.02568	404.938	511.59	0.01485
43244	479.876	3.527	0.02578	404.107	511.57	0.01491
43245	479.464	3.527	0.02558	403.365	511.59	0.01479
43246	480.929	3.387	0.02522	406.002	491.29	0.01458

Table 75. Transient Hot-Wire Thermal Conductivity Data for HCFC-123 (Continued)

Point Number	$T_{Exp.}$ (K)	P_{Cell} (MPa)	$\lambda_{Exp.}$ (W/m-K)	$T_{Exp.}$ (^{0}F)	P_{Cell} (psia)	$\lambda_{Exp.}$ (BTU/ft-hr-F)
43247	480.408	3.388	0.02519	405.064	491.32	0.01456
43248	479.934	3.388	0.02517	404.211	491.34	0.01455
43249	479.506	3.388	0.02518	403.441	491.38	0.01456
43250	480.821	3.213	0.02478	405.808	466.04	0.01433
43251	480.293	3.213	0.02472	404.857	466.00	0.01429
43252	479.819	3.213	0.02464	404.004	466.06	0.01425
43253	479.398	3.213	0.02448	403.246	466.00	0.01415
43254	480.893	3.046	0.02439	405.937	441.81	0.01410
43255	480.356	3.046	0.02439	404.971	441.80	0.01410
43256	479.873	3.046	0.02439	404.101	441.77	0.01410
43257	479.443	3.046	0.02438	403.327	441.76	0.01410
43258	480.949	2.880	0.02413	406.038	417.64	0.01395
43259	480.398	2.879	0.02407	405.046	417.58	0.01392
43260	479.901	2.879	0.02399	404.152	417.59	0.01387
43261	479.452	2.879	0.02393	403.344	417.57	0.01384
43262	481.024	2.650	0.02368	406.173	384.29	0.01369
43263	480.443	2.649	0.02365	405.127	384.24	0.01367
43264	479.935	2.649	0.02359	404.213	384.22	0.01364
43265	479.479	2.649	0.02350	403.392	384.23	0.01359
43266	480.851	2.445	0.02350	405.862	354.61	0.01359
43268	480.396	2.445	0.02330	405.043	354.57	0.01347
43270	479.988	2.445	0.02337	404.308	354.58	0.01351
43272	479.610	2.445	0.02325	403.628	354.60	0.01344
43274	480.909	2.257	0.02323	405.966	327.39	0.01343
43276	480.452	2.257	0.02325	405.144	327.31	0.01344
43278	480.019	2.257	0.02310	404.364	327.28	0.01336
43280	479.629	2.256	0.02313	403.662	327.24	0.01337
43282	481.020	1.950	0.02307	406.166	282.79	0.01334
43285	480.530	1.949	0.02291	405.284	282.66	0.01325
43288	480.082	1.948	0.02278	404.478	282.57	0.01317
43291	479.680	1.948	0.02266	403.754	282.56	0.01310
43294	481.069	1.661	0.02289	406.254	240.92	0.01323
43297	480.569	1.662	0.02280	405.354	241.00	0.01318
43300	480.108	1.662	0.02282	404.524	241.04	0.01319
43303	479.693	1.663	0.02265	403.777	241.15	0.01310
43306	480.892	1.430	0.02277	405.936	207.35	0.01317
43310	480.403	1.429	0.02281	405.055	207.32	0.01319
43314	479.951	1.429	0.02270	404.242	207.29	0.01312
43318	479.543	1.429	0.02275	403.507	207.30	0.01315
43322	480.850	0.814	0.02299	405.860	118.04	0.01329
43326	480.346	0.814	0.02305	404.953	118.10	0.01333
43330	479.883	0.815	0.02286	404.119	118.18	0.01322
43334	479.475	0.815	0.02292	403.385	118.20	0.01325
43338	481.390	0.156	0.02533	406.832	22.62	0.01465
43342	480.800	0.155	0.02525	405.770	22.45	0.01460
43346	480.254	0.154	0.02507	404.787	22.36	0.01449
43350	479.774	0.154	0.02515	403.923	22.28	0.01454

Table 76. Thermal conductivity correlation parameters for HCFC-123, with thermal conductivity in W/m-K, temperature in K, and density in mol/L. The parameters are explained in Appendix B.

