DOE/CE/23810-39

THERMOPHYSICAL PROPERTIES OF HFC-143a AND HFC-152a

Final Report

1 April 1993 - 30 June 1994

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July 1994

Prepared for
The Air-Conditioning and Refrigeration Technology Institute
Under
ARTI MCLR Project Number 650-50800

This research project is supported, in part, by U.S. Department of Energy (Office of Building Technology) grant number DE-FG02-91CE23810: Materials Compatibility and Lubricants Research (MCLR) on CFC-Refrigerant Substitutes. Federal funding supporting this project constitutes 93.67% of allowable costs. Funding from non-government sources supporting this project consists of direct cost sharing of 6.33% of allowable costs; and in-kind contributions from the air-conditioning and refrigeration industry.

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THERMOPHYSICAL PROPERTIES OF HFC-143a AND HFC-152a

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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 HFC-143a (CH_3CF_3) and HFC-152a (CH_3CHF_2) and to use these data to fit complex equations of state and detailed 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-143a and HFC-152a 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 (viscosity and thermal conductivity) of both HFC-143a and HFC-152a and the development of detailed correlations for same. The experimental thermodynamic property measurements have included, as appropriate, accurate determinations of the critical temperature, pressure, and density; vapor pressures and coexisting densities; the vapor-phase speed of sound and the ideal-gas heat capacity; the pressure-volume-temperature (PVT) behavior of the superheated vapor and compressed liquid; and the isochoric heat capacity in the liquid and two-phase regions. The experimental transport property measurements have covered the one-phase and saturated liquid and vapor states over the temperature range of interest.

SIGNIFICANT RESULTS

HFC-143a

The Burnett apparatus has been used in the isochoric mode to determine the PVT relation for the vapor phase of HFC-143a at 121 state points. Eight isochores were completed ranging in density from 0.106 to 6.077 mol/L (0.56 to 31.87 lb_m/ft^3), in pressure from 0.234 to 6.59 MPa (34 to 956 psia), and in temperature from 276.7 to 373 K (38 to 212°F). The results of these measurements are given in Table 1 in Appendix A. (Appendix A includes all tables.) A Burnett expansion was completed at 373.16 K (212.018°F) to establish the densities of the isochores.

These isothermal results are shown in Table 2. The ranges of pressures and temperatures covered are shown in Figure 1.

An isochoric PVT apparatus has been used to measure the density of liquid HFC-143a at 144 points in the temperature range from 166 to 400 K (-161 to 260°F) with pressures up to 35 MPa (5100 psi). The locations of the measurements are shown in Figure 2, and the results are presented in Tables 3 and 4.

An ebulliometer has been used to measure the vapor pressure of HFC-143a at 32 temperatures between 236 and 279 K (-35 to 43°F); the corresponding pressures range from 161 to 751 kPa (23 to 109 psia). These data are presented in Table 5 and in Figure 3. At higher temperatures and pressures, the Burnett apparatus has been used for vapor pressure measurements on HFC-143a at 14 temperatures from 279 to 343.19 K (42 to 158°F); corresponding pressures range from 0.7 to 3.6 MPa (108 to 516 psia). These results are presented in Table 6 and in Figure 3.

An optical cell has been used to measure the refractive index and capillary rise of HFC-143a from 25 to 75°C (77 to 167°F). The critical temperature was found to be T_c = (346.75 ± 0.02) K, which corresponds to (164.48 ± 0.04)°F. The refractive index data were combined with the liquid density data to deduce the value of 0.1347 cm^3/g for the Lorentz-Lorenz constant. The refractive index data and the Lorentz-Lorenz constant were used to deduce the value of ρ_c = 432.7 ± 6.9 kg/m^3 [(27.01 ± 0.43) lb/ft^3] for the critical density.

A cylindrical acoustic resonator has been used to measure the speed of sound (u) in HFC-143a along isotherms from 235.0 to 400.0 K (-36.7 to 260.3°F) at pressures between 40 and 1000 kPa (6 to 145.0 psia). The results are given in Table 7. The quantity $\delta u/u$ is the estimated fractional error in u. The ideal-gas heat capacity, C_p°, of HFC-143a has been obtained by analyzing the speed of sound measurements at low pressures. The results are given in Table 8. The following expressions for C_p° were obtained by fitting the data in Table 8:

$$C_p^\circ/R = a_0 + a_1T + a_2T^2 + a_3T^3 \qquad (1)$$

where

SI UNITS

a_0	=	8.77910 ± 0.0081
$a_1(°C^{-1})$	=	0.021896 ± 0.00014
$a_2(°C^{-2})$	=	$9.681 \times 10^{-6} \pm 6.6 \times 10^{-6}$
$a_3(°C^{-3})$	=	$-2.357 \times 10^{-7} \pm 5.0 \times 10^{-8}$
R (gas constant)	=	8.314471 J/(mol·K)

PI UNITS

a_0	=	8.39422 ± 0.0087
$a_1(°F^{-1})$	=	0.011849 ± 0.00015
$a_2(°F^{-2})$	=	$6.868 \times 10^{-6} \pm 2.2 \times 10^{-6}$
$a_3(°F^{-3})$	=	$-4.041 \times 10^{-8} \pm 8.6 \times 10^{-9}$
R (gas constant)	=	0.01419457 Btu/(mol·°F)

The second, third, and fourth acoustic virial coefficients (β_a, γ_a, δ_a) have been obtained by analyzing the pressure dependence of the speed of sound. The results are given in Table 9.

An adiabatic calorimeter has been used to measure. the molar heat capacity at constant volume {C_v} for HFC-143a. In total, 136 C_v values were measured in the liquid state and 84 values were measured in the vapor + liquid two-phase region. The temperatures ranged from 165 to 343 K (-163 to 158°F), with pressures up to 35 MPa (5100 psi). The measured values are given in Tables 10 and 11 for the liquid phase and in Tables 12 and 13 for the two-phase region. In addition to the temperature-density-pressure state conditions, the tables present values of the measured heat capacity and values calculated with an extended corresponding states model. Figure 4 shows the liquid C_v values, and Figure 5 shows the saturated liquid heat capacity values C_σ as functions of temperature.

A 32-term MBWR equation of state for HFC-143a has been developed. It is valid at temperatures from 180 K (-136°F) to 400 K (260°F), and appears to be reasonable upon extrapolation down to the triple point temperature of 162 K (-168°F) and up to a temperature of 500 K (440°F). The maximum pressure for the equation is 40 MPa (5800 psia), and it appears to be reasonable upon extrapolation up to 100 MPa (14500 psia). This equation was fit, using a multiparameter linear least squares routine, to the data measured under this contract. Data used in the fit include vapor pressures, saturated liquid and vapor densities, liquid- and vapor-phase pressure-volume-temperature (PVT) and speed-of-sound data, virial coefficients, and isochoric heat capacities at saturation and in the single-phase liquid Table 14 gives the coefficients to the equation of state; Tables 15 and 16 give the critical parameters and the coefficients to the auxiliary ideal gas heat capacity equation. The ideal gas heat capacity equation is based on the determined in this study combined with selected literature data to extend the temperature range. This MBWR equation of state will be incorporated into a future version of the REFPROP computer package. Table 17 tabulates the saturation properties calculated with the equation of state.

Figure 6 shows the deviations of the equation of state with ancillary equations for the vapor pressure and saturated liquid and vapor densities. The fits of the vapor pressure and saturated liquid density are very good with maximum deviations of 0.21% for the vapor pressure near the triple point and 0.29% for the saturated liquid density near the critical point; the deviations are less than 0.1% over the temperature range of interest for refrigeration applications. The deviations for the saturated vapor density are higher, with deviations exceeding 1.5% within

5 K (9°F) of the critical point. This is not of great concern: there are few experimental saturated vapor density data points on which to base the saturation boundary, and thus, mostly calculated points were used. The saturated vapor density was given low weight in the MBWR fit.

Figures 7 and 8 show the deviations of the values calculated with the equation of state compared to the experimental PVT and heat capacity data used in the fit. Again the fit is very good. The RMS (root mean square) deviation of the PVT data is 0.05%. The RMS deviation. of the heat capacity data is 1.2%, about twice the uncertainty in the experimental data.

The low-temperature and high-temperature transient hot-wire thermal conductivity instruments have been used to measure the thermal conductivity of HFC-143a. The thermal conductivity data set for HFC-143a covers the region from 191 to 373 K (-116 to 212°F) at pressures to 70 MPa (10,200 psia). Tables 18 and 19 show results from analysis of the 121 steady-state and the 1108 transient hot-wire measurements that have been made on HFC-143a. These thermal conductivity data points are plotted as a function of temperature and density in Figure 9. These data have been fit using the correlation described in Appendix B and the final MBWR equation of state for HFC-143a. The fluid specific parameters required by this correlation are provided in Table 20. The dilute gas thermal conductivity is shown in Figure 10. The thermal conductivity excess function for HFC-143a is very nearly temperature independent as shown in Figure 11. Finally, Figure 12 is included to show the deviations of the thermal conductivity data set from the correlation described in this work. Deviations between the data and the correlations are generally less than ±3% at a 2σ band as is apparent in the figure.

The shear viscosity of compressed fluid (vapor) and saturated liquid HFC-143a has been measured at temperatures from 255.6 to 337.8 K (0.4 to 148.4°F) using a torsionally oscillating quartz crystal viscometer for the vapor measurements and a capillary viscometer for the liquid measurements. The experimental data are presented in Tables 21 and 22. The saturated liquid data have been correlated using the equation,

$$\eta = 3.563 \times 10^{-8}\, e^{\frac{53191}{T^2}}\, (V - 5.1608 \times 10^{-4}) \qquad (2)$$

where η is the viscosity in Pa·s, T is the temperature in K, and V is the specific volume in m^3/kg. Deviations of the data from this work and from the literature with this fit are shown in Figure 13. Values of the viscosity of saturated liquid HFC-143a from Eq. (2) are presented as a function of temperature in Table 23. Values of calculated liquid viscosities from Eq. (2) for HFC-143a are presented as a function of temperature and density in Table 24.

The vapor viscosity has been correlated according to the residual concept. The correlations and its parameters are summarized in Table 25. Values of the calculated viscosity of HFC-143a vapor are presented as a function of temperature and density in Table 26. A comparison of the experimental viscosities in the dilute gas region with the correlation is given in Figure 14. The experimental data are compared with predicted values from REFPROP in Figure 15. There are no literature data for the viscosity of HFC-143a in the vapor phase.

HFC-152a

An isochoric PVT apparatus has been used to measure densities for liquid HFC-152a at 136 points. The temperatures ranged from 158 to 400 K (-175 to 260°F) with pressures as high as 35 MPa (5100 psi). The pressures, temperatures, and densities are presented in Tables 27 and 28, and the locations of the measurements are shown in Figure 16.

An ebulliometer has been used to measure the vapor pressure of HFC-152a at 38 temperatures between 220 and 273 K (-64 to 32°F); the corresponding pressures ranged from 22.7 to 263.7 kPa (3.3 to 38.2 psia). The experimental data are presented in Table 29.

A cylindrical acoustic resonator has been used to measure the speed of sound (u) in HFC-152a along isotherms from 242.8 to 400.0 K (-22.7 to 260.3°F) at pressures between 35 and 1030 kPa (5 to 149.4 psia). The results are given in Table 30. The quantity $\delta u/u$ is the estimated fractional error in u. The ideal-gas heat capacity, C_p°, of HFC-152a 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° were obtained by fitting the data in Table 31:

$$C_p^\circ/R = a_0 + a_1 T + a_2 T^2 + a_3 T^3 \qquad (1)$$

where

SI UNITS

a_0	=	7.6253 ± 0.0041
a_1 (°C^{-1})	=	0.02021 ± 0.00018
a_2(°C^{-2})	=	-2.626 x 10^{-5} ± 4.6 x 10^{-6}
a_3(°C^{-3})	=	1.035 x 10^{-7} ± 2.8 x 10^{-8}
R (gas constant)	=	8.314471 J/(mol·K)

or

PI UNITS

a_0	=	7.251 ± 0.0054
a_1(°F^{-1})	=	0.01180 ± 0.00014
a_2(°F^{-2})	=	-9.809 x 10^{-6} ± 1.5 x 10^{-6}
a_3(°F^{-3})	=	1.775 x 10^{-8} ± 4.8 x 10^{-9}
R (gas constant)	=	0.01419457 Btu/(mol·°F)

The second, third, and fourth acoustic virial coefficients (β_a, γ_a, δ_a) 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 HFC-152a. The measurements were carried out in the single-phase liquid (85 points) and saturated-liquid states (70 points). Eight C_v isochores were completed in the temperature and pressure range depicted in Figure 17. For the liquid measurements, the temperatures ranged from 164 to 343 K (-164 to 158°F) with pressures to 35 MPa (5100 psi). The temperatures of the saturated liquid ranged from 162 to 315 K (-167 to 107°F). The measurements are presented for the liquid phase in Tables 33 and 34, and for the two-phase region in Tables 35 and 36. The measured heat capacity values are shown in Figure 18 for the single-phase liquid and in Figure 19 for the saturated liquid

A new 32-term MBWR equation of state for HFC-152a has been developed. This equation represents the final fit; the coefficients have been revised from the preliminary values reported in the April 1994 progress report reflecting improvements and refinements in the fit. This MBWR equation of state will be incorporated into a future version of the REFPROP computer package. It is valid at temperatures from the triple point of 155 K (-181°F) to 450 K (350°F), and appears to be reasonable upon extrapolation up to 500 K (440°F). The maximum pressure for the equation is 40 MPa (5800 psia), and it appears to be reasonable upon extrapolation up to 100 MPa (14500 psia). 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 include vapor pressures, saturated liquid and vapor densities, liquid- and vapor-phase pressure-volume-temperature (PVT) and speed-of-sound data, virial coefficients, and isochoric heat capacities at saturation and in the single-phase liquid. Table 37 gives the coefficients to the equation of state; Tables 38 and 39 give the critical parameters and the coefficients to the auxiliary ideal gas heat capacity equation. The ideal gas heat capacity equation is based on the C_p^o determined in this study combined with selected literature data to extend the temperature range. Table 40 tabulates the saturation properties calculated with the equation of state.

Figure 20 shows the deviations of the equation of state with ancillary equations for the vapor pressure and saturated liquid and vapor densities. The fits of the vapor pressure and saturated liquid density are very good with maximum deviations of 0.23% for vapor pressure near the triple point and 0.14% for the saturated liquid density near the critical point; the deviations are less than 0.1% over the temperature range of interest for refrigeration applications. The deviations for the saturated vapor density are higher, with a maximum of 1.42% near the critical point. This is not of great concern: there are few experimental saturated vapor density data points on which to base the saturation boundary, and thus, mostly calculated points were used. The saturated vapor density was given low weight in the MBWR fit.

Figures 21 and 22 show the deviations of the values calculated with the equation of state compared to the experimental PVT and heat capacity data used in the fit. Again the fit is very good. The RMS (root mean square) deviation of the PVT data is 0.03%. The RMS deviation of the heat capacity data is 1.7%, about twice the uncertainty in the experimental data.

The low-temperature and high-temperature transient hot-wire thermal conductivity instruments have been used to measure the thermal conductivity of HFC-152a. The thermal conductivity data set for HFC-152a covers the region from 196 to 414 K (-107 to 286°F) at

pressures to 70 MPa (10,200 psia). Tables 41 and 42 show results from analysis of the 184 steady-state and the 1404 transient hot-win measurements that we have made on HFC-152a. These thermal conductivity data points are plotted as a function of temperature and density in Figure 23. These data have been fit using the correlation described in Appendix B and the final MBWR equation of state for HFC-152a. The fluid specific parameters required by this correlation are provided in Table 43. The dilute gas thermal conductivity is shown in Figure 24 along with other available data from the literature. The agreement with literature data is generally within ±2%. The thermal conductivity excess function for HFC-152a is very nearly temperature independent as shown in Figure 25. Finally, Figure 26 is included to show the deviations of the thermal conductivity data set from the correlation described in this study. Deviations between the data and the correlations are generally less than ±5% at a 2σ band as is apparent in the figure.

Measurements of the shear viscosity of HFC-152a were performed in the compressed fluid (vapor) and saturated liquid regions from 254.7 to 330.9 K (-1.2 to 136°F) with a torsionally oscillating quartz crystal viscometer for the vapor measurements and a capillary viscometer for the liquid measurements. The experimental data are presented in Tables 44 and 45. The saturated liquid data have been correlated using the equation

$$\eta = 4.536 \times 10^{-8} (V - 8.2740 \times 10^{-4}) \qquad (3)$$

where η is the viscosity in Pa·s and V is the specific volume in m^3/kg. Values of the viscosity of saturated liquid HFC-152a from Eq. (3) are presented in Table 46.

A residual concept correlation has been developed by Krauss (1994) for the viscosity of HFC-152a based on literature data The correlation and its parameters are summarized in Table 47. Comparisons of saturated liquid data for the viscosity of HFC-152a from this study and from the literature with values from the correlation of Krauss are presented in Figure 27.

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. W.M. Haynes is the KIST Principal Investigator for the MCLR program. During the fifteen months of this project; Dr. Haynes devoted approximately four weeks to planning the program, monitoring and reviewing the research, and preparing the quarterly and final reports. The project involved multiple researchers and capabilities in Gaithersburg, MD and Boulder, CO.

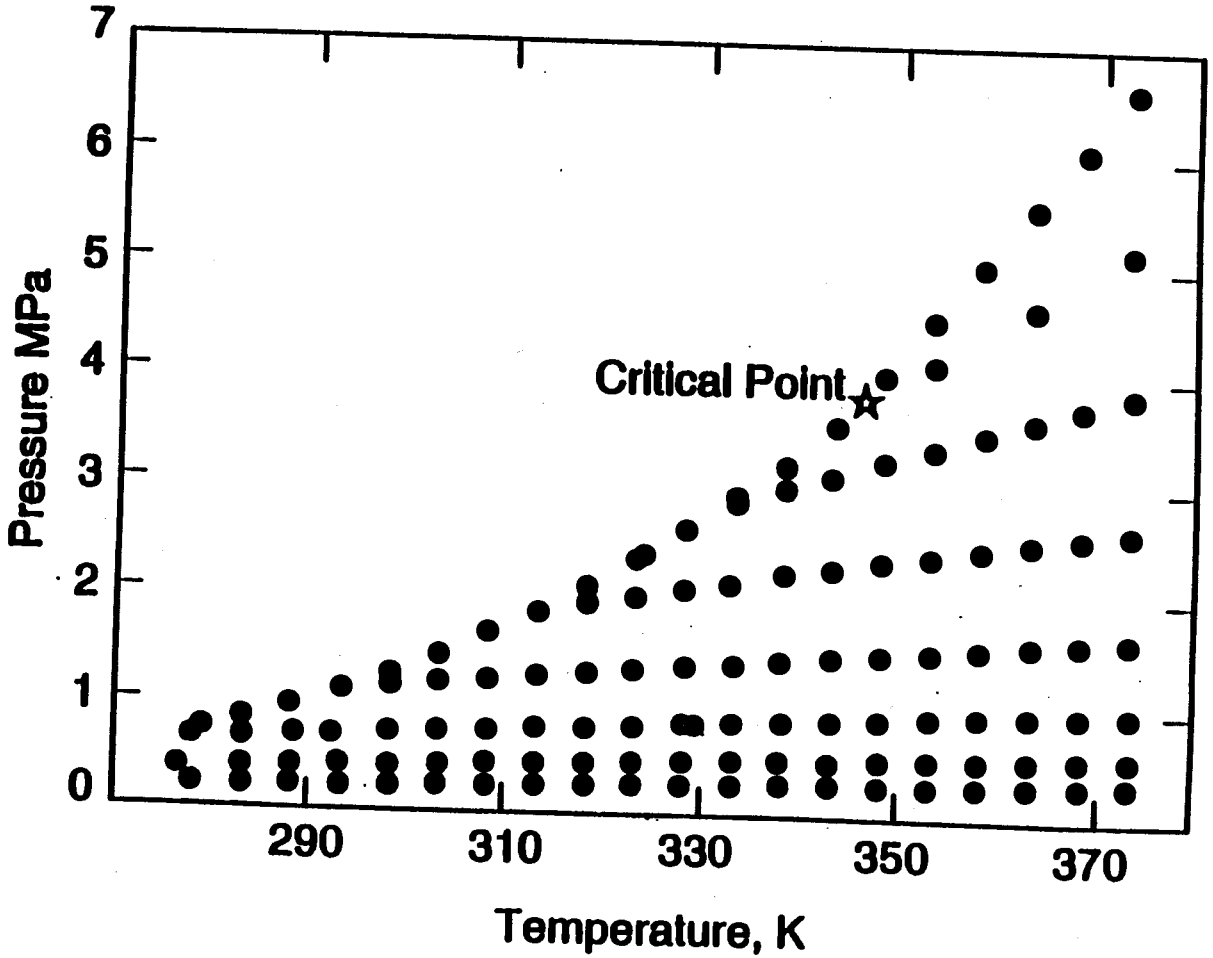

Figure 1. **Plot of experimental temperatures and pressures for vapor phase PVT measurements for HFC-143a using the Burnett apparatus.**

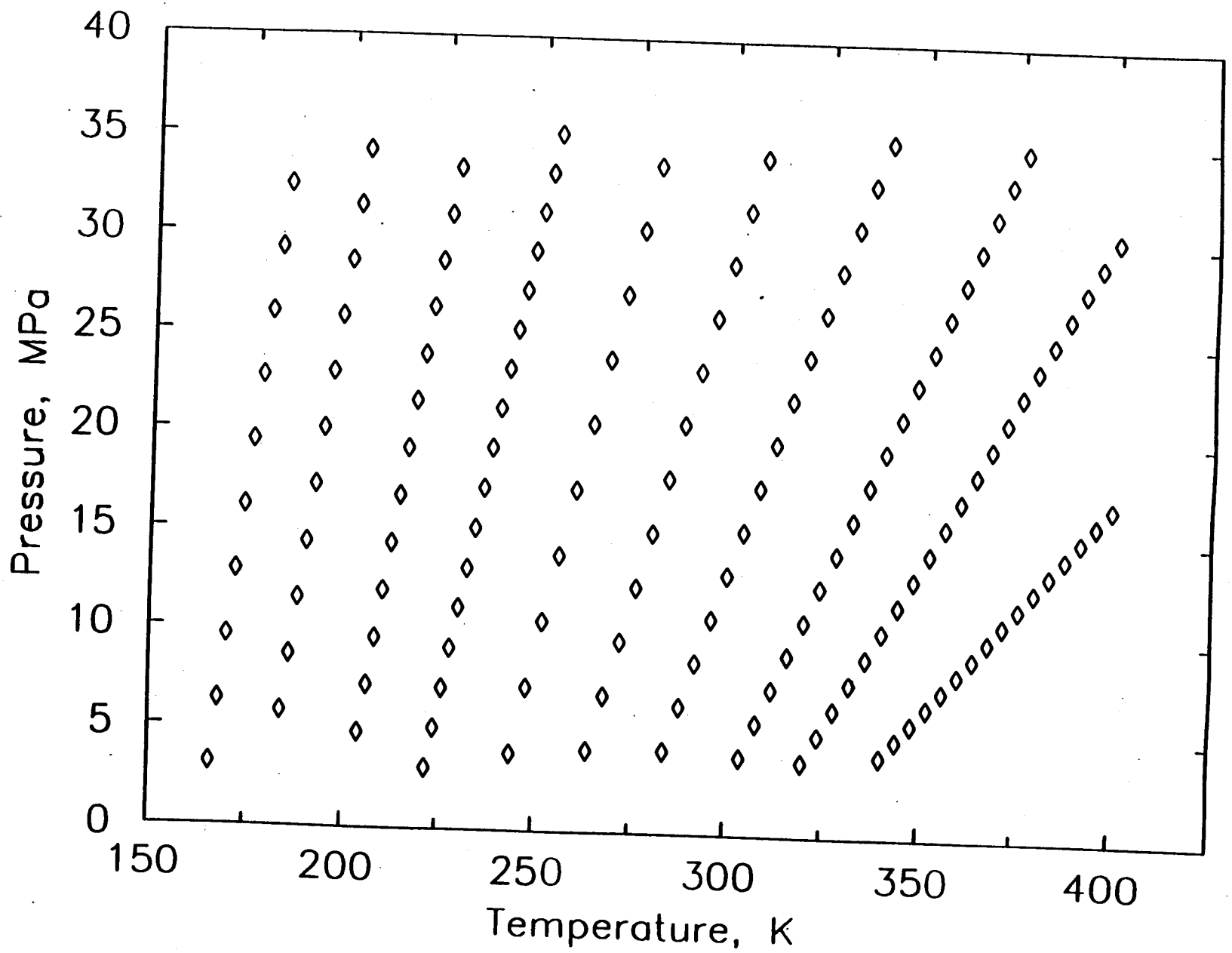

Figure 2. Range of measured temperatures and pressures for isochoric PVT study of HFC-143a.

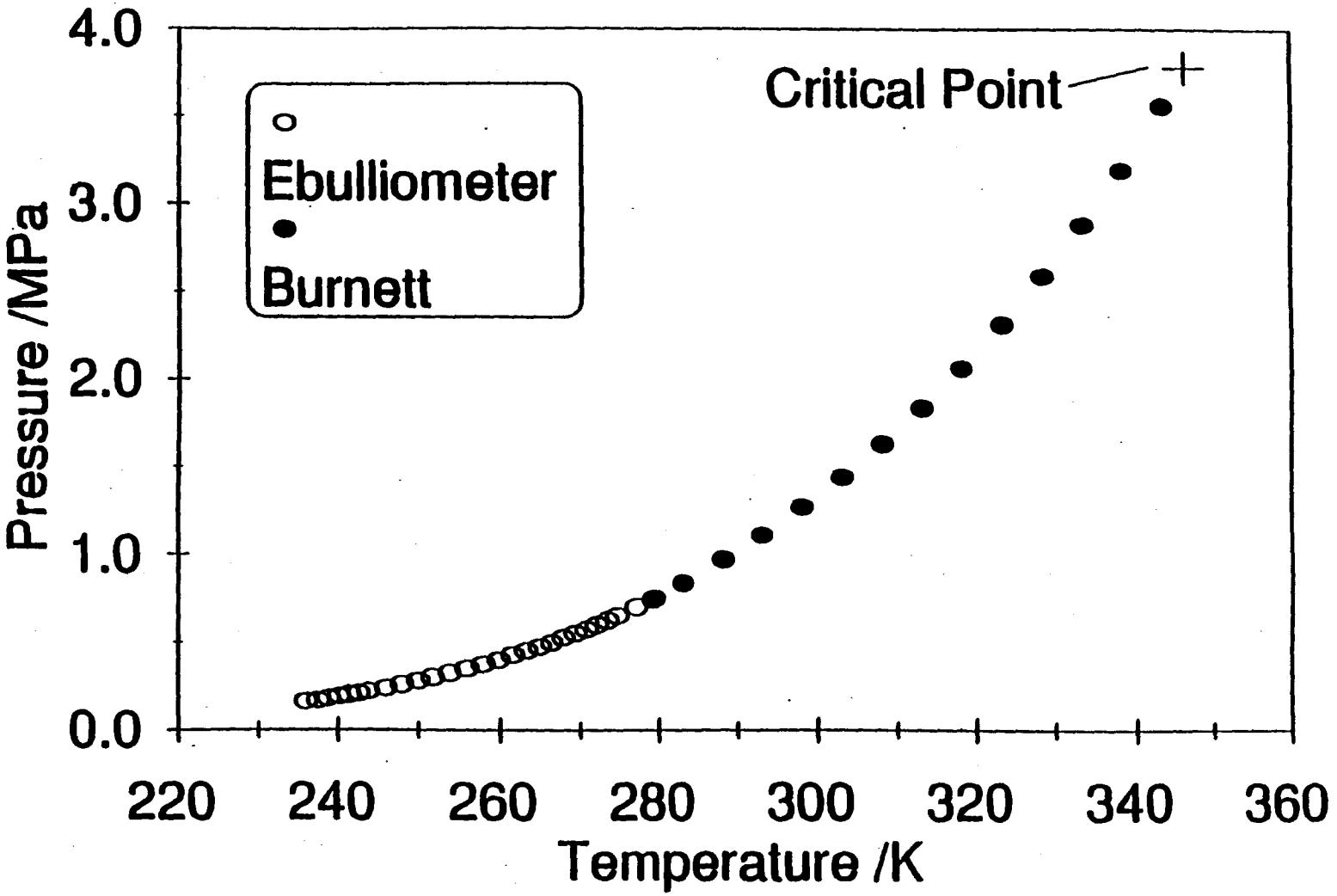

Figure 3. Vapor pressure measurements for HFC-143a.

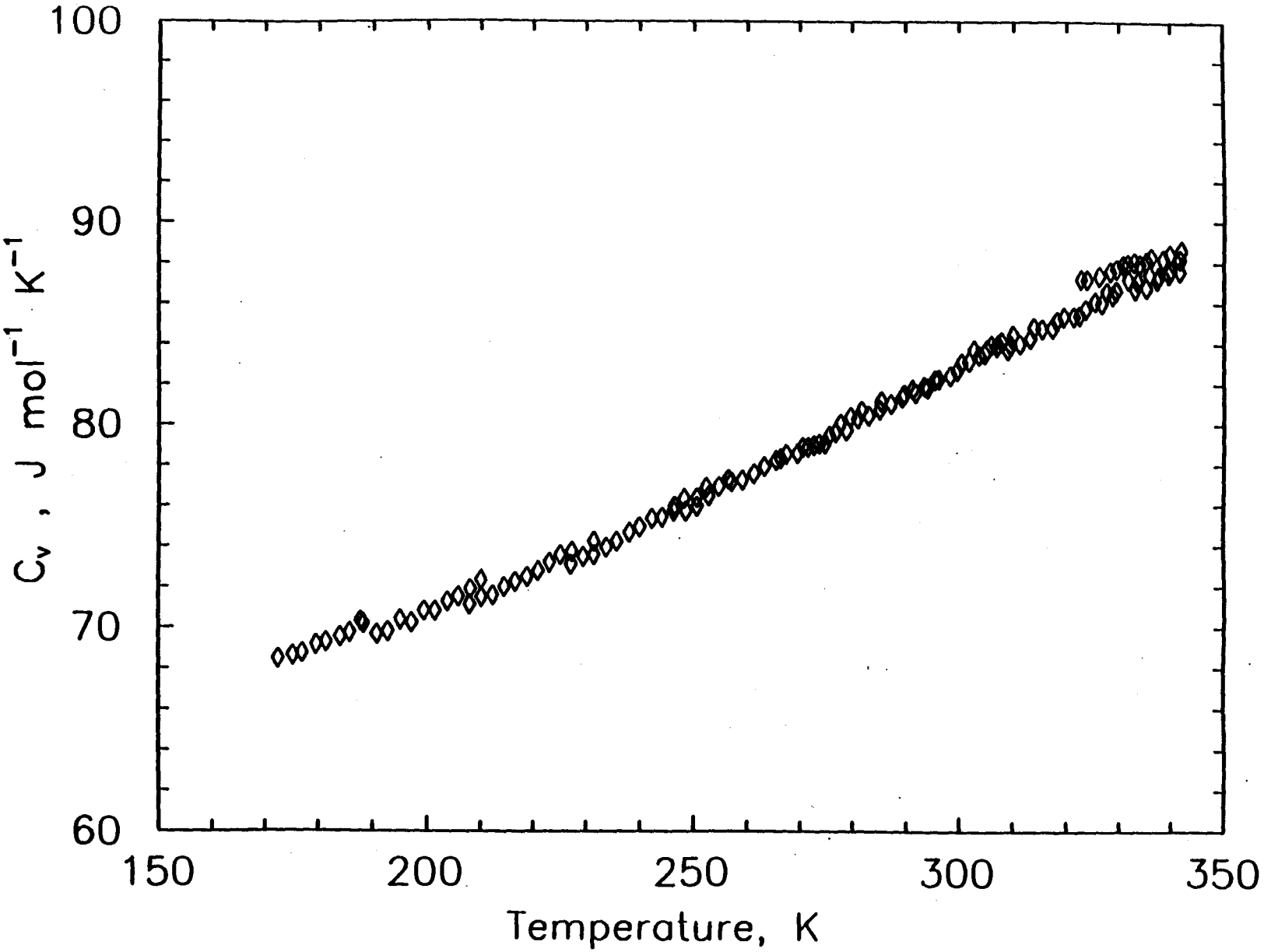

Figure 4. Liquid phase isochoric heat capacities of HFC-143a.

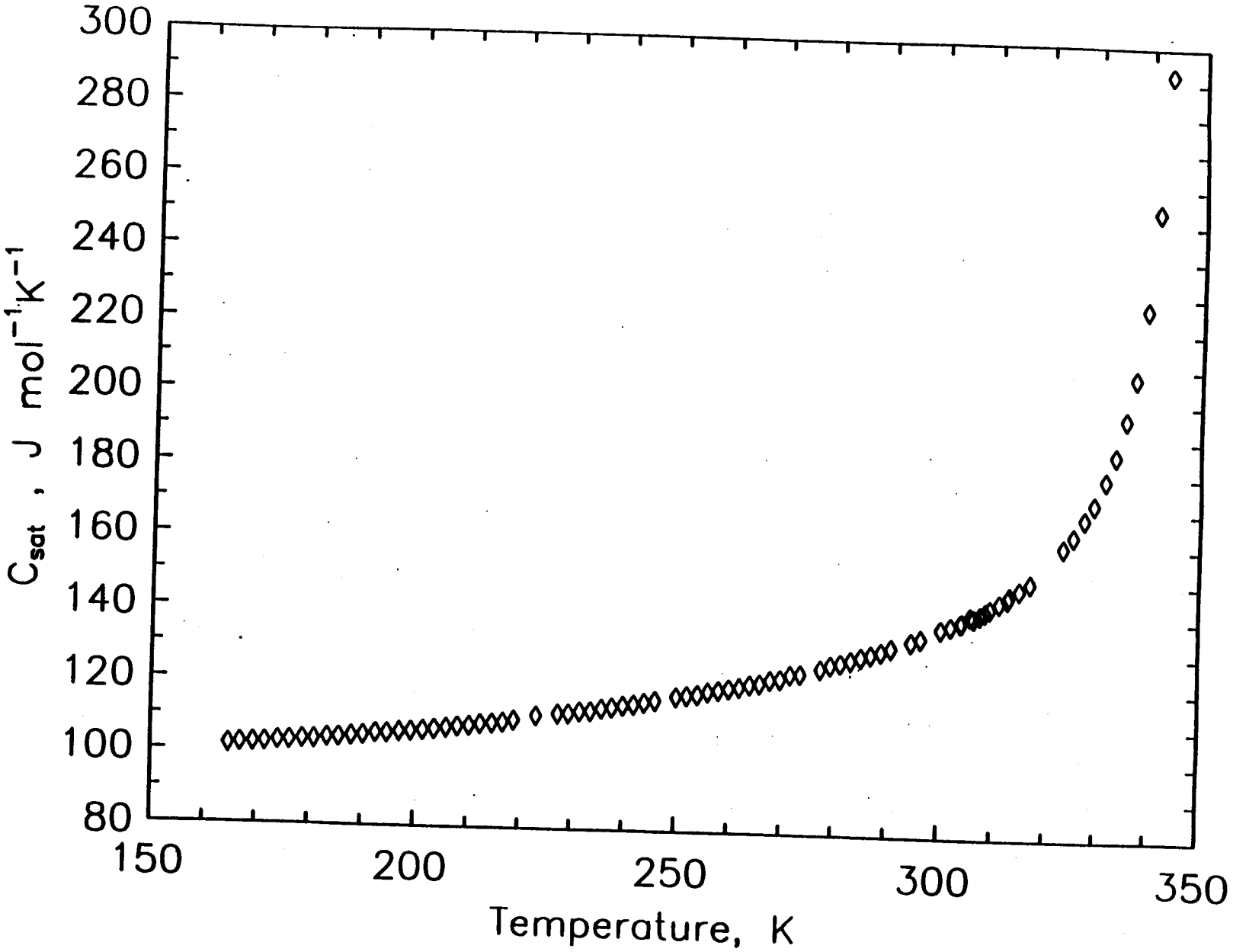

Figure 5. Saturated liquid heat capacities of HFC-143a.

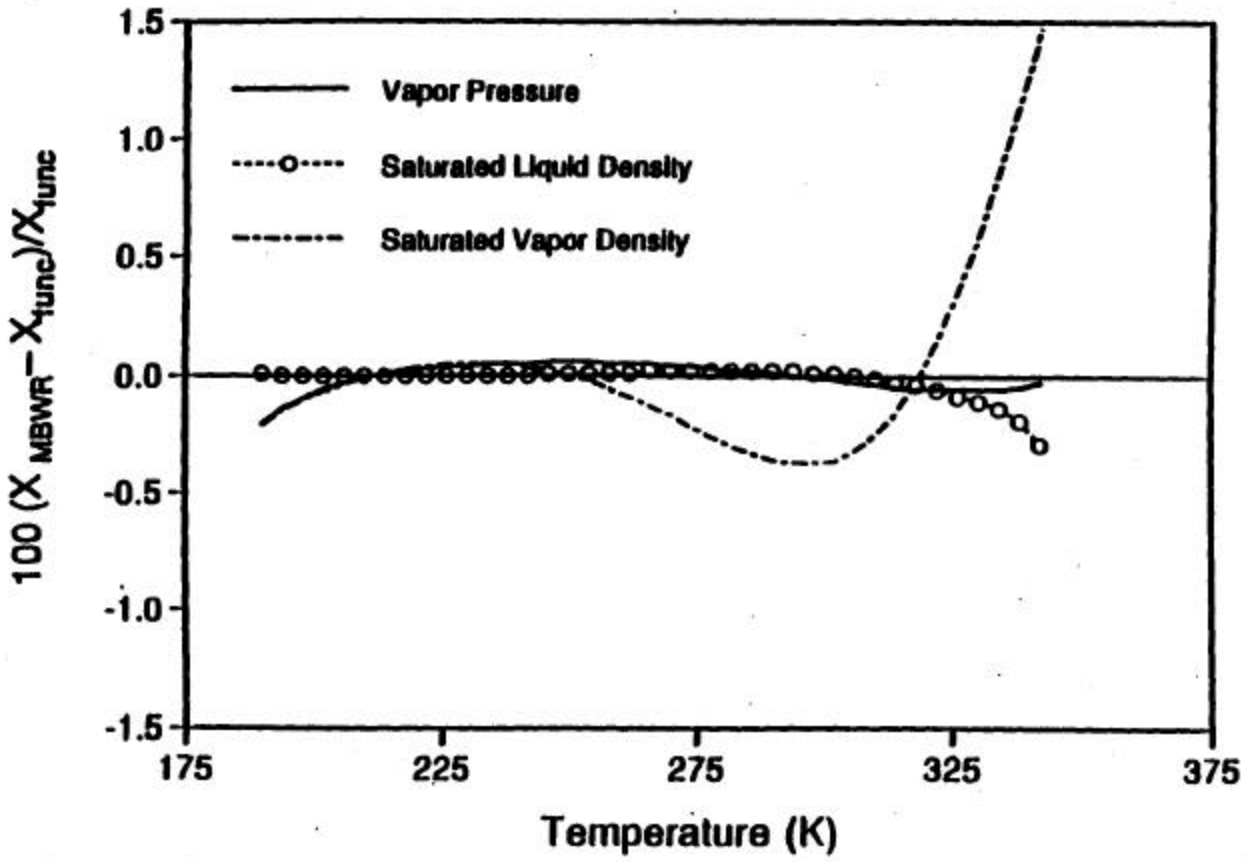

Figure 6. **Deviations of the MBWR equation of state for HFC-143a from ancillary equations for vapor pressure, saturated liquid density, and saturated vapor density.**

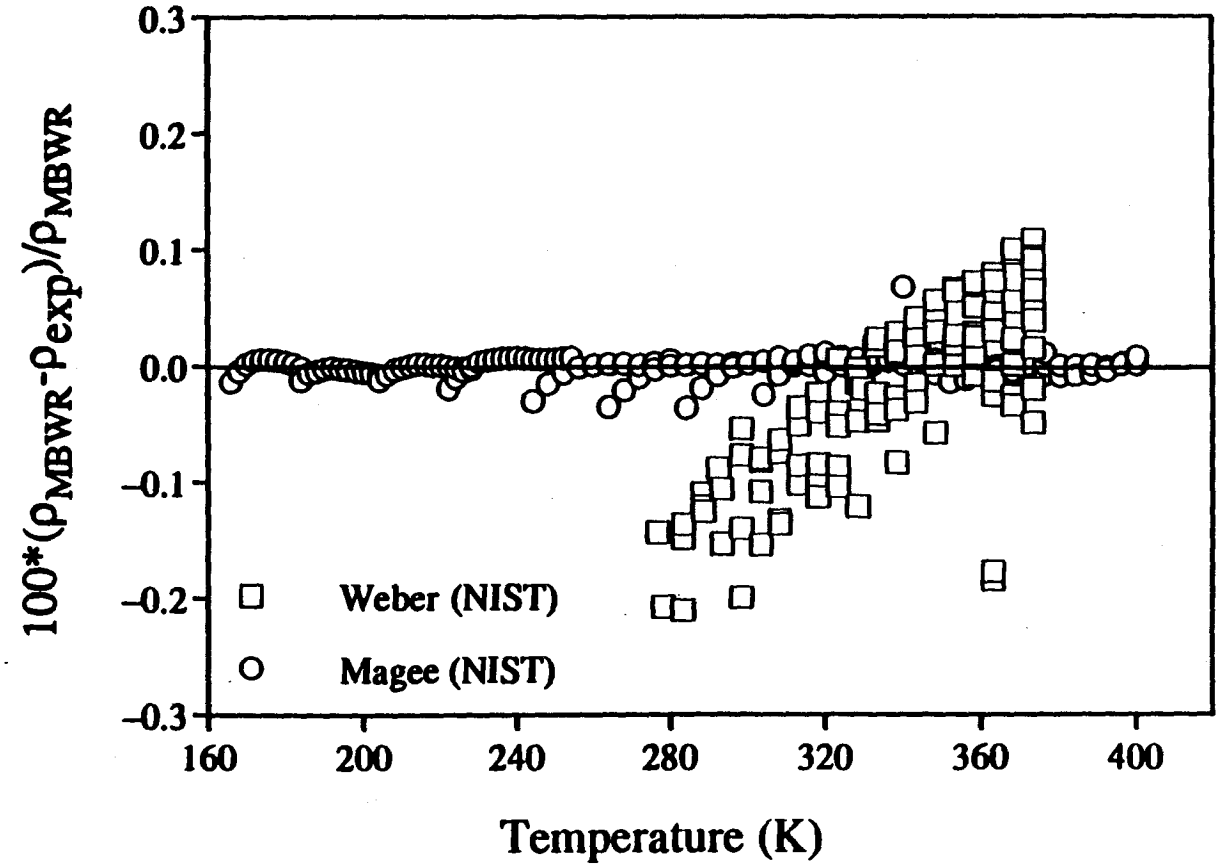

Figure 7. Density deviations of the MBWR equation of state for HFC-143a from experimental pressure-volume-temperature (PVT) data used in the fit.