Refrigerant	HCFC-123
Dilute Gas Terms	
a_1	3.45987×10^{-3}
a_2	-3.49292×10^{-6}
a_3	8.68962×10^{-8}
Excess Function Terms	
b_1	-2.71484×10^{-1}
b_2	0.00
b_3	5.89917×10^{-1}
b_4	0.00
b_5	-2.19701×10^{-2}
b_6	0.00
b_7	4.10742×10^{-3}
b_8	0.00
Critical Enhancement Parameters	
T_c	456.94 K
P_c	36.74 bar
ρ_c	3.597 mol/L
q_D	3.0×10^{9} m^{-1}

APPENDIX B: THERMAL CONDUCTIVITY DATA CORRELATION

TRANSIENT HOT-WIRE TECHNIQUE

The transient hot-wire instruments used in this work have been described in detail previously [1,2]. The low-temperature instrument operates from 30 to 330 K at pressures to 70 MPa. The high-temperature instrument operates from 300 to 750 K at pressures to 70 MPa. Both instruments are absolute, with dual platinum hot wires to eliminate errors due to axial conduction. The temperature region studied in this work required the use of both instruments and allows a consistency check between the two instruments near 300 K. These instruments measure thermal conductivity with a repeatability of ±0.3% and a nominal uncertainty of less than ±1% in nonpolar fluids [1,2]. Accurate measurements of the liquid-phase thermal conductivity require modification of the cell grounding [3] in order to eliminate measurement errors due to the polarization of ionic impurities around the bare platinum hot-wires. It is shown in Ref. 3 that introducing a fixed do polarization voltage between the cell walls and the hot-wires eliminates this measurement error with liquid refrigerant samples.

The working equation for the temperature rise at the surface of an idealized wire is

$$\Delta T_{id}(r_0,T) = \frac{q}{4\pi\lambda} \ln\left(\frac{4at}{r_0^2 C}\right) = \frac{q}{4\pi\lambda} \ln\left(\frac{4a}{r_0^2 C}\right) + \frac{q}{4\pi\lambda} \ln(t) \ .$$

Here, q is the power input per unit length of wire, t is the elapsed time from the start of the step power input, λ is the fluid thermal conductivity, $a = \lambda/\rho C_p$ is the fluid thermal diffusivity, r_0 is the radius of the wire, ρ is the fluid density, C_p is the fluid isobaric heat capacity, and C is the exponential of Euler's constant. We obtain the thermal conductivity from the slope of a line fit through the temperature rise versus $\ln(t)$. The thermal diffusivity is obtained from the intercept of this line but is not reported here.

In practice there are several corrections to this ideal temperature rise to account for nonidealities in the heat transfer from the wires. These small corrections, δT_i, are applied to the measured temperature rise, ΔT_w, according to

$$\Delta T_{id} = \Delta T_w + \sum_i \delta T_i \ .$$

All of the applicable corrections are discussed in detail elsewhere [1-5]. In this work we have applied corrections for the finite wire heat capacity [5], finite outer boundary [5], truncation error [5], and thermal radiation [2]. All of the other corrections have been found to be negligible for these measurements [1-5].

THERMAL CONDUCTIVITY SURFACES

The surface is developed by breaking the thermal conductivity into three terms

$$\lambda(T,\rho) = \lambda_0(T) + \lambda_{ex}(T,\rho) + \lambda_{cr}(T,\rho) \ .$$

The thermal conductivity of the dilute gas, λ_0, is a function of the fluid temperature only. The thermal conductivity excess function, λ_{ex}, and critical enhancement, λ_{cr}, are functions of the fluid temperature and density.