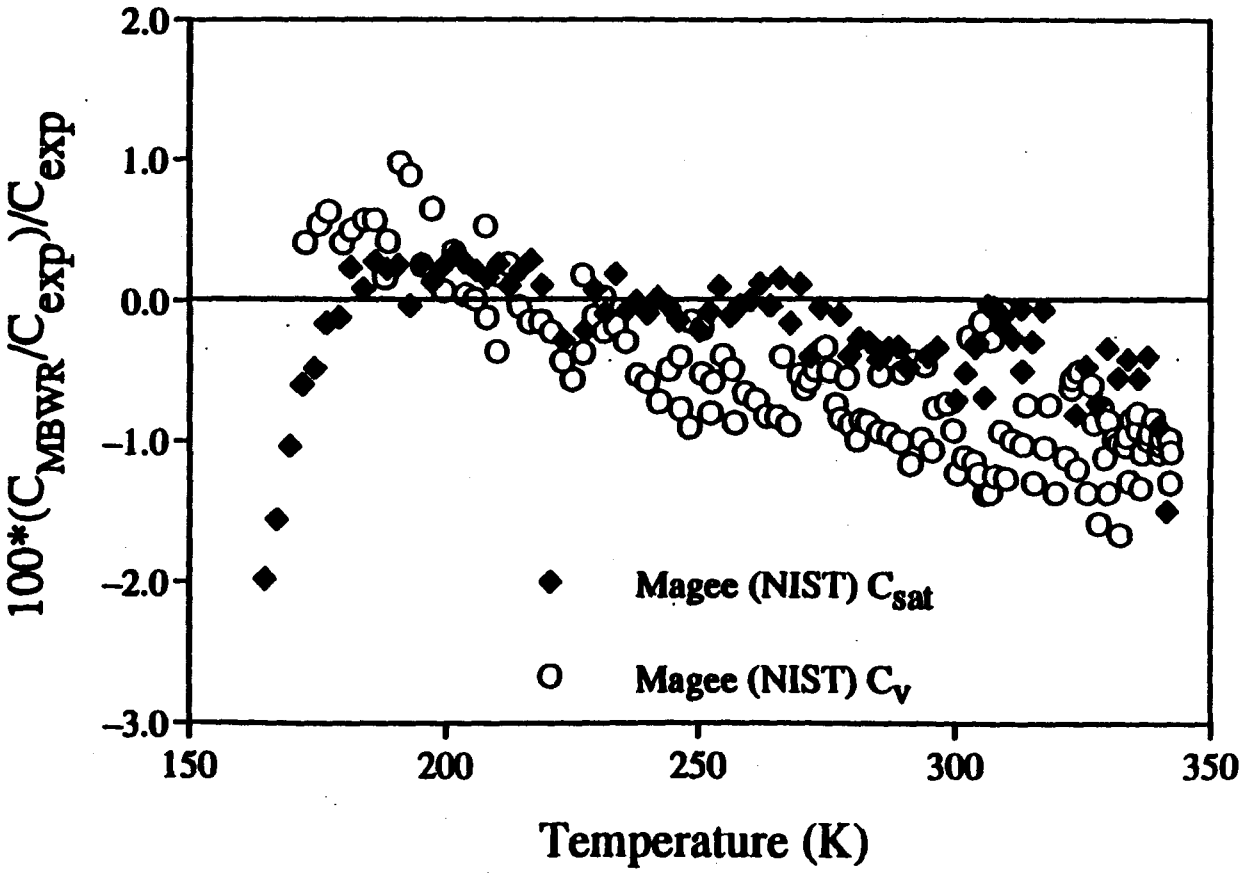

Figure 8. **Deviations of the MBWR equation of state for HFC-143a from experimental isochoric heat capacity data at saturation and in the single-phase liquid region used in the fit.**

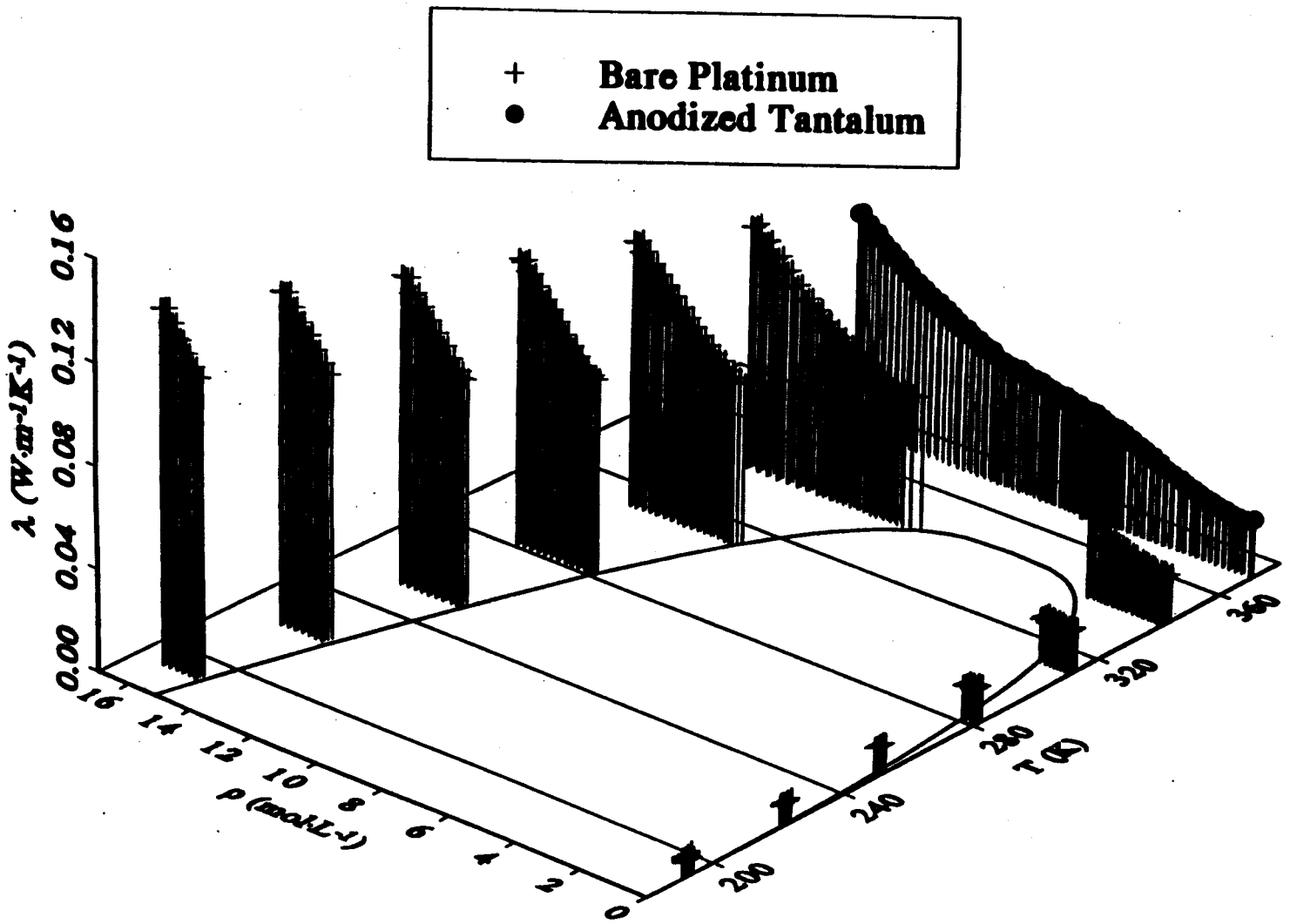

Figure 9. Thermal conductivity surface for HFC-143a.

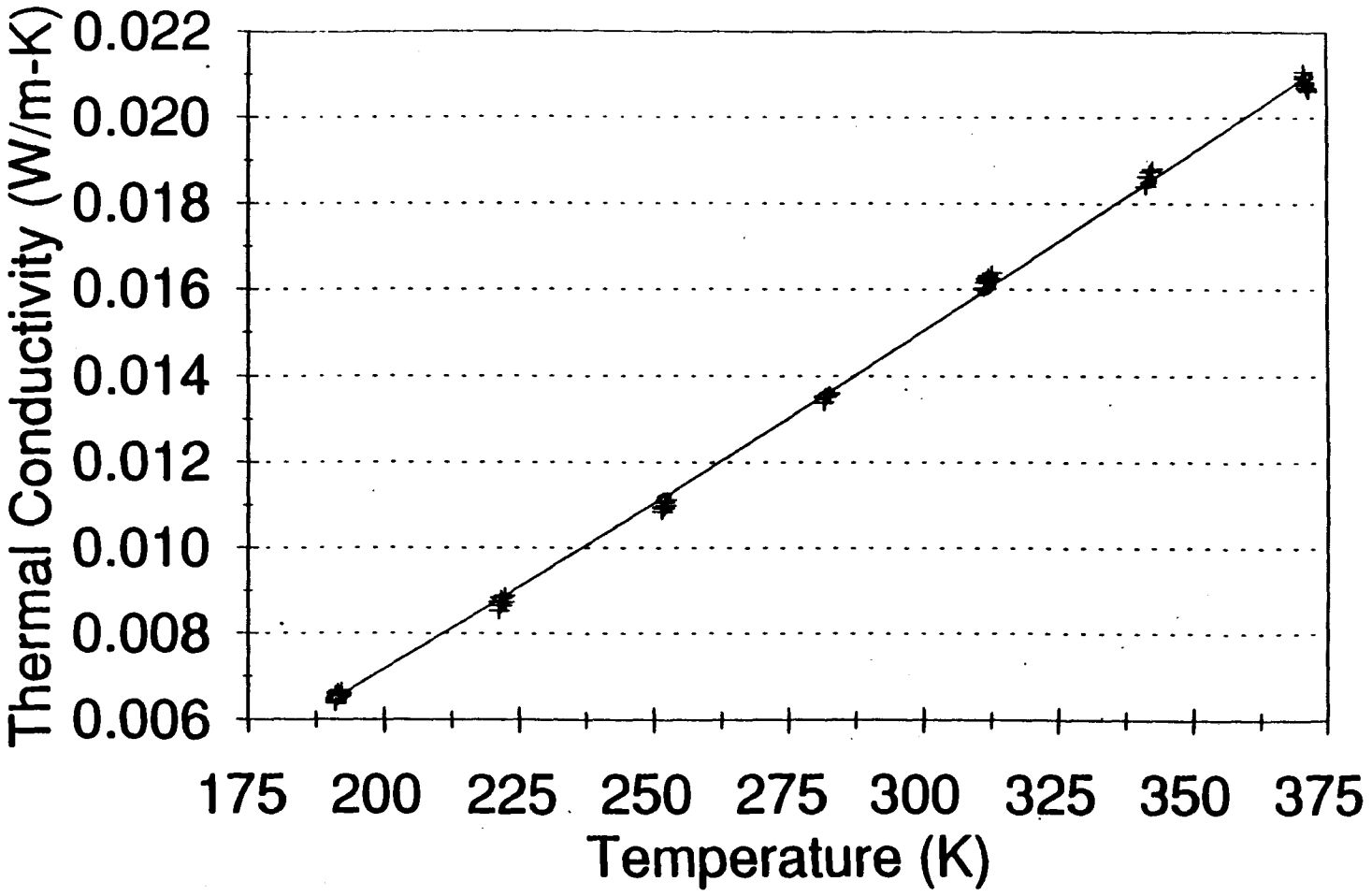

Figure 10. Dilute gas thermal conductivity of HFC-143a from steady-state hot-wire measurements.

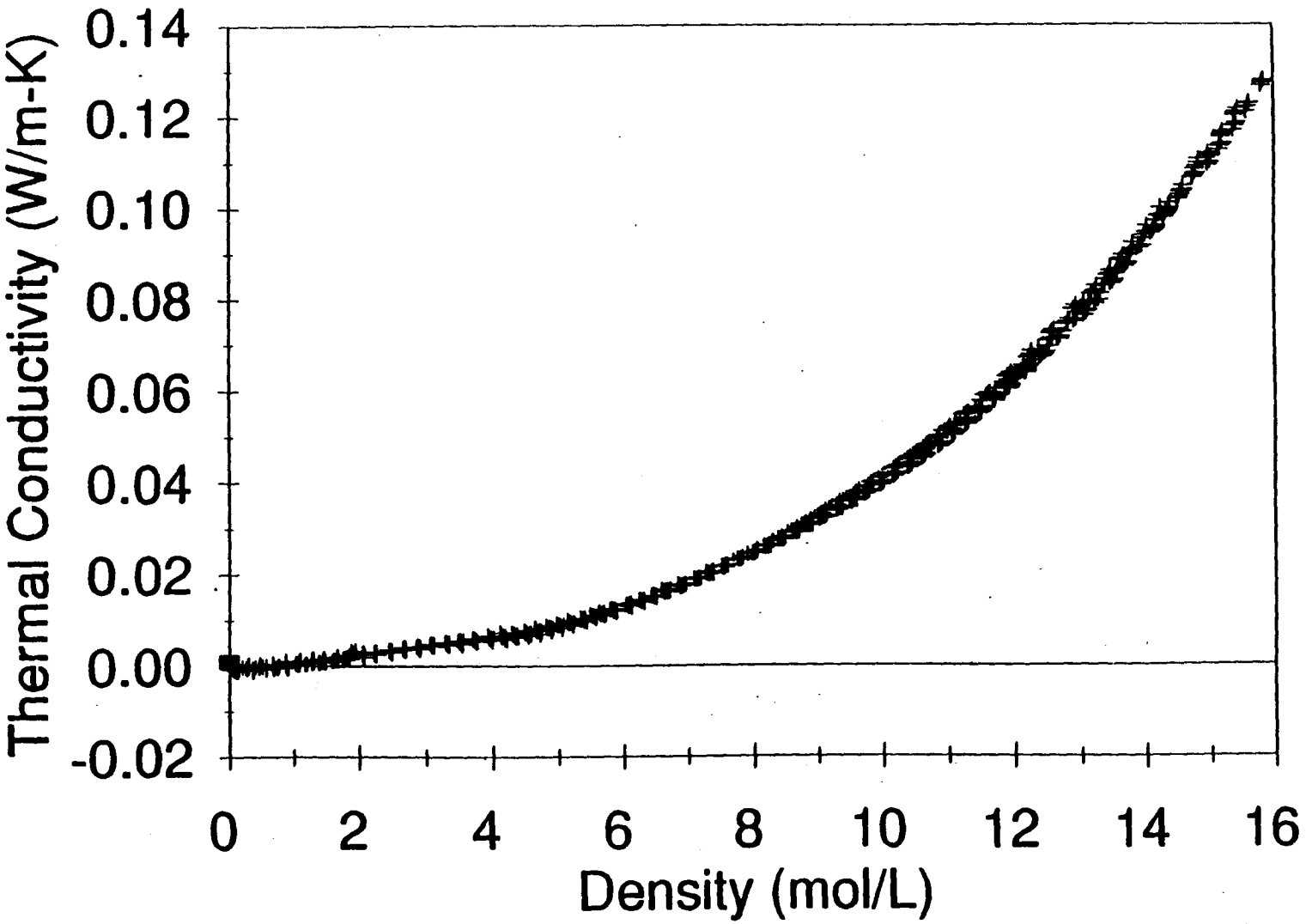

Figure 11. Thermal conductivity excess function for HFC-143a.

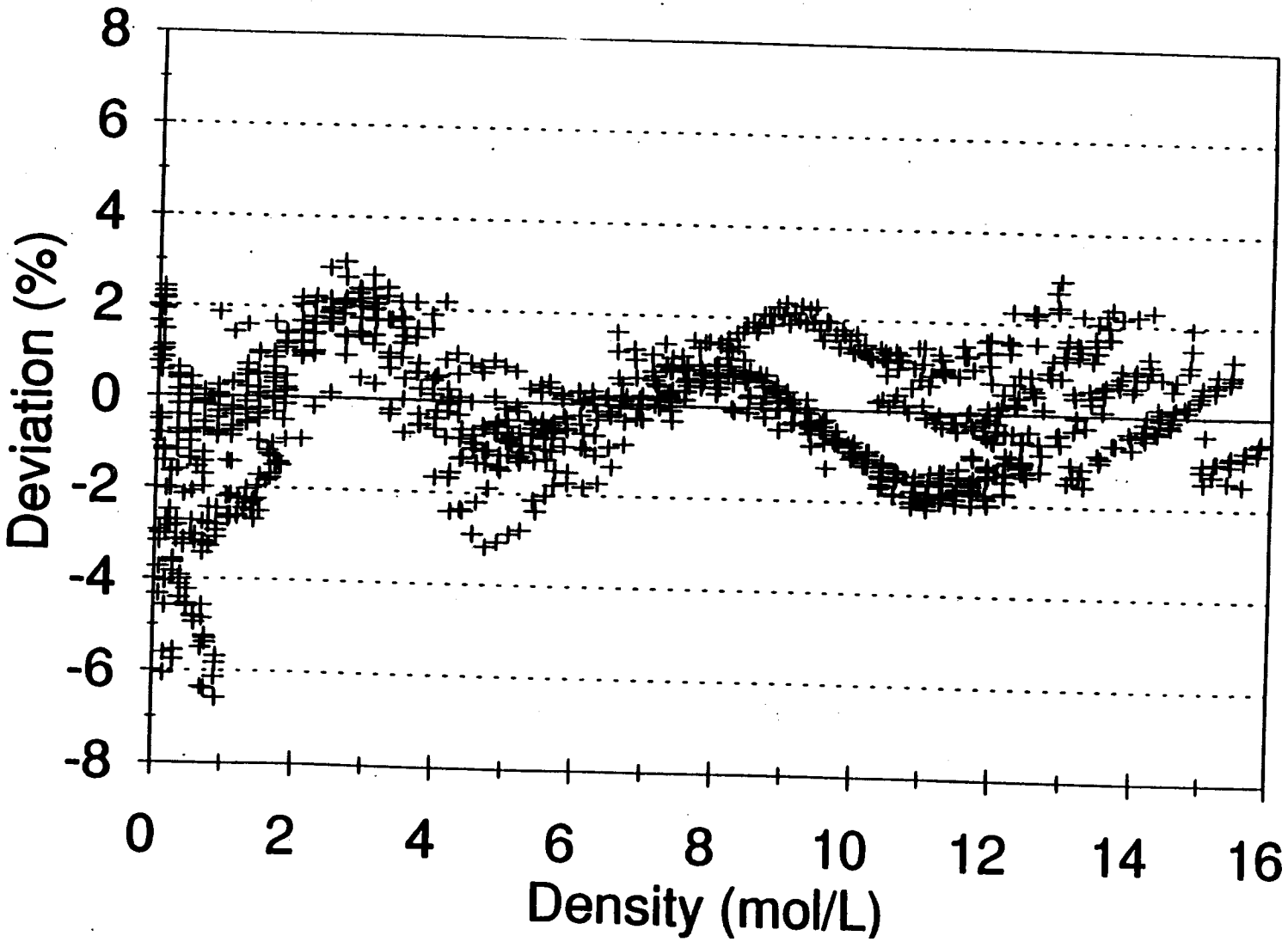

Figure 12. Deviations of the values of thermal conductivity calculated from the thermal conductivity correlation for HFC-143a from the experimental data used in the fit.

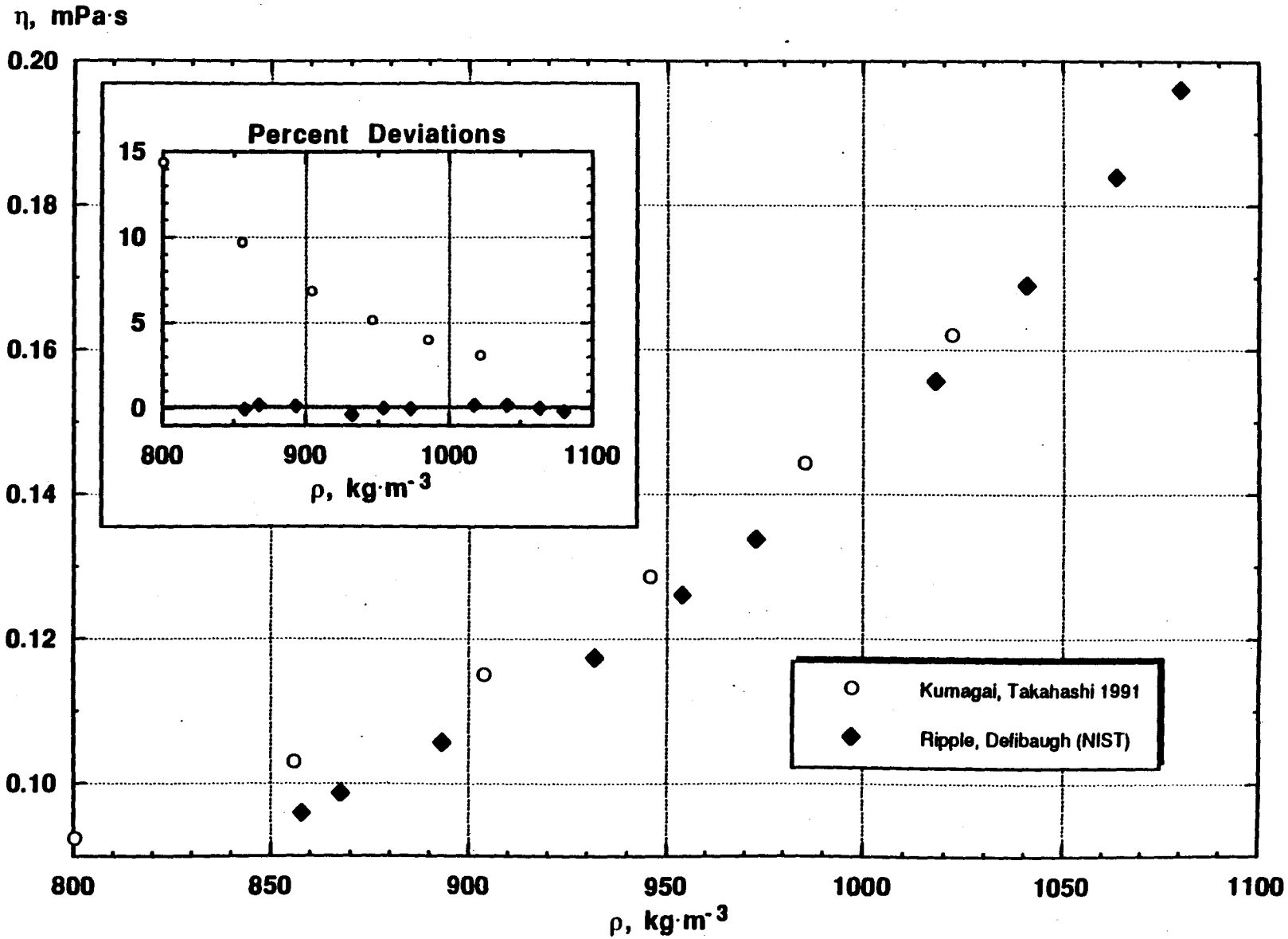

Figure 13. Comparisons of experimental viscosity data for saturated liquid HFC-143a with values from Eq. (2).

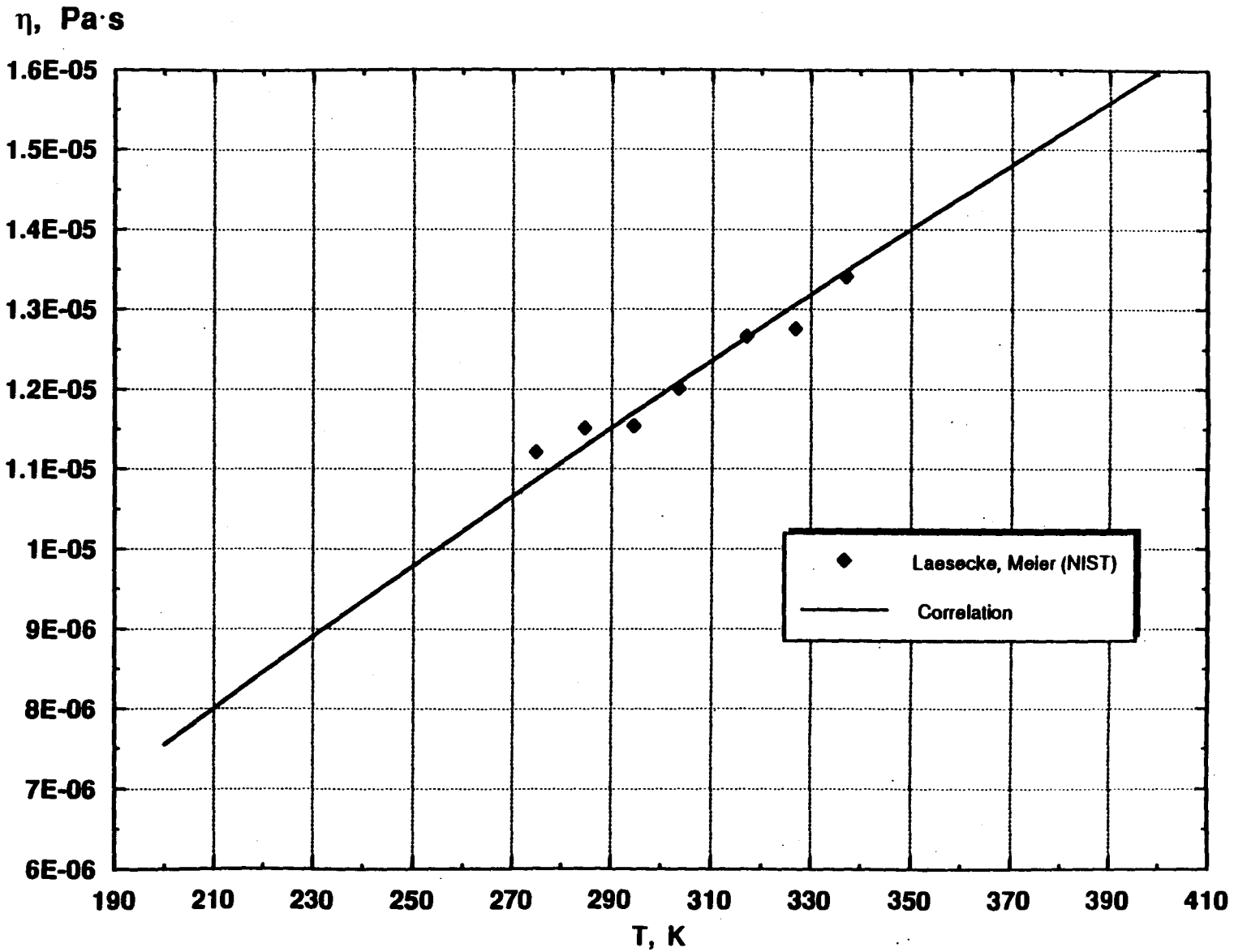

Figure 14.Comparison of dilute gas viscosities of HFC-143a with values from correlation in Table 25.

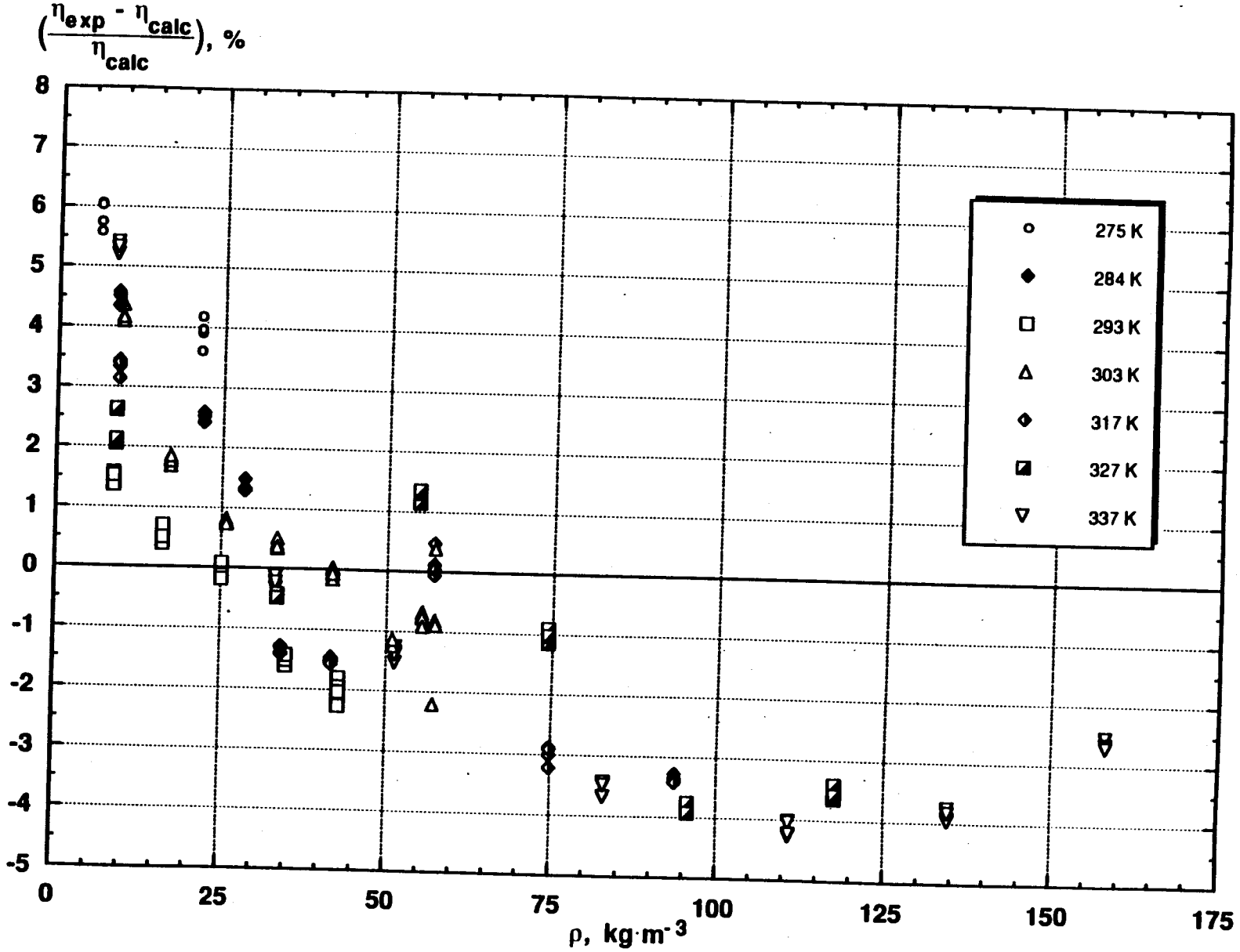

Figure 15. Comparison of experimental vapor viscosities for HFC-143a with values from REFPROP.

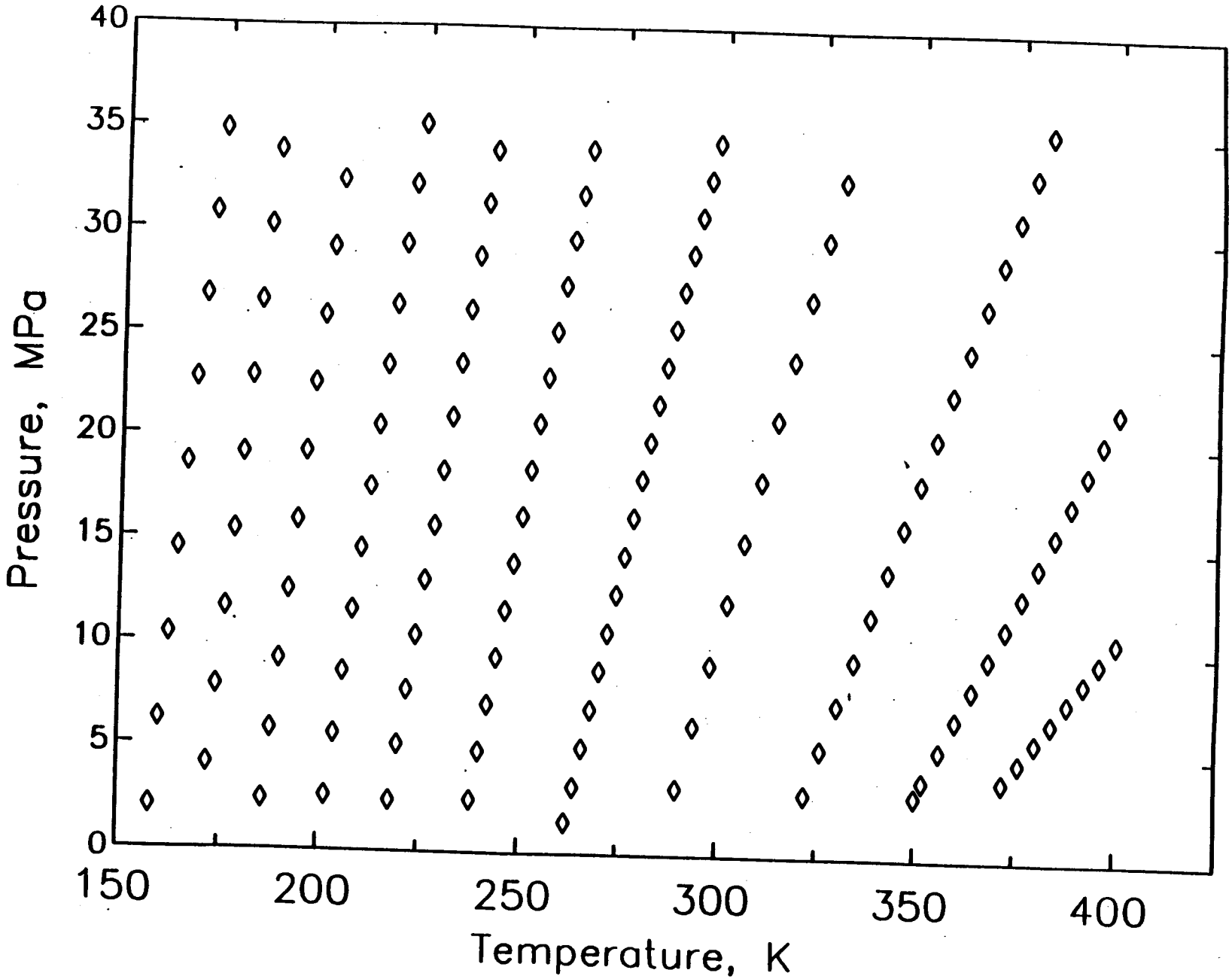

Figure 16. Range of measured temperatures and pressures for isochoric PVT study of HFC-152a.

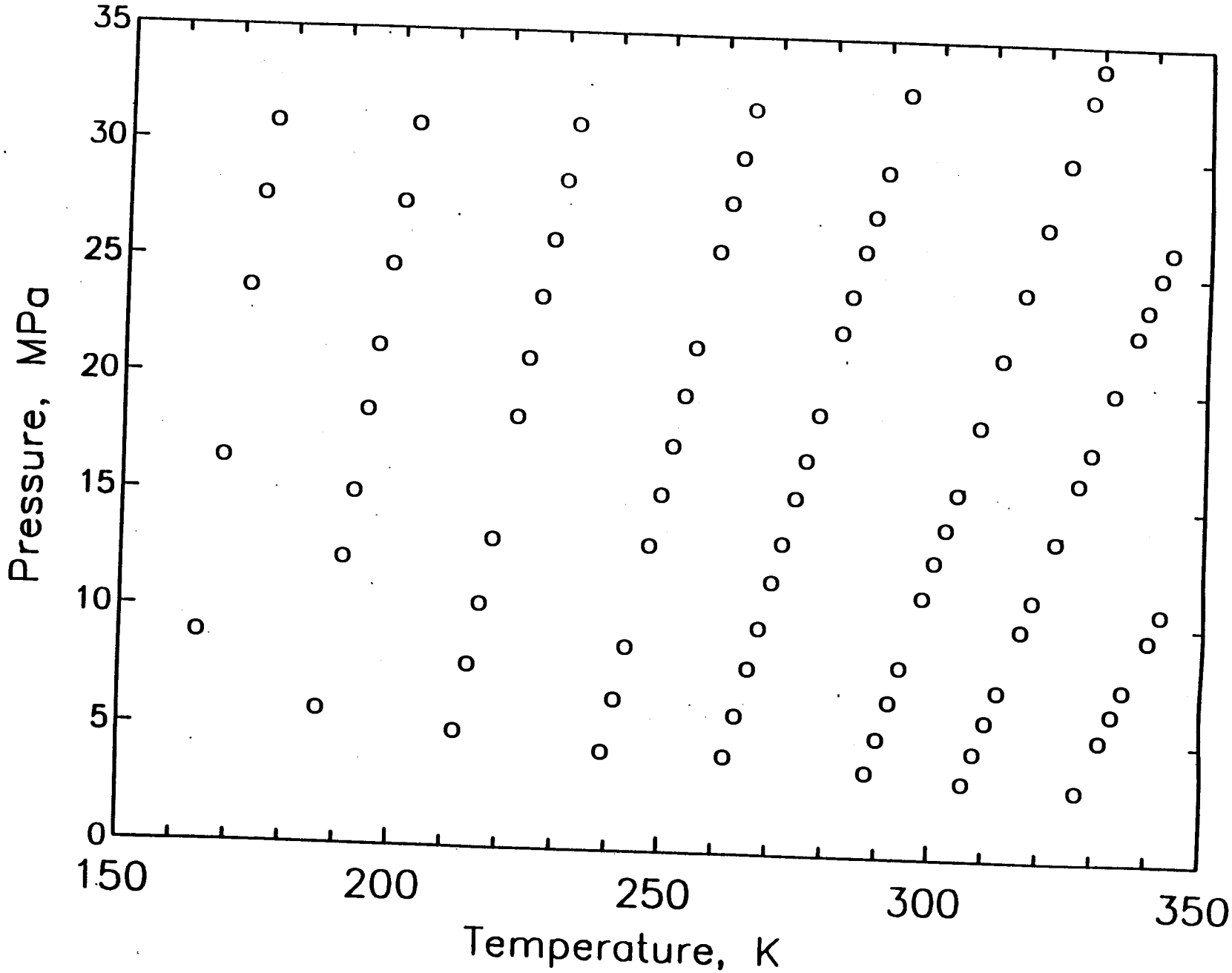

Figure 17. Range of measured temperatures and pressures for C_v study of HFC-152a.