The thermal conductivity surface is developed by fitting the low-density data to obtain the dilute-gas thermal conductivity. Next, a reasonable value for the thermal conductivity critical enhancement parameter, q_D, is used in the crossover theory (see below) to obtain the thermal conductivity critical enhancement. The dilute-gas and critical enhancement contributions are subtracted from each experimental data point to leave the excess thermal conductivity. The excess thermal conductivity data are then fit to a polynomial in temperature and density. We then alternate between guesses for the critical enhancement parameter and regression of the excess function polynomial until the deviations are minimized.

Dilute-Gas Thermal Conductivity

The dilute-gas thermal conductivity is given by

$$\lambda_0(T) = a_1 + a_2 T + a_3 T^2 \ ,$$

where λ_0 is in $W \cdot m^{-1} K^{-1}$ and T is in K.

Excess Thermal Conductivity

The excess thermal conductivity is given by

$$\lambda_{ex}(T,\rho) = (b_1 + b_2 T)\,\rho + (b_3 + b_4 T)\,\rho^2 + (b_5 + b_6 T)\,\rho^3 + (b_7 + b_8 T)\,\rho^4$$

where λ_{ex} is in $W \cdot m^{-1} K^{-1}$ and T is in K, and ρ is in $mol \cdot L^{-1}$.

Critical Enhancement

Olchowy and Sengers have proposed a solution to the mode-coupling equations which allows calculation of the thermal conductivity enhancement throughout the fluid state [6,7]. We have shown that this theory provides an excellent description of the thermal conductivity critical enhancement for fluids, such as nitrogen and argon [8,9], where accurate equations of state are available. The approach involves the approximate solution of coupled integral equations with a wave number cutoff (q_D) to limit the momentum-space range over which critically driven fluctuations can contribute to dynamic critical phenomena. Thus, in addition to a knowledge of thermodynamic properties and background values of the viscosity and thermal conductivity, the single fluid-dependent parameter q_D must be optimized to describe the critical enhancement.

The thermal conductivity enhancement can be described by [6]

$$\lambda_{cr} = \frac{R_c\, k_B\, T\, \rho\, C_p}{6\, \pi\, \eta\, \xi}\, (\Omega - \Omega_0)\ ,$$

where the amplitude R_c has been set to 1.01, k_B is Boltzmann's constant, η is the shear viscosity, ξ is the correlation length, and Ω and Ω_0 are complicated functions of T and ρ as briefly described below.

The correlation length ξ has been approximated by relating it to the critical part of the dimensionless compressibility as in Refs. 6 and 7. Thus, we write

$$\xi = \xi_0 \left[\frac{P_c\, \rho}{\Gamma\, \rho_c^2}\right]^{\left(\frac{\nu}{\gamma}\right)} \left[\left.\frac{\partial \rho(\rho,T)}{\partial P}\right|_T - \left(\frac{T_r}{T}\right) \left.\frac{\partial \rho(\rho,T_r)}{\partial P}\right|_T\right]^{\left(\frac{\nu}{\gamma}\right)} .$$

Here, ν = 0.63 and γ = 1.2415 are universal scaling exponents, while Γ and ξ_0 are fluid specific amplitudes. The temperature at which the background compressibility has been identified with the total compressibility, so that the critical contribution vanishes, is selected as T_r=2.5T_c. The correlation length for critical fluctuations, and hence the critical enhancement, vanishes above this temperature; thus, both ξ and λ_{cr} should be set to zero for temperatures above 2.5T_c. The choice of T_r is somewhat arbitrary, and affects the calculated enhancement only at temperatures far removed from the critical temperature.