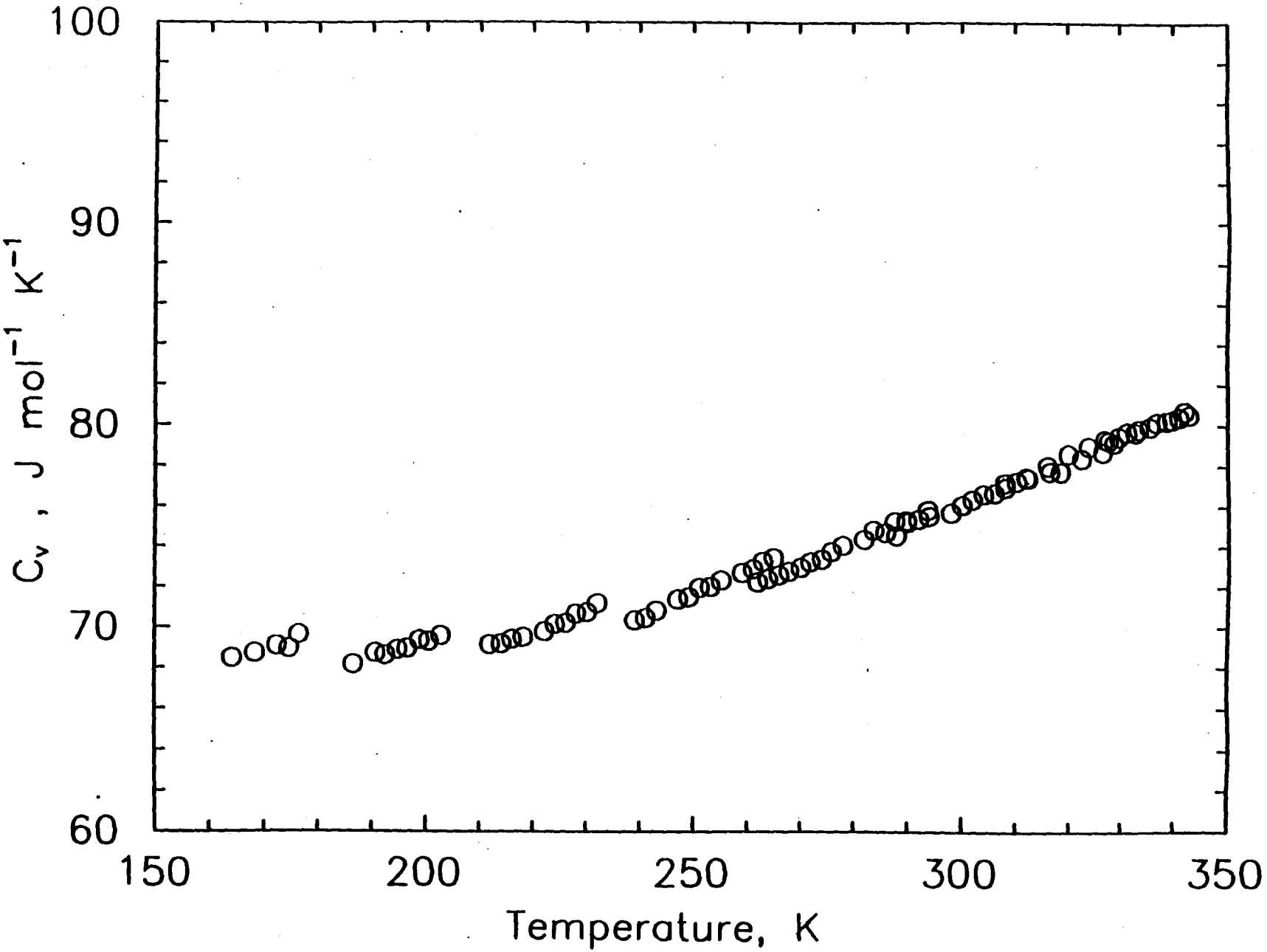

Figure 18. Liquid phase isochoric heat capacities of HFC-152a.

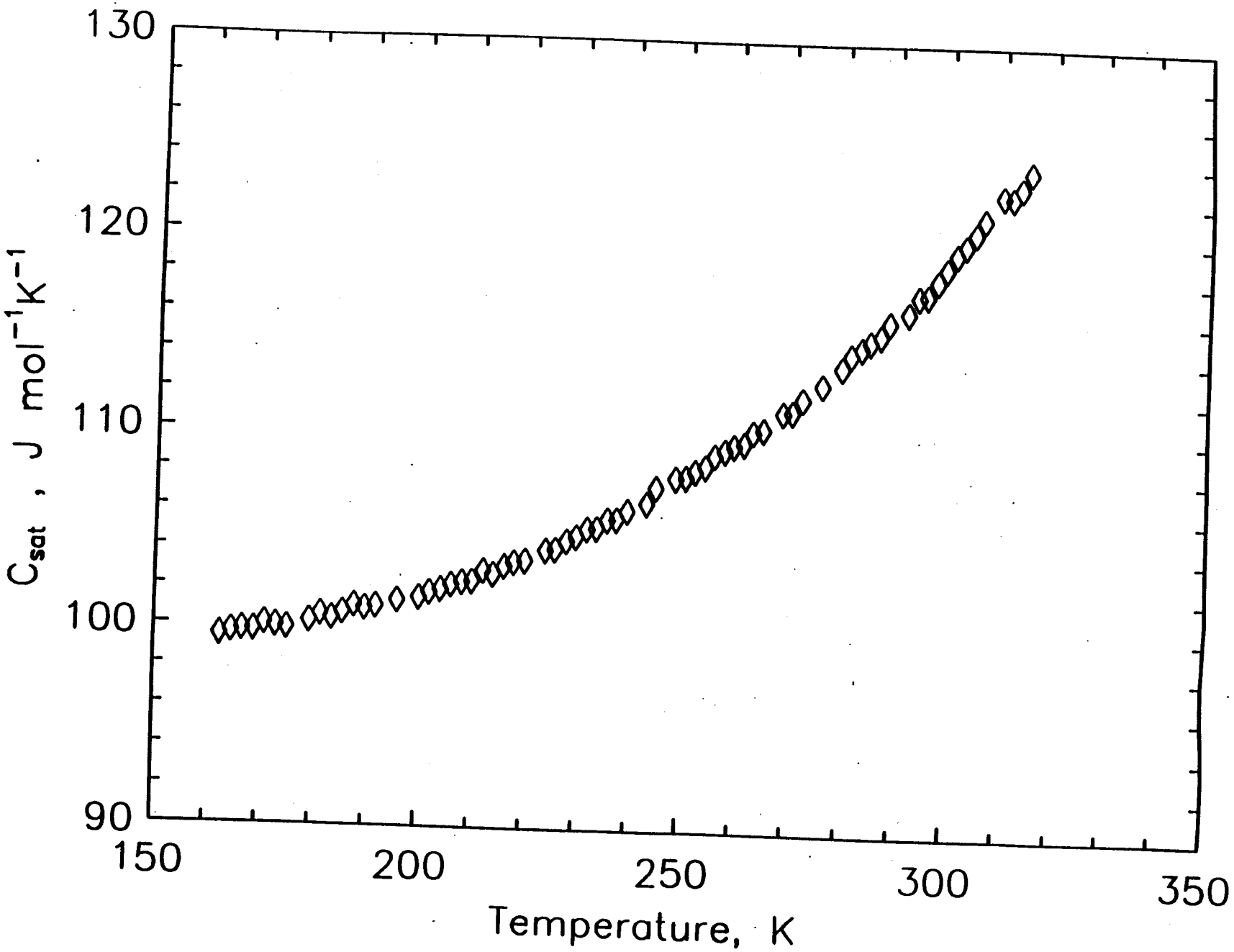

Figure 19. Saturated liquid heat capacities of HFC-152a.

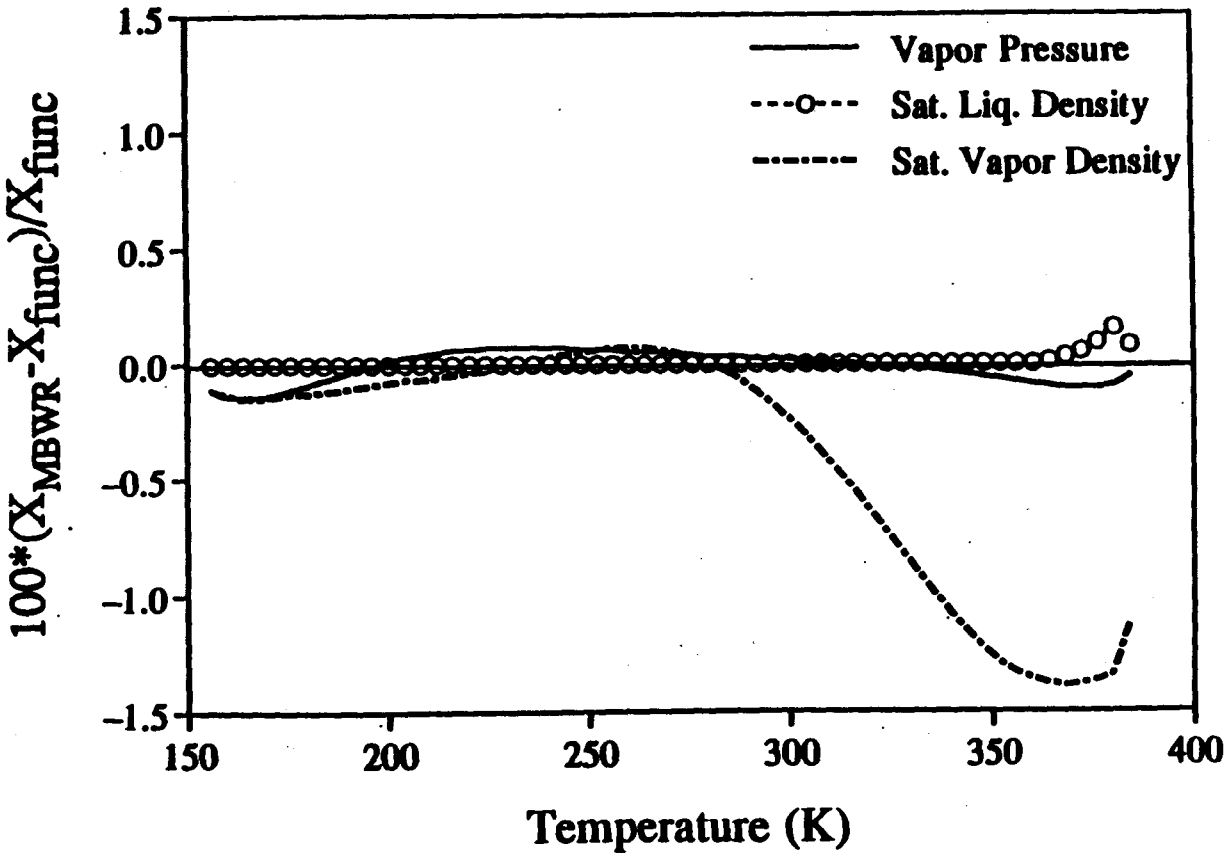

Figure 20. Deviations of the MBWR equation of state for HFC-152a from ancillary equations for vapor pressure, saturated liquid density, and saturated vapor density.

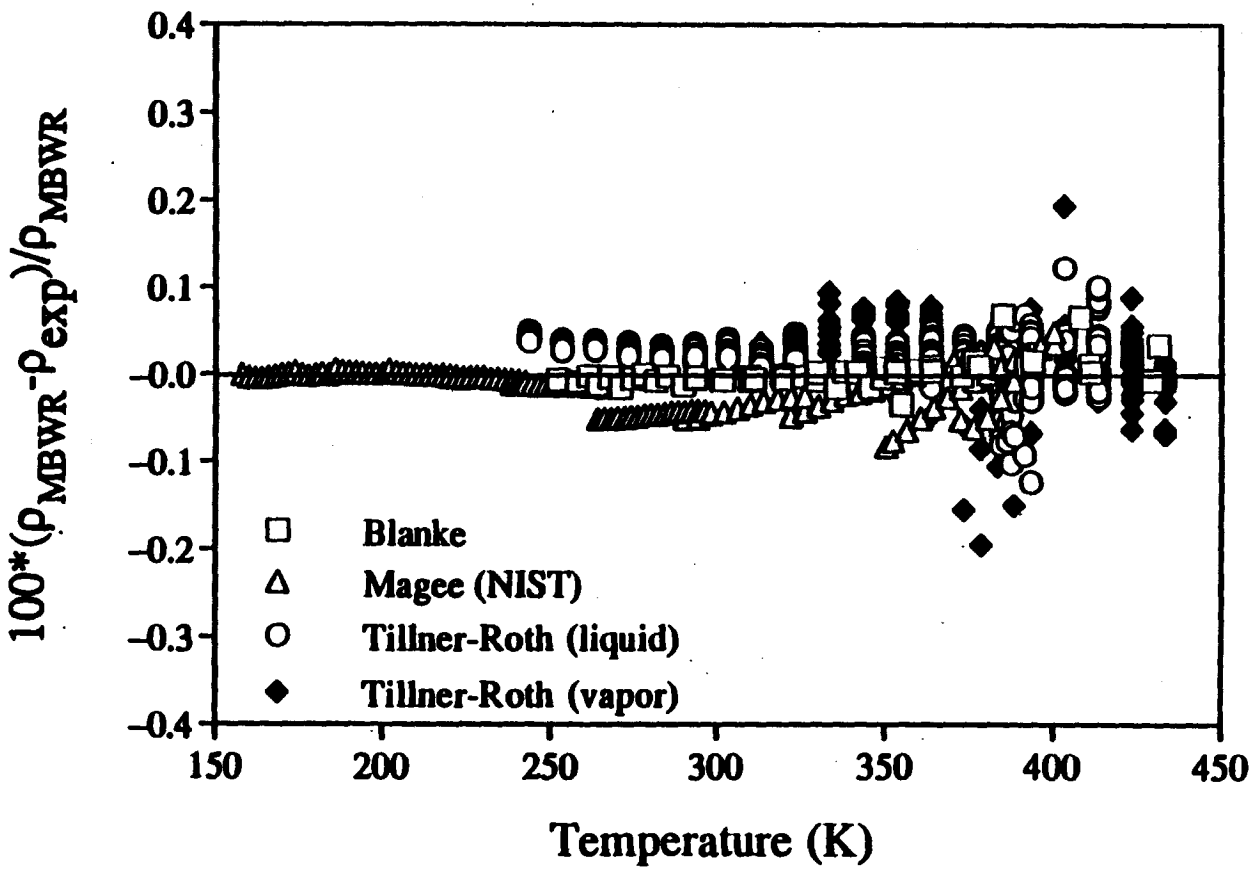

Figure 21. Density deviations of MBWR equation of state for HFC-152a from experimental pressure-volume-temperature data.

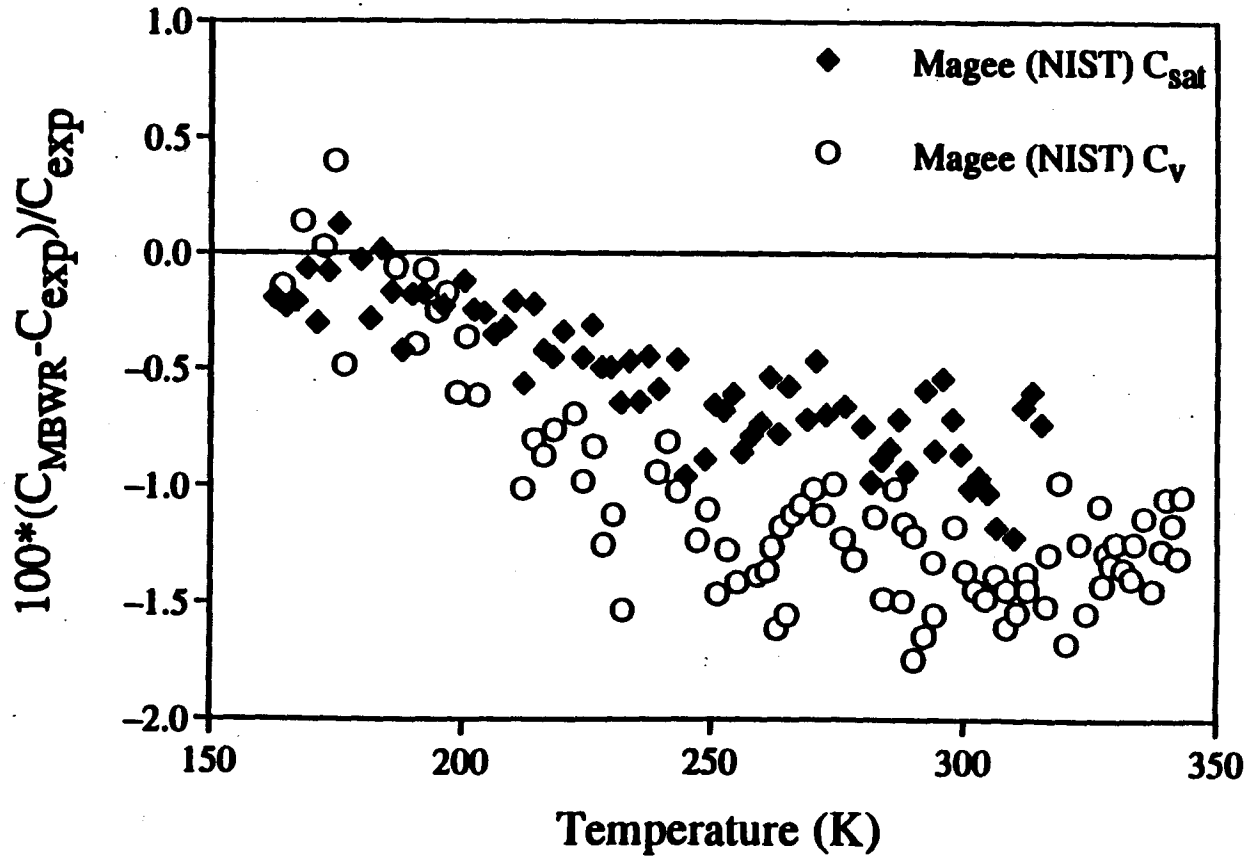

Figure 22. Deviations of the MBWR equation of state for HFC-152a from experimental isochoric heat capacity data at saturation and in the single-phase liquid region used in the fit.

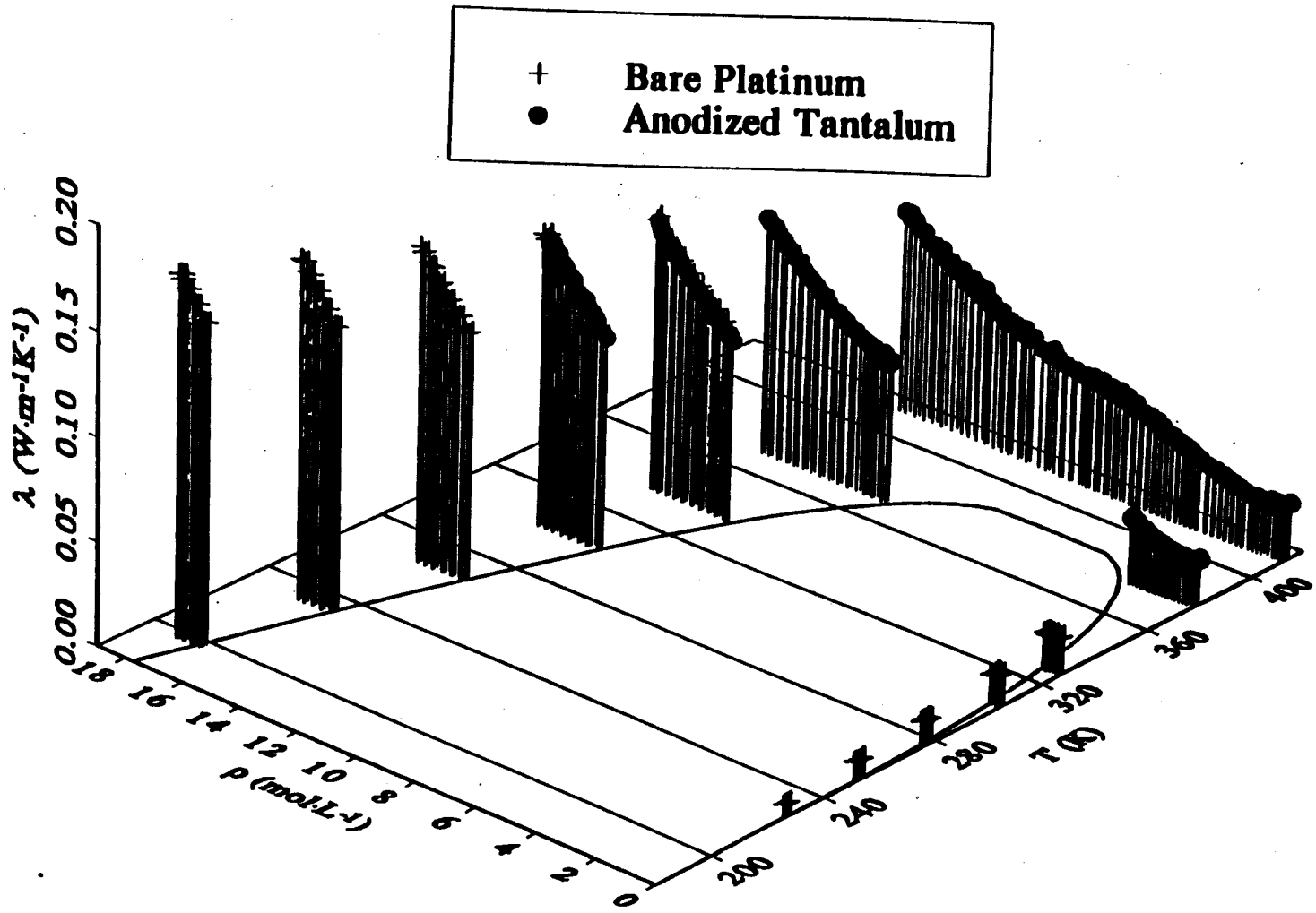

Figure 23. Thermal conductivity surface for HFC-152a.

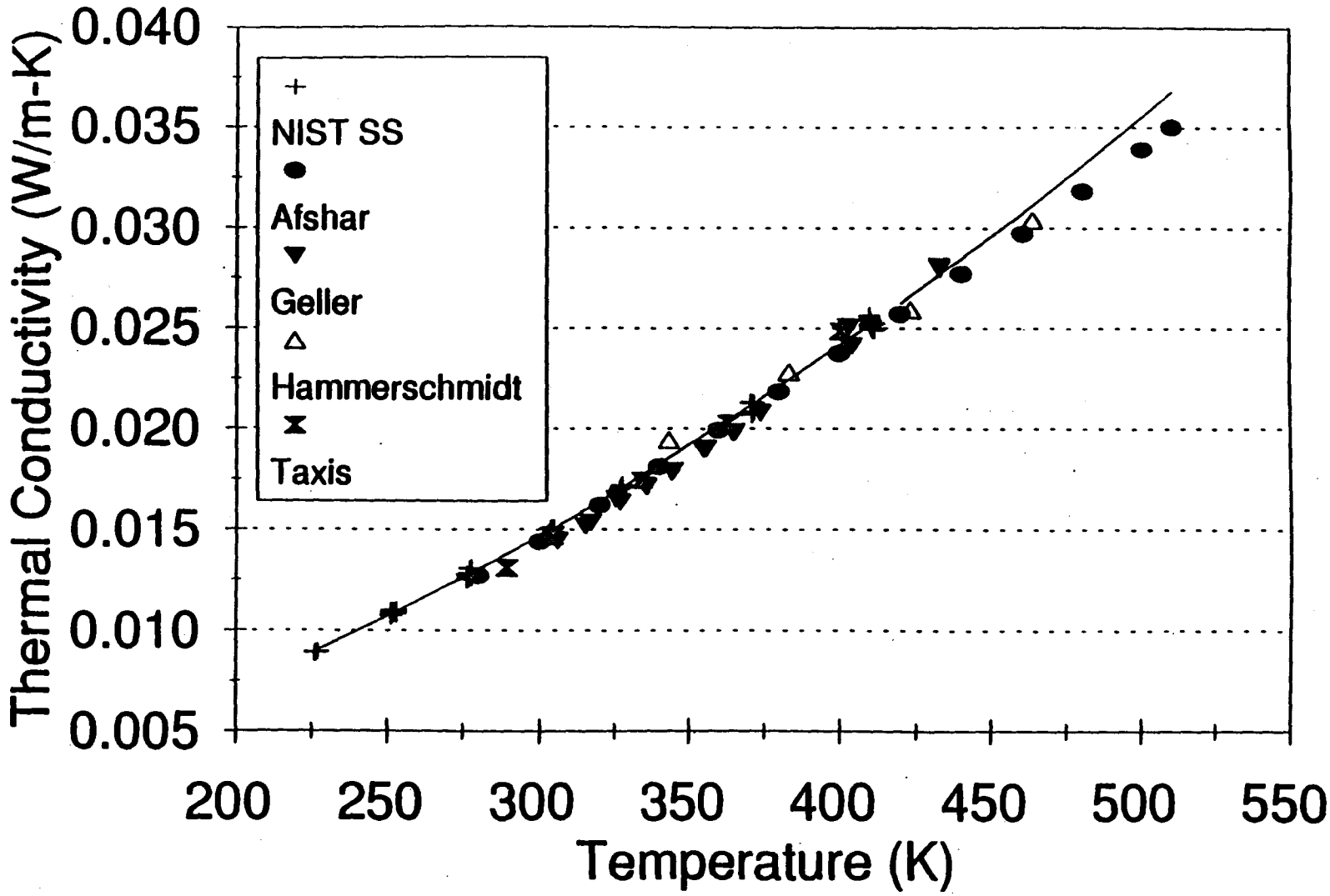

Figure 24. Dilute gas thermal conductivity of HFC-152a from steady-state hot-wire measurements.

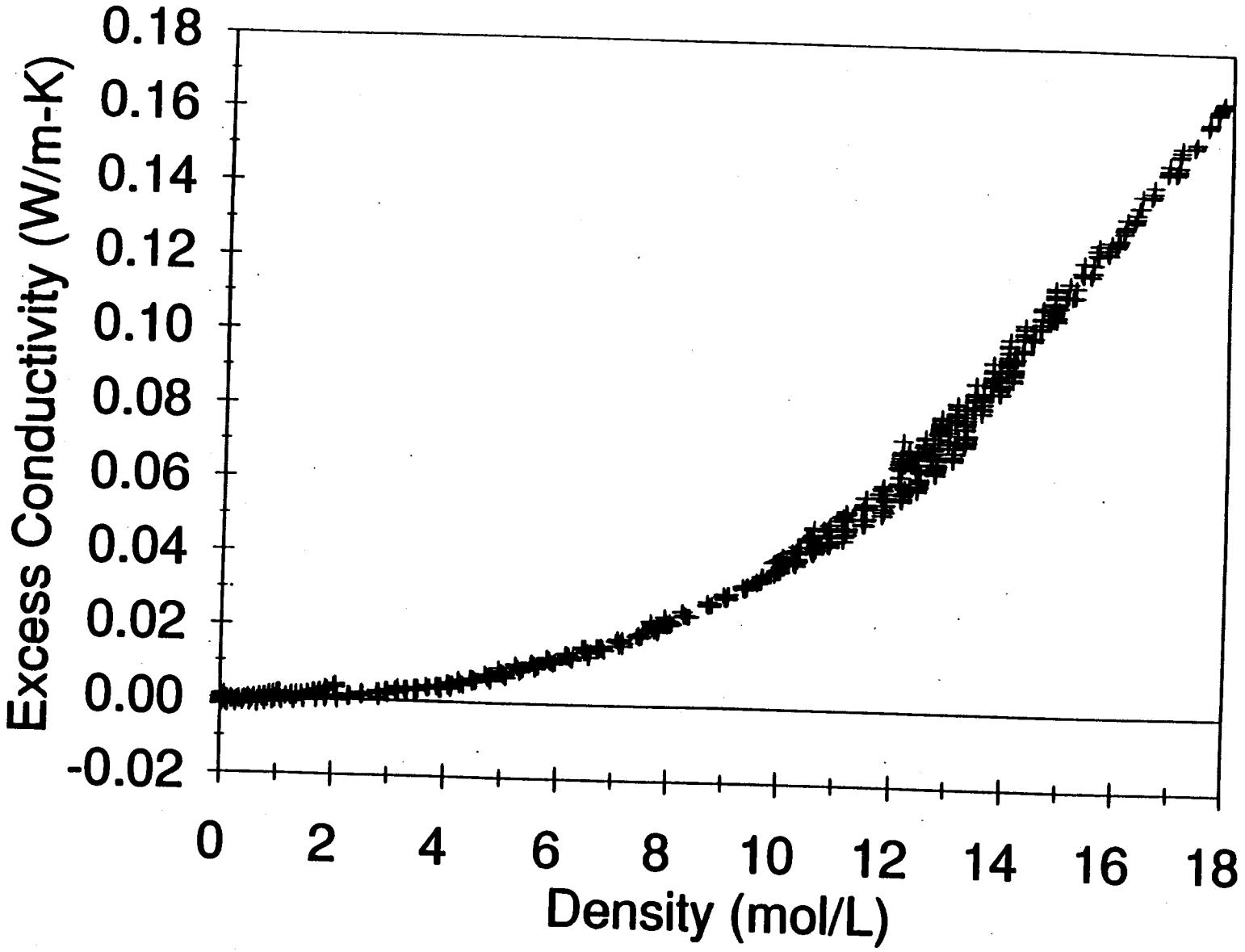

Figure 25. Thermal conductivity excess function for HFC-152a

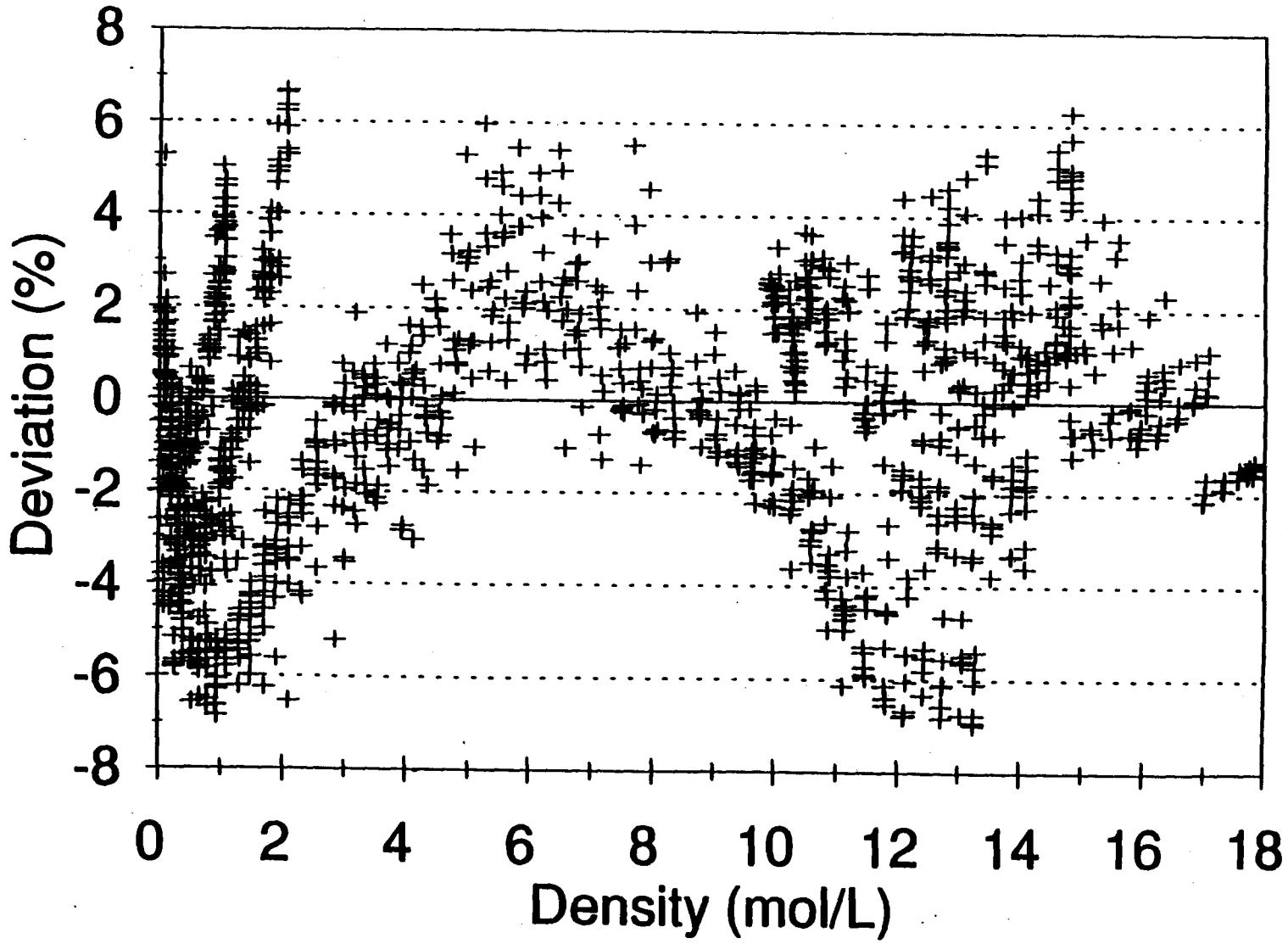

Figure 26. Deviations of the values of thermal conductivity calculated from the thermal conductivity correlation for HFC-152a from the experimental data used in the fit.

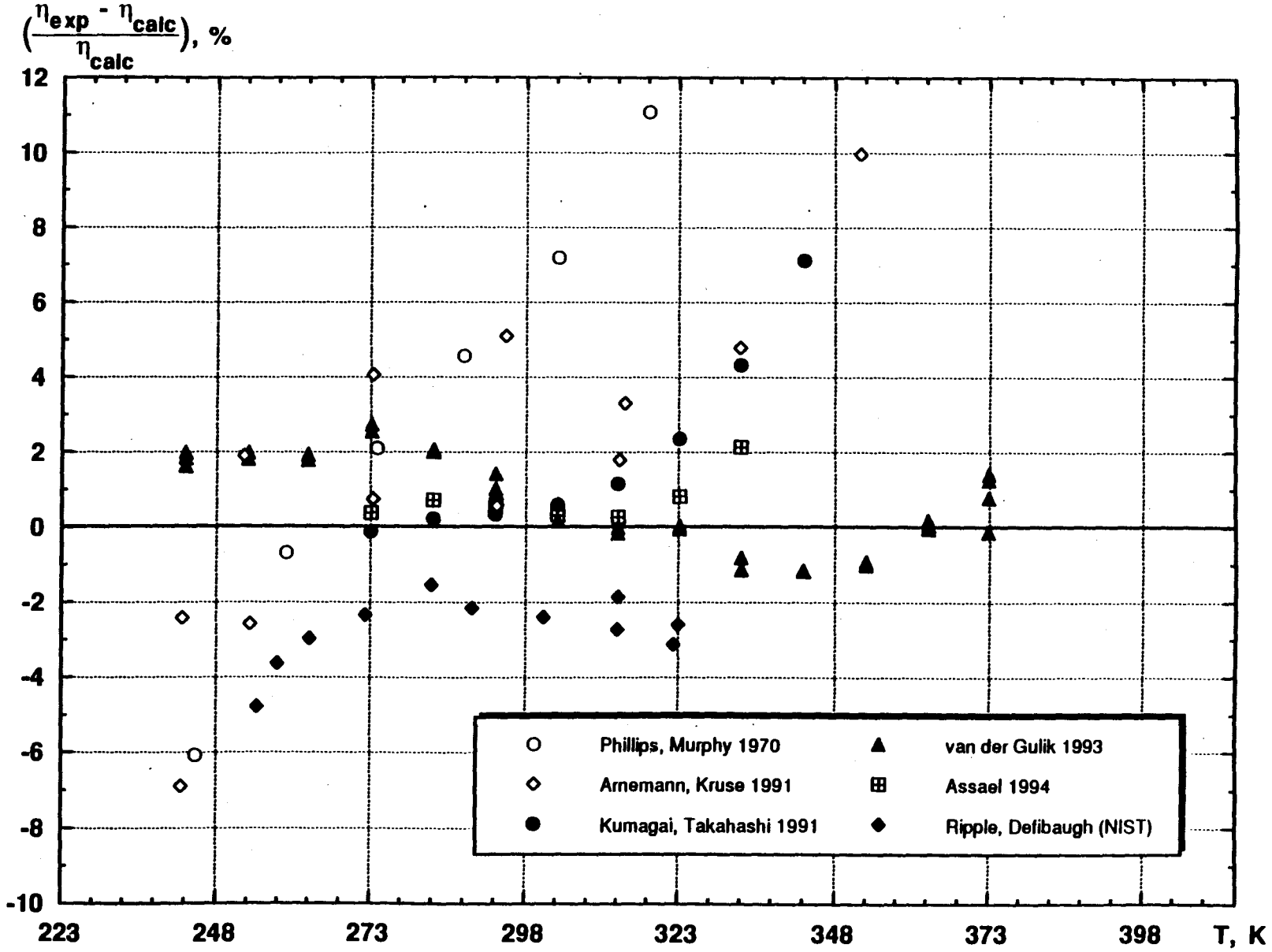

Figure 27: Comparisons of Experimental Data For the Viscosity of Saturated Liquid HFC-152a With the Correlation of Krauss (1994).

APPENDIX A:

TABLES OF THERMOPHYSICAL PROPERTIES DATA

Table 1a. Isochoric Vapor Phase PVT Measurements for HFC-143a Using Burnett Apparatus (SI Units).

T/K	P/MPa	ρ/(mol/dm^3)
348.207	3.9919	6.0768
353.212	4.4919	6.0755
358.141	5.0000	6.0742
363.151	5.5250	6.0730
373.163	6.5925	6.0704
368.153	6.0557	6.0717
363.152	5.5253	6.0730
358.144	5.0002	6.0742
353.165	4.4875	6.0755
323.123	2.3078	3.4136
333.144	2.8757	3.4121
343.185	3.5556	3.4107
353.205	4.1078	3.4093
363.149	4.6174	3.4078
373.174	5.1205	3.4064
328.137	2.5788	1.9151
333.167	2.8341	1.9147
338.179	2.9698	1.9143
342.824	3.0926	1.9139
348.169	3.2307	1.9135
353.167	3.3577	1.9131
358.146	3.4825	1.9127
363.159	3.6066	1.9123
368.164	3.7291	1.9119
373.154	3.8501	1.9115
318.150	1.9141	1.0751
323.176	1.9809	1.0749
328.050	2.0446	1.0746
332.632	2.1035	1.0744
338.156	2.1735	1.0742
343.180	2.2364	1.0740
348.147	2.2978	1.0737
353.142	2.3590	1.0735
358.133	2.4195	1.0733
363.134	2.4796	1.0731
368.185	2.5399	1.0728
373.155	2.5987	1.0726

Table 1a. Isochoric Vapor Phase PVT Measurements for HFC-143a Using Burnett Apparatus (SI Units) (continued).

T/K	P/MPa	ρ/(mol/dm^3)
298.144	1.1521	0.6038
303.168	1.1862	0.6037
308.173	1.2195	0.6036
313.165	1.2523	0.6034
318.141	1.2845	0.6033
323.162	1.3167	0.6032
328.150	1.3485	0.6030
333.173	1.3800	0.6029
338.044	1.4105	0.6028
343.178	1.4421	0.6027
348.149	1.4727	0.6025
353.139	1.5032	0.6024
358.189	1.5338	0.6023
363.177	1.5638	0.6022
368.187	1.5938	0.6020
373.153	1.6233	0.6019
283.174	0.6763	0.3390
288.447	0.6947	0.3390
292.239	0.7078	0.3389
298.168	0.7279	0.3388
303.180	0.7448	0.3388
308.168	0.7614	0.3387
313.144	0.7778	0.3386
318.192	0.7943	0.3385
323.142	0.8105	0.3385
328.135	0.8267	0.3384
329.352	0.8306	0.3384
333.128	0.8429	0.3383
338.192	0.8591	0.3383
343.155	0.8731	0.3382
348.112	0.8906	0.3381
353.187	0.9065	0.3381
358.136	0.9221	0.3380
363.179	0.9379	0.3379
368.134	0.9534	0.3378
373.153	0.9690	0.3378
276.658	0.3969	0.1903
283.087	0.4085	0.1903
288.195	0.4176	0.1902
293.132	0.4264	0.1902

Table 1a. Isochoric Vapor Phase PVT Measurements for HFC-143a Using Burnett Apparatus (SI Units) (continued).

T/K	P/MPa	ρ/(mol/dm^3)
298.164	0.4353	0.1901
303.176	0.4440	0.1901
308.134	0.4527	0.1901
313.165	0.4614	0.1900
318.156	0.4701	0.1900
323.141	0.4786	0.1899
328.188	0.4872	0.1899
333.183	0.4957	0.1899
338.138	0.5041	0.1898
343.157	0.5126	0.1898
348.198	0.5210	0.1897
353.188	0.5293	0.1897
358.187	0.5377	0.1897
363.172	0.5461	0.1896
368.180	0.5544	0.1896
373.137	0.5626	0.1895
278.133	0.2338	0.1068
283.152	0.2386	0.1068
288.197	0.2434	0.1067
293.123	0.2480	0.1067
298.164	0.2528	0.1067
303.174	0.2576	0.1067
308.132	0.2622	0.1067
313.168	0.2668	0.1066
318.195	0.2715	0.1066
323.185	0.2761	0.1066
328.182	0.2807	0.1066
333.184	0.2853	0.1065
338.140	0.2899	0.1065
343.156	0.2946	0.1065
348.162	0.2991	0.1065
353.173	0.3038	0.1064
358.179	0.3083	0.1064
363.176	0.3129	0.1064
368.179	0.3174	0.1064
373.149	0.3220	0.1064

Table 1b. Isochoric Vapor Phase PVT Measurements for HFC-143a Using Burnett Apparatus (PI Units).