The function Ω can be evaluated using the parameters

$$y_D = q_D\, \xi\ ,$$

$$y_\gamma = C_v / (C_p - C_v)\ ,$$

$$y_\alpha = (k_B\, T\, M\, \rho) / (8\, \pi\, \eta^2\, \xi)\ ,$$

$$y_\beta = [(\lambda_0 + \lambda_{ex})\, M] / [\eta\, (C_p - C_v)]\ ,$$

$$y_\delta = \{\tan^{-1}\, [q_D\xi / (1+q_D{}^2\xi^2)^{1/2}] - \tan^{-1}(q_D\xi)\} / (1+q_D{}^2\xi^2)^{1/2}\ ,$$

where C_v is the fluid isochoric heat capacity, M is the molar mass, and the other variables have been defined above. The final expression for Ω from Refs. 6,7 has been simplified [8,9] by evaluating the mode-coupling integral in closed algebraic form; the matrix-inversion algorithm, required to use the results reported by Sengers and Olchowy [6,7], is no longer necessary. We can write

$$\Omega = \frac{2}{\pi\,(1+y_\gamma)}\left[y_D + \sum_{i=1}^{4}\left[\frac{g(z_i)(1-z_i^2)^{-\frac{1}{2}}}{\prod_{i\neq j=1}^{4}(z_i - z_j)} \times \ln\left(\frac{1 - z_i + (1-z_i^2)^{\frac{1}{2}}\tan^{-1}\left(\frac{y_D}{2}\right)}{1 - z_i - (1-z_i^2)^{\frac{1}{2}}\tan^{-1}\left(\frac{y_D}{2}\right)} \right) \right] \right]$$

The auxiliary function $g(z)$ is defined by

$$g(z) = -y_D y_\alpha z^3 + (y_\gamma - y_\beta - y_\alpha y_\delta) z^2 - y_\gamma y_D y_\alpha z + y_\gamma^2 - y_\gamma y_\delta y_\alpha ,$$

and z_i are the roots of the quartic equation

$$\prod_{i=1}^{4}(z - z_i) = z^4 + y_\alpha y_D z^3 + (y_\gamma + y_\beta + y_\delta y_\alpha) z^2 + y_\alpha y_D y_\gamma z + y_\alpha y_\delta y_\gamma = 0 .$$

The roots can be found in closed algebraic form by standard procedures such as that described in Sec. 3.8.3 of the handbook of Abramowitz and Stegun [10]; in that case, the first 2 roots are typically real and the final 2 roots are complex conjugates. The expression for Ω is real, although the arguments may be complex. Our definition of the z_i differs by a minus sign from that published in Refs. 6,7.

The final term Ω_0 represents the contribution of dynamical fluctuations to the thermal conductivity, which is caused by the long-time tail of their correlations [6,7]. This term must be subtracted so that the experimental thermal conductivity well away from the critical region can be identified with the background thermal conductivity; these contributions are thus included in the background correlation rather than in the enhancement term λ_{cr}. We have retained the empirical term proposed by Olchowy and Sengers [6,7], but have slightly revised the denominator appearing in Ω_0. The term Ω_0 is defined by

$$\Omega_0 = \frac{2\left[1 - \exp\left(\dfrac{-q_D\xi}{1 + \dfrac{q_D^3\xi^3\rho_c^2}{3\rho^2}}\right)\right]}{\pi\left[1 + y_\alpha y_D + \dfrac{y_\beta}{(1+y_\gamma)}\right]} .$$

The term Ω_0 rigorously cancels Ω to lowest order in an expansion about $q_D\xi = 0$, that is, well away from the critical point. We have removed the term in the denominator of Ω_0 which does not explicitly contribute to the term cancellation; other higher order terms remain in the exponential and the denominator. Our revision of Ω_0 has only a small effect on the calculated

enhancement since its contribution is important only to points far from the critical point where the total enhancement is negligible.

In our work on HFC-32 and HCFC-123, we have used the critical parameters from the MBWR equations of state for these fluids and the same equilibrium critical amplitudes as for HFC-134a, which we obtained from Tang, et al. [11], i.e., $\Gamma = 0.0498$, and $\xi_0 = 0.2019$ nm. The viscosity is calculated with the extended corresponding states formulation of Huber and Ely [12]. With $T_r=2.5T_c$, we find the optimum value for q_D^{-1} which satisfies our critical enhancement data.

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