T/°F	P/psia	$\rho/(lb_m/ft^3)$
167.103	578.99	31.8739
176.112	651.51	31.8672
184.984	725.20	31.8606
194.002	801.35	31.8539
212.023	956.18	31.8406
203.005	878.32	31.8473
194.004	801.39	31.8539
184.989	725.23	31.8606
176.027	650.87	31.8673
121.951	334.72	17.9049
139.989	417.09	17.8973
158.063	515.70	17.8898
176.099	595.80	17.8823
193.998	669.71	17.8748
212.043	742.68	17.8673
130.977	374.03	10.0452
140.031	411.06	10.0431
149.052	430.74	10.0410
157.413	448.55	10.0390
167.034	468.58	10.0368
176.031	487.00	10.0346
184.993	505.10	10.0326
194.016	523.10	10.0304
203.025	540.87	10.0283
212.007	558.42	10.0262
113.000	277.62	5.6390
122.047	287.31	5.6378
130.820	296.55	5.6367
139.068	305.09	5.6356
149.011	315.24	5.6343
158.054	324.37	5.6331
166.995	333.27	5.6319
175.986	342.15	5.6307
184.969	350.92	5.6296
193.971	359.64	5.6284
203.063	368.39	5.6272
212.009	376.92	5.6260
76.989	167.10	3.1671
86.032	172.05	3.1664
95.041	176.88	3.1658

Table 1b. **Isochoric Vapor Phase PVT Measurements for HFC-143a Using Burnett Apparatus (PI Units) (continued).**

T/°F	P/psia	$\rho/(lb_m/ft^3)$
104.027	181.63	3.1651
112.984	186.30	3.1644
122.022	190.97	3.1638
131.000	195.59	3.1631
140.041	200.16	3.1624
148.809	204.58	3.1618
158.050	209.16	3.1611
166.998	213.60	3.1605
175.980	218.02	3.1598
185.070	222.46	3.1591
194.049	226.81	3.1585
203.067	231.16	3.1578
212.005	235.44	3.1571
50.043	98.09	1.7784
59.535	100.75	1.7780
66.360	102.65	1.7777
77.032	105.57	1.7773
86.054	108.02	1.7769
95.032	110.43	1.7765
103.989	112.81	1.7761
113.076	115.21	1.7758
121.986	117.55	1.7754
130.973	119.90	1.7750
133.164	120.47	1.7749
139.960	122.25	1.7747
149.076	124.60	1.7743
158.009	126.63	1.7739
166.932	129.17	1.7735
176.067	131.48	1.7732
184.975	133.75	1.7728
194.052	136.03	1.7724
202.971	138.28	1.7721
212.005	140.54	1.7717
38.314	7.57	0.9982
49.887	59.25	0.9979
59.081	60.57	0.9977
67.968	61.85	0.9975
77.025	63.13	0.9973
86.047	64.40	0.9971
94.971	65.66	0.9969
104.027	66.92	0.9967

Table 1b. Isochoric Vapor Phase PVT Measurements for HFC-143a Using Burnett Apparatus (PI Units) (continued).

T/°F	P/psia	$\rho/(lb_m/ft^3)$
113.011	68.18	0.9965
121.984	69.42	0.9963
131.068	70.66	0.9961
140.059	71.90	0.9958
148.978	73.12	0.9956
158.013	74.35	0.9954
167.086	75.56	0.9952
176.068	76.78	0.9950
185.067	77.99	0.9948
194.040	79.20	0.9946
203.054	80.42	0.9944
211.977	81.60	0.9942
40.969	33.90	0.5601
50.004	34.60	0.5600
59.085	35.30	0.5599
67.951	35.98	0.5598
77.025	36.66	0.5596
86.043	37.36	0.5595
94.968	38.03	0.5594
104.032	38.70	0.5593
113.081	39.37	0.5592
122.063	40.05	0.5591
131.058	40.71	0.5589
140.061	41.38	0.5588
148.982	42.05	0.5587
158.011	42.73	0.5586
167.022	43.39	0.5585
176.041	44.06	0.5583
185.052	44.72	0.5582
194.047	45.38	0.5581
203.052	46.04	0.5580
211.998	46.70	0.5579

Table 2a. Burnett Isothermal Vapor Phase PVT Measurements for HFC-143a (SI Units).

T/K	P/MPa	ρ/(mol/dm^3)
373.16	6.5923	6.0704
373.16	5.1199	3.4064
373.16	3.8498	1.9115
373.16	2.5982	1.0726
373.16	1.6236	0.6019
373.16	0.9686	0.3378
373.16	0.5627	0.1895
373.16	0.3219	0.1064

Table 2b. Burnett Isothermal Vapor Phase PVT Measurements for HFC-143a (PI Units).

T/°F	P/psia	ρ/(lb$_m$/ft^3)
212.018	956.15	31.8406
212.018	742.90	17.8673
212.018	558.37	10.0262
212.018	376.84	5.6260
212.018	235.49	3.1571
212.018	140.49	1.7717
212.018	81.62	0.9942
212.018	46.69	0.5579

Table 3. Liquid-Phase Isochoric PVT Data for HFC-143a in SI Units.

T	p	ρ
K	MPa	$mol \cdot dm^{-3}$
165.999	3.1339	15.7514
167.998	6.2899	15.7443
169.999	9.5619	15.7394
172.000	12.8535	15.7352
174.000	16.1312	15.7313
176.000	19.4127	15.7277
177.999	22.6768	15.7242
179.999	25.9365	15.7208
181.999	29.1738	15.7174
183.998	32.3855	15.7142
183.999	5.7501	15.2885
186.000	8.6041	15.2838
187.999	11.4724	15.2799
190.001	14.3407	15.2762
191.999	17.2054	15.2728
194.002	20.0572	15.2694
195.999	22.8993	15.2662
197.999	25.7371	15.2631
200.000	28.5603	15.2600
201.999	31.3723	15.2570
204.001	34.1687	15.2540
204.002	4.7251	14.6954
206.001	7.1045	14.6909
207.999	9.5070	14.6870
209.999	11.9155	14.6836
212.001	14.3241	14.6803
213.999	16.7259	14.6772
215.999	19.1219	14.6741
217.999	21.5063	14.6712
220.000	23.8885	14.6683
222.000	26.2609	14.6655
224.000	28.6205	14.6627
225.998	30.9761	14.6599
227.999	33.3222	14.6572
222.000	3.0430	14.1121
223.999	5.0194	14.1065
225.999	7.0390	14.1025
228.000	9.0694	14.0990
230.000	11.1009	14.0958
232.002	13.1283	14.0928
234.000	15.1548	14.0899
236.000	17.1746	14.0871
238.001	19.1950	14.0844
240.001	21.2074	14.0816
242.002	23.2153	14.0790
243.999	25.2120	14.0764
246.001	27.2072	14.0738
247.999	29.1940	14.0712
250.001	31.1776	14.0686
252.000	33.1543	14.0661
254.000	35.1254	14.0636

Table 3. Liquid-phase Isochoric PVT Data for HFC-143a in SI Units (continued).

T	p	ρ
K	MPa	$mol \cdot dm^{-3}$
244.000	3.8276	13.4358
247.999	7.1501	13.4281
251.999	10.4956	13.4221
256.000	13.8429	13.4167
260.000	17.1789	13.4116
264.001	20.5005	13.4066
267.999	23.8056	13.4017
272.002	27.0996	13.3970
276.000	30.3778	13.3922
279.998	33.6345	13.3875
264.000	4.0643	12.7587
268.000	6.8084	12.7521
272.001	9.5722	12.7465
276.000	12.3362	12.7415
280.001	15.0936	12.7367
284.002	17.8427	12.7321
288.001	20.5846	12.7275
292.000	23.3166	12.7231
295.998	26.0378	12.7186
300.001	28.7533	12.7142
304.000	31.4540	12.7098
308.000	34.1483	12.7055
283.999	4.1174	12.0012
288.001	6.3368	11.9952
292.000	8.5632	11.9902
295.999	10.7923	11.9855
300.002	13.0229	11.9811
304.001	15.2498	11.9768
307.999	17.4720	11.9726
312.000	19.6823	11.9684
316.000	21.8985	11.9643
320.000	24.1082	11.9602
324.000	26.3109	11.9561
328.001	28.5056	11.9520
331.999	30.6940	11.9480
336.000	32.8775	11.9439
340.001	35.0504	11.9399
304.000	3.8838	11.0902
307.999	5.5924	11.0849
312.000	7.3112	11.0803
316.001	9.0327	11.0761
320.000	10.7543	11.0720
324.001	12.4764	11.0681
328.002	14.2029	11.0644
332.000	15.9290	11.0607
335.999	17.6559	11.0569
340.002	19.3798	11.0532
344.000	21.1029	11.0495
348.000	22.8227	11.0458
351.999	24.5426	11.0421
355.999	26.2553	11.0383
359.999	27.9641	11.0346

Table 3. Liquid-Phase Isochoric PVT Data for HFC-143a in SI Units (continued).

T	p	ρ
K	MPa	$mol \cdot dm^{-3}$
363.999	29.6678	11.0309
367.999	31.3699	11.0272
372.000	33.0667	11.0234
376.001	34.7603	11.0197
320.000	3.7214	10.1689
323.998	5.0264	10.1644
328.000	6.3395	10.1604
332.000	7.6613	10.1566
336.000	8.9879	10.1529
340.001	10.3190	10.1492
344.002	11.6537	10.1457
348.000	12.9908	10.1422
351.999	14.3299	10.1387
356.000	15.6710	10.1353
360.000	17.0095	10.1319
364.000	18.3486	10.1285
368.002	19.6897	10.1251
372.001	21.0282	10.1217
375.998	22.3648	10.1183
379.999	23.7012	10.1149
384.001	25.0367	10.1115
387.999	26.3686	10.1081
392.000	27.7017	10.1047
395.998	29.0322	10.1013
400.000	30.3604	10.0978
340.000	4.0759	8.5566
344.000	4.8861	8.5531
348.000	5.7072	8.5499
352.000	6.5370	8.5468
356.001	7.3746	8.5438
359.999	8.2177	8.5408
363.999	9.0658	8.5379
368.000	9.9186	8.5350
372.001	10.7724	8.5321
375.998	11.6295	8.5292
380.001	12.4902	8.5264
384.000	13.3524	8.5236
388.000	14.2169	8.5207
391.999	15.0815	8.5179
396.000	15.9485	8.5150
399.999	16.8160	8.5122

Table 4. Liquid-Phase Isochoric PVT Data for HFC-143a in PI Units.

T	P	ρ
°F	psia	$lb \cdot ft^{-3}$
-160.87	454.541	82.639
-157.27	912.270	82.601
-153.67	1386.839	82.576
-150.07	1864.249	82.554
-146.47	2339.641	82.533
-142.87	2815.573	82.514
-139.27	3288.995	82.496
-135.67	3761.777	82.478
-132.07	4231.316	82.461
-128.47	4697.124	82.444
-128.47	833.977	80.210
-124.87	1247.918	80.186
-121.27	1663.930	80.165
-117.67	2079.949	80.146
-114.07	2495.433	80.128
-110.47	2909.064	80.110
-106.87	3321.263	80.094
-103.27	3732.856	80.077
-99.67	4142.329	80.061
-96.07	4550.174	80.045
-92.47	4955.764	80.029
-92.47	685.322	77.099
-88.87	1030.426	77.075
-85.27	1378.873	77.055
-81.67	1728.205	77.036
-78.07	2077.546	77.019
-74.47	2425.888	77.003
-70.87	2773.408	76.987
-67.27	3119.225	76.972
-63.67	3464.735	76.957
-60.07	3808.829	76.942
-56.47	4151.066	76.927
-52.87	4492.710	76.912
-49.27	4832.991	76.898
-60.07	441.344	74.038
-56.47	728.008	74.009
-52.87	1020.925	73.988
-49.27	1315.413	73.970
-45.67	1610.058	73.953
-42.07	1904.104	73.937
-38.47	2198.020	73.922
-34.87	2490.964	73.907
-31.27	2784.002	73.893
-27.67	3075.878	73.879
-24.07	3367.095	73.865
-20.47	3656.695	73.851
-16.87	3946.078	73.837
-13.27	4234.241	73.824
-9.67	4521.933	73.810
-6.07	4808.638	73.797
-2.47	5094.518	73.784

Table 4. Liquid-Phase Isochoric PVT Data for HFC-143a in PI Units (continued).

T	p	ρ
°F	psia	lb·ft^{-3}
-20.47	555.142	70.490
-13.27	1037.030	70.450
-6.07	1522.261	70.418
1.13	2007.747	70.390
8.33	2491.590	70.363
15.53	2973.355	70.337
22.73	3452.724	70.312
29.93	3930.475	70.286
37.13	4405.931	70.262
44.33	4878.278	70.237
15.53	589.472	66.938
22.73	987.471	66.903
29.93	1388.326	66.874
37.13	1789.212	66.848
44.33	2189.147	66.822
51.53	2587.870	66.798
58.73	2985.546	66.774
65.93	3381.795	66.751
73.13	3776.475	66.728
80.33	4170.314	66.705
87.53	4562.021	66.682
94.73	4952.801	66.659
51.53	597.173	62.964
58.73	919.071	62.932
65.93	1241.996	62.906
73.13	1565.292	62.881
80.33	1888.815	62.858
87.53	2211.798	62.835
94.73	2534.104	62.813
101.93	2854.684	62.792
109.13	3176.118	62.770
116.33	3496.608	62.748
123.53	3816.083	62.727
130.73	4134.400	62.706
137.93	4451.798	62.684
145.13	4768.490	62.663
152.33	5083.637	62.642
87.53	563.300	58.184
94.73	811.104	58.156
101.93	1060.405	58.132
109.13	1310.085	58.110
116.33	1559.775	58.089
123.53	1809.549	58.068
130.73	2059.966	58.049
137.93	2310.305	58.029
145.13	2560.774	58.010
152.33	2810.809	57.990
159.53	3060.725	57.971
166.73	3310.162	57.951
173.93	3559.610	57.932
181.13	3808.015	57.912
188.33	4055.853	57.893

Table 4. Liquid-Phase Isochoric PVT Data for HFC-143a in PI Units (continued).

T °F	p psia	ρ lb·ft^{-3}
195.53	4302.951	57.873
202.73	4549.833	57.853
209.93	4795.933	57.834
217.13	5041.562	57.814
116.33	539.743	53.350
123.53	729.019	53.327
130.73	919.466	53.306
137.93	1111.173	53.286
145.13	1303.593	53.266
152.33	1496.644	53.247
159.53	1690.232	53.229
166.73	1884.160	53.210
173.93	2078.380	53.192
181.13	2272.893	53.174
188.33	2467.031	53.156
195.53	2661.244	53.139
202.73	2855.761	53.121
209.93	3049.890	53.103
217.13	3243.747	53.085
224.33	3437.572	53.067
231.53	3631.277	53.049
238.73	3824.455	53.032
245.93	4017.807	53.014
253.13	4210.775	52.996
260.33	4403.418	52.978
152.33	591.160	44.892
159.53	708.663	44.874
166.73	827.758	44.857
173.93	948.114	44.840
181.13	1069.596	44.824
188.33	1191.875	44.809
195.53	1314.880	44.794
202.73	1438.572	44.778
209.93	1562.412	44.763
217.13	1686.721	44.748
224.33	1811.558	44.733
231.53	1936.598	44.718
238.73	2061.989	44.703
245.93	2187.389	44.689
253.13	2313.133	44.674
260.33	2438.961	44.659

Table 5. Vapor Pressure Data for HFC-143a Using Ebulliometer.

Temperature K	Pressure kPa	Temperature °F	Pressure psia
236.133	160.560	-34.631	23.287
237.565	170.605	-32.053	24.744
238.912	180.597	-29.629	26.193
240.210	190.627	-27.292	27.648
241.457	200.614	-25.047	29.097
242.659	210.636	-22.884	30.550
243.815	220.647	-20.804	32.002
246.011	240.665	-16.850	34.906
248.084	260.560	-13.118	37.791
248.076	260.674	-13.134	37.808
250.032	280.622	-9.612	40.701
251.875	300.682	-6.295	43.610
254.049	325.681	-2.382	47.236
254.050	325.718	-2.381	47.241
256.097	350.717	1.304	50.867
258.038	375.748	4.798	54.498
259.883	400.758	8.120	58.125
259.884	400.801	8.122	58.131
261.648	425.822	11.295	61.760
263.329	450.859	14.321	65.392
264.944	475.916	17.229	69.026
266.495	500.963	20.021	72.659
267.991	526.024	22.713	76.293
269.433	551.081	25.309	79.927
270.825	576.125	27.816	83.560
272.177	600.723	30.249	87.128
272.180	600.883	30.255	87.151
272.172	601.201	30.240	87.197
273.483	625.979	32.599	90.791
274.753	650.987	34.884	94.418
277.181	701.094	39.256	101.685
279.484	751.294	43.401	108.966

Table 6. Vapor Pressure Data for HFC-143a Using Burnett Apparatus.

T/K	P/kPa	T/°F	P/psia
279.171	744.3	42.838	107.95
282.974	832.1	46.683	120.69
283.128	835.7	49.960	121.21
287.965	958.8	58.667	139.06
288.221	965.6	59.128	140.05
293.028	1101.9	67.780	159.82
293.173	1105.8	68.041	160.39
298.165	1262.0	77.027	183.04
298.173	1262.6	77.041	183.13
303.153	1434.3	86.005	208.03
303.155	1434.4	86.009	208.05
308.131	1623.1	94.966	235.41
308.177	1624.7	95.049	235.65
313.176	1833.1	104.047	265.87
318.118	2057.9	112.942	298.48
323.168	2309.0	122.032	334.90
323.264	2351.3	122.205	341.03
328.172	2581.2	131.040	374.38
333.162	2876.6	140.022	417.22
337.997	3188.8	148.725	462.50
343.190	3556.3	158.072	515.81

Table 7. Speed of Sound Data for HFC-143a.

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
235.007	-36.658	128.249	18.601	156.8284	514.5289	49.1
		119.919	17.393	157.2585	515.9399	62.1
		111.650	16.193	157.6836	517.3346	46.6
		101.164	14.673	158.2153	519.0791	49.6
		91.668	13.295	158.6923	520.6440	42.9
		81.619	11.838	159.1946	522.2920	23.6
		71.095	10.311	159.7138	523.9954	17.6
		61.239	8.882	160.1954	525.5755	26.1
		51.289	7.439	160.6810	527.1686	9.1
		40.112	5.818	161.2121	528.9111	9.5
240.157	-27.388	159.506	23.134	157.2951	516.0601	114.9
		144.809	21.003	158.0209	518.4413	53.8
		137.481	19.940	158.3790	519.6161	49.9
		118.887	17.243	159.2728	522.5485	43.6
		108.150	15.686	159.7824	524.2205	46.1
		93.261	13.526	160.4813	526.5134	38.9
		80.306	11.647	161.0815	528.4826	29.8
		69.058	10.016	161.5951	530.1676	25.1
		53.910	7.819	162.2761	532.4019	15.6
		40.296	5.844	162.8783	534.3776	20.3
250.026	-9.623	131.868	19.126	162.4276	532.8989	48.1
		126.100	18.289	162.6675	533.6860	41.0
		114.682	16.633	163.1390	535.2330	34.6
		104.170	15.109	163.5693	536.6447	29.4
		94.651	13.728	163.9566	537.9153	29.3
		82.446	11.958	164.4498	539.5334	22.3
		72.223	10.475	164.8627	540.888	19.7
		63.946	9.275	165.1898	541.9613	11.5
		53.848	7.810	165.5942	543.2880	28.3
		45.504	6.600	165.9381	544.4163	11.2
250.011	-9.650	229.267	33.252	158.1778	518.9560	68.9
		220.716	32.012	158.5628	520.2192	67.8
		204.040	29.593	159.3063	522.6585	59.4
		190.343	27.607	159.9076	524.6312	68.8
		176.224	25.559	160.5219	526.6467	54.7
		159.913	23.193	161.2216	528.9423	54.7
		145.433	21.093	161.8370	530.9613	52.6
		132.593	19.231	162.3767	532.7319	42.0
		117.875	17.096	162.9897	534.7431	33.0
		102.220	14.826	163.6334	536.8550	37.7
		102.227	14.827	163.6375	536.8684	29.2
		95.520	13.854	163.9132	537.7729	30.7

Table 7. Speed of Sound Data for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
		89.016	12.911	164.1805	538.6499	20.5
		82.757	12.003	164.4358	539.4875	15.9
		75.591	10.964	164.7250	540.4364	25.7
		67.579	9.802	165.0505	541.5043	26.4
		60.445	8.767	165.3380	542.4475	10.3
		55.574	8.060	165.5367	543.0994	1.9
		47.417	6.877	165.8611	544.1637	2.5
		40.685	5.901	166.1365	545.0673	27.8
270.007	26.342	469.866	68.148	157.4986	516.7277	56.5
		454.351	65.898	158.1243	518.7805	76.3
		419.313	60.816	159.4748	523.2112	77.3
		390.112	56.581	160.5753	526.8218	81.9
		336.477	48.802	162.5473	533.2917	71.4
		292.117	42.368	164.1318	538.4902	66.8
		202.641	29.391	167.2034	548.5676	56.6
		175.202	25.411	168.1150	551.5584	48.6
		150.869	21.882	168.9154	554.1844	44.1
		142.545	20.674	169.1892	555.0826	48.4
		134.593	19.521	169.4460	555.9252	35.7
		127.341	18.469	169.6801	556.6932	26.0
		120.841	17.527	169.8904	557.3832	31.0
		115.140	16.700	170.0753	557.9898	23.8
		115.115	16.696	170.0769	557.9951	26.2
		105.844	15.351	170.3762	558.9771	26.7
		94.387	13.690	170.7499	560.2031	17.0
289.962	62.261	830.356	120.433	155.0840	508.8058	96.2
		759.209	110.114	157.5742	516.9757	43.2
		699.835	101.502	159.5719	523.5298	46.9
		588.583	85.367	163.1379	535.2293	65.6
		435.260	63.129	167.7460	550.3478	45.7
		350.690	50.863	170.1539	558.2477	53.0
		269.182	39.042	172.4022	565.6240	54.8
		183.227	26.575	174.7018	573.1686	40.4
		165.327	23.979	175.1813	574.7418	31.0
		103.283	14.980	176.7986	580.0479	15.8
		103.300	14.982	176.8139	580.0981	21.8
		93.728	13.594	177.0609	580.9084	24.4
		83.703	12.140	177.3267	581.7805	8.0
		74.745	10.841	177.5636	582.5577	4.9
		66.747	9.681	177.7820	583.2743	28.3
		40.095	5.815	178.5560	585.8137	14.2

Table 7. Speed of Sound Data for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
309.997	98.324	858.878	124.570	165.2726	542.2329	32.3
		775.176	112.430	167.4276	549.3032	48.7
		703.106	101.977	169.2374	555.2408	55.2
		633.576	91.892	170.9307	560.7963	51.2
		532.718	77.264	173.3351	568.6847	58.1
		429.272	62.261	175.7257	576.5279	61.7
		323.072	46.858	178.1101	584.3508	53.0
		218.406	31.677	180.3991	591.8605	47.4
		120.467	17.472	182.5050	598.7697	18.8
		98.819	14.332	182.9685	600.2903	8.5
		67.929	9.852	183.6237	602.4399	5.6
319.438	115.319	1007.237	146.087	166.3388	545.7310	30.7
		916.969	132.995	168.4744	552.7375	46.5
		814.311	118.106	170.8382	560.4928	30.5
		707.626	102.632	173.2158	568.2933	39.9
		613.543	88.987	175.2608	575.0026	57.7
		510.081	73.981	177.4572	582.2087	45.9
		407.288	59.072	179.5805	589.1749	41.5
		309.776	44.929	181.5518	595.6424	33.8
		205.672	29.830	183.6153	602.4124	31.1
		102.393	14.851	185.6200	608.9895	23.4
		102.393	14.851	185.6244	609.0040	19.6
		95.631	13.870	185.7559	609.4354	35.8
		84.566	12.265	185.9746	610.1529	32.6
		78.984	11.456	186.0885	610.5266	36.4
		73.777	10.700	186.2000	610.8924	22.9
		65.301	9.471	186.3811	611.4866	26.0
		47.937	6.953	186.8125	612.9019	13.6
339.913	152.173	1007.270	146.092	175.9685	577.3245	79.9
		918.079	133.156	177.5970	582.6673	53.8
		824.144	119.532	179.2861	588.2090	36.1
		708.874	102.813	181.3184	594.8766	58.1
		609.281	88.369	183.0384	600.5197	92.0
		518.050	75.137	184.5965	605.6315	71.0
		402.519	58.380	186.5367	611.9970	80.5
		309.192	44.844	188.0796	617.0591	59.9
		203.177	29.468	189.8046	622.7185	42.4
		102.201	14.823	191.4351	628.0679	4.7
		102.193	14.822	191.4396	628.0827	6.0
		94.550	13.713	191.5608	628.4803	0.9
		88.020	12.766	191.6682	628.8326	3.4
		81.576	11.832	191.7746	629.1818	1.0

Table 7. Speed of Sound Data for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
		75.452	10.943	191.8775	629.5193	17.1
		69.895	10.137	191.9902	629.8891	141.8
		48.040	6.968	192.3981	631.2274	29.1
359.984	188.302	986.134	143.027	184.5045	605.3297	2.5
		905.703	131.361	185.7016	609.2572	242.8
		826.630	119.893	186.8506	613.0269	68.7
		737.541	106.971	188.1239	617.2044	47.4
		652.231	94.598	189.3425	621.2025	50.0
		560.978	81.363	190.6311	625.4301	60.3
		466.283	67.629	191.9527	629.7661	61.2
		375.850	54.512	193.2030	633.8681	58.1
		281.271	40.795	194.5019	638.1296	48.0
		194.535	28.215	195.6845	642.0095	31.2
		102.021	14.797	196.9389	646.1250	2.1
		102.025	14.797	196.9449	646.1447	6.3
		96.772	14.036	197.0206	646.3931	5.6
		89.463	12.976	197.1622	646.8576	12.0
		84.367	12.236	197.2382	647.1070	16.1
		76.863	11.148	197.3530	647.4836	11.9
		61.450	8.913	197.6018	648.2999	2.6
		49.021	7.110	197.8721	649.1867	15.0
379.998	224.326	1014.191	147.096	191.5013	628.2851	88.5
		939.723	136.295	192.4034	631.2448	46.7
		816.994	118.495	193.8669	636.0463	89.8
		719.879	104.410	195.0215	639.8343	95.0
		626.194	90.822	196.1268	643.4606	82.6
		520.044	75.426	197.3735	647.5508	55.7
		413.807	60.018	198.6113	651.6119	52.0
		308.200	44.701	199.8343	655.6244	48.3
		202.935	29.433	201.0501	659.6132	30.4
		100.060	14.512	202.2355	663.5023	6.1
		100.070	14.514	202.2433	663.5279	6.3
		96.268	13.962	202.2978	663.7067	5.7
		88.479	12.833	202.3924	664.0170	7.6
		81.407	11.807	202.4826	664.3130	3.3
		69.417	10.068	202.6502	664.8629	18.9
		53.079	7.698	202.9137	665.7274	36.1
		40.793	5.917	203.3929	667.2996	50.0
399.979	260.292	1011.209	146.663	198.3404	650.7231	31.2
		922.187	133.752	199.2290	653.6385	35.1
		832.866	120.797	200.1204	656.5630	58.1

Table 7. Speed of Sound Data for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
		712.647	103.361	201.3128	660.4751	78.1
		610.012	88.475	202.3283	663.8068	89.1
		503.289	72.996	203.3840	667.2703	60.6
		409.715	59.424	204.3052	670.2927	58.3
		306.504	44.455	205.3211	673.6257	44.1
		207.615	30.112	206.2907	676.8068	26.9
		104.162	15.107	207.3118	680.1568	2.7
		99.725	14.464	207.3662	680.3353	1.0
		95.496	13.851	207.4181	680.5056	4.8
		82.344	11.943	207.5709	681.0069	17.3
		66.188	9.600	207.7723	681.6676	12.9
		46.348	6.722	208.1338	682.8537	42.8

Table 8. Ideal-Gas Heat Capacity, C_p^o, of HFC-143a.

T/K	T/°F	C_p^o/R	$\sigma(C_p^o)/R$
235.007	-36.658	7.9418	0.016
240.157	-27.388	8.1126	0.017
250.011	-9.650	8.2778	0.009
250.026	-9.623	8.3083	0.020
270.007	26.342	8.7101	0.027
289.962	62.261	9.1297	0.012
309.997	98.324	9.5801	0.011
319.438	115.319	9.8043	0.009
339.913	152.173	10.2150	0.010
379.998	224.326	10.9072	0.020
399.979	260.292	11.2514	0.022

Table 9a. Acoustic Virial Coefficients for HFC-143a (SI Units). .

T K	$10^6 \beta_a$ m^3/mol	$10^9 \gamma_a$ $m^3/(mol \cdot Pa)$	$10^{17} \delta_a$ $m^3/(mol \cdot Pa^2)$
224.985	-1314.92 ± 6.75	-	-
235.007	-1100.82 ± 6.81	-0.3671 ± 0.039	-
240.157	-1026.21 ± 6.19	-0.3959 ± 0.029	-
250.011	-963.42 ± 3.16	-0.1607 ± 0.014	-
250.026	-950.60 ± 7.74	-0.1784 ± 0.041	-
270.007	-806.31 ± 6.09	-0.0193 ± 0.023	-16. ± 2.80
289.962	-689.67 ± 2.23	0.0062 ± 0.006	-7.5 ± 0.54
309.997	-582.92 ± 1.80	-0.0048 ± 0.004	-2.7 ± 0.32
319.438	-539.80 ± 1.39	-0.0078 ± 0.003	-1.6 ± 0.20
339.913	-466.01 ± 1.65	-0.0010 ± 0.004	-.81 ± 0.21
359.984	-424.86 ± 4.53	0.0403 ± 0.01	-
379.998	-367.61 ± 3.10	0.0269 ± 0.007	-
399.979	-326.97 ± 3.27	0.0315 ± 0.008	-

Table 9b. Acoustic Virial Coefficients for HFC-143a (PI Units).

T °F	$10^4 \beta_a$ $Btu/(mol \cdot psi)$	$10^6 \gamma_a$ $Btu/(mol \cdot psi^2)$	$10^9 \delta_a$ $Btu/(mol \cdot psi^3)$
-54.696	-85.99 ± .44	-	-
-36.658	-71.99 ± .44	-16.5514 ± 1.76	-
-27.388	-67.11 ± .40	-17.8499 ± 1.31	-
-9.650	-63.00 ± .21	-7.2455 ± 0.63	-
-9.623	-62.16 ± .51	-8.0435 ± 1.85	-
26.342	-52.73 ± .40	-0.8702 ± 1.04	-49.7379 ± 8.70
62.261	-45.10 ± .14	+0.2795 ± 0.27	-23.3146 ± 1.68
98.324	-38.12 ± .12	-0.2164 ± 0.18	-8.3933 ± 0.99
115.319	-35.20 ± .09	-0.3517 ± 0.14	-4.9738 ± 0.62
152.173	-30.47 ± .11	-0.0451 ± 0.18	-2.5180 ± 0.65
188.302	-27.78 ± .30	+1.8170 ± 0.45	-8.0824 ± 2.14
224.326	-24.04 ± .20	+1.2128 ± 0.32	-4.3521 ± 1.37
260.292	-21.38 ± .21	+1.4202 ± 0.36	-4.6629 ± 1.46

Table 10. Experimental Liquid Heat Capacity Data for HFC-143a in SI Units.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v,%	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$			
172.5565	15.628	7.938	68.46	76.55	-11.82	B
175.2451	15.618	11.952	68.62	76.64	-11.69	C
177.0298	15.611	14.628	68.73	76.67	-11.55	B
179.6599	15.600	18.561	69.15	76.67	-10.87	C
181.4563	15.593	21.229	69.28	76.65	-10.65	B
184.0426	15.583	25.031	69.53	76.61	-10.19	C
185.8380	15.576	27.642	69.75	76.58	-9.78	B
187.8542	15.569	30.546	70.29	76.53	-8.88	A
188.3914	15.567	31.315	70.18	76.51	-9.03	C
190.7988	15.112	7.302	69.66	75.01	-7.68	B
192.8861	15.105	10.014	69.80	75.00	-7.46	A
195.1668	15.097	13.029	70.37	75.00	-6.58	B
197.2441	15.090	15.773	70.23	75.00	-6.80	A
199.5162	15.082	18.738	70.82	75.00	-5.89	B
201.5735	15.075	21.378	70.81	74.99	-5.91	A
203.8414	15.067	24.239	71.27	74.99	-5.22	B
205.8816	15.060	26.779	71.52	74.99	-4.86	A
208.1183	15.052	29.549	71.89	74.99	-4.32	B
210.1512	15.046	32.078	72.34	75.00	-3.68	A
208.0073	14.607	6.483	71.12	73.95	-3.99	B
210.2338	14.600	8.993	71.49	74.01	-3.52	A
212.3681	14.593	11.432	71.58	74.07	-3.48	B
214.5824	14.586	13.967	71.98	74.13	-2.99	A
216.6730	14.580	16.344	72.25	74.19	-2.68	B
218.8695	14.573	18.817	72.48	74.25	-2.45	A
220.9379	14.566	21.118	72.77	74.31	-2.12	B
223.1052	14.560	23.504	73.19	74.36	-1.60	A
225.1740	14.554	25.760	73.56	74.42	-1.18	B
227.3037	14.547	28.068	73.72	74.48	-1.04	A
231.4567	14.535	32.556	74.22	74.60	-0.51	A
227.1426	14.015	5.662	73.10	73.76	-0.92	B
229.4664	14.009	7.848	73.48	73.88	-0.55	A
231.4525	14.003	9.748	73.56	73.98	-0.57	B
233.7754	13.997	11.994	73.93	74.10	-0.22	A
235.7224	13.992	13.884	74.22	74.19	0.04	B
238.0428	13.985	16.134	74.66	74.30	0.48	A
239.9519	13.980	17.974	74.93	74.39	0.72	B
242.2762	13.974	20.192	75.34	74.50	1.11	A
244.1186	13.969	21.929	75.41	74.58	1.10	B
246.4717	13.963	24.120	75.96	74.68	1.67	A
248.2543	13.958	25.761	76.32	74.76	2.04	B
250.6216	13.952	27.923	76.38	74.87	1.99	A
252.3632	13.948	29.508	76.87	74.94	2.51	B
254.7225	13.941	31.662	76.92	75.05	2.43	A
256.4376	13.937	33.248	77.28	75.13	2.79	B
246.3316	13.403	5.297	75.71	74.47	1.64	B
248.5641	13.398	7.109	75.71	74.61	1.45	A
250.6151	13.393	8.790	75.94	74.74	1.58	B
252.8096	13.388	10.594	76.46	74.88	2.08	A

Table 10. Experimental Liquid Heat Capacity Data for HFC-143a in SI Units (continued).

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$			
257.0440	13.378	14.055	77.16	75.13	2.63	A
259.0325	13.373	15.665	77.24	75.24	2.59	B
261.2524	13.368	17.450	77.56	75.37	2.82	A
263.2223	13.364	19.025	77.91	75.49	3.11	B
265.4046	13.359	20.760	78.21	75.61	3.32	A
267.3757	13.354	22.321	78.53	75.73	3.57	B
269.5373	13.349	24.028	78.56	75.86	3.44	A
271.5082	13.345	25.579	78.88	75.98	3.68	B
273.6539	13.340	27.265	79.04	76.11	3.70	A
275.6050	13.335	28.793	79.44	76.24	4.03	B
277.7473	13.330	30.464	80.04	76.38	4.58	A
279.6657	13.326	31.952	80.37	76.51	4.80	B
281.8059	13.321	33.599	80.69	76.67	4.99	A
266.3008	12.710	4.962	78.31	76.06	2.87	B
270.5437	12.702	7.800	78.87	76.37	3.17	B
272.6139	12.698	9.189	78.96	76.52	3.08	A
274.7462	12.693	10.622	79.05	76.68	3.01	B
276.8307	12.689	12.023	79.61	76.83	3.49	A
278.9228	12.685	13.430	79.69	76.98	3.40	B
281.0129	12.681	14.833	80.29	77.14	3.92	A
283.0800	12.677	16.218	80.44	77.29	3.91	B
285.1712	12.673	17.615	80.75	77.46	4.08	A
287.2151	12.669	18.974	81.03	77.62	4.20	B
289.3142	12.665	20.364	81.34	77.80	4.35	A
291.3260	12.663	21.689	81.74	77.97	4.61	B
293.4552	12.657	23.085	81.88	78.17	4.53	A
295.4210	12.653	24.367	82.22	78.35	4.71	B
299.4935	12.645	27.004	82.67	78.76	4.73	B
301.6745	12.641	28.408	83.14	78.99	4.98	A
303.5678	12.637	29.625	83.44	79.21	5.07	B
305.7566	12.633	31.031	83.95	79.46	5.35	A
307.6398	12.629	32.242	84.12	79.69	5.27	B
309.8085	12.625	33.642	84.45	79.96	5.32	A
285.4336	11.940	4.171	81.15	78.60	3.14	B
289.7480	11.933	6.525	81.47	78.97	3.08	B
291.8811	11.930	7.688	81.58	79.15	2.98	A
294.0396	11.926	8.863	81.80	79.34	3.01	B
296.1097	11.923	9.989	82.24	79.52	3.30	A
298.2870	11.919	11.172	82.43	79.72	3.29	B
300.3274	11.916	12.279	83.05	79.92	3.78	A
304.5601	11.909	14.569	83.51	80.34	3.80	A
306.7747	11.905	15.764	83.86	80.57	3.92	B
308.7748	11.902	16.841	83.72	80.78	3.51	A
310.9964	11.899	18.035	84.03	81.03	3.57	B
312.9743	11.895	19.095	84.29	85.54	-1.48	A
315.1688	11.892	20.269	84.78	85.75	-1.14	B
317.1429	11.889	21.323	84.81	85.94	-1.34	A
319.3687	11.885	22.508	85.36	86.15	-0.92	B
321.2830	11.882	23.525	85.38	86.33	-1.10	A
323.5440	11.878	24.724	85.73	86.53	-0.93	B
325.4079	11.875	25.709	86.12	86.70	-0.67	A
327.6870	11.871	26.911	86.60	86.90	-0.34	B

Table 10. Experimental Liquid Heat Capacity Data for HFC-143a in SI Units (continued).

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$			
329.5205	11.868	27.876	86.65	87.06	-0.48	A
331.8295	11.865	29.088	87.21	87.26	-0.06	B
333.6453	11.862	30.038	87.12	87.42	-0.34	A
335.9567	11.858	31.246	87.46	87.62	-0.18	B
337.7613	11.855	32.186	87.36	87.77	-0.47	A
340.0821	11.851	33.392	87.69	87.97	-0.31	B
341.8592	11.848	34.313	88.21	88.11	0.11	A
302.6082	11.070	3.135	83.70	82.11	1.90	A
304.9506	11.067	4.132	83.74	82.31	1.72	B
306.9944	11.064	4.999	83.97	82.49	1.77	A
309.3185	11.061	5.986	83.94	82.69	1.48	B
313.6729	11.055	7.837	84.82	86.40	-1.86	B
318.0323	11.050	9.696	85.16	86.74	-1.86	B
322.3770	11.044	11.551	85.43	87.08	-1.93	B
326.7105	11.038	13.398	86.03	87.40	-1.60	B
328.8573	11.035	14.311	86.44	87.56	-1.30	A
333.1596	11.030	16.136	86.73	87.87	-1.31	A
335.3561	11.027	17.065	86.81	88.02	-1.39	B
337.4661	11.024	17.957	87.19	88.17	-1.13	A
339.6743	11.021	18.891	87.50	88.32	-0.94	B
341.7628	11.018	19.775	87.63	88.46	-0.96	A
322.6664	9.990	3.728	87.22	89.15	-2.21	A
323.8406	9.989	4.091	87.21	89.21	-2.29	D
326.2608	9.986	4.843	87.39	89.32	-2.21	C
328.3871	9.984	5.505	87.62	89.42	-2.06	D
329.5622	9.983	5.872	87.75	89.47	-1.96	B
330.8087	9.982	6.262	87.93	89.53	-1.82	C
331.7354	9.981	6.552	88.00	89.57	-1.79	A
332.9560	9.979	6.935	88.08	89.62	-1.76	D
334.1053	9.978	7.295	87.97	89.67	-1.93	B
335.3547	9.977	7.688	88.10	89.73	-1.85	C
336.2793	9.976	7.979	88.30	89.77	-1.67	A
338.6302	9.974	8.719	88.22	89.87	-1.86	B
339.8803	9.972	9.113	88.46	89.92	-1.65	C
342.0863	9.970	9.809	88.64	90.01	-1.55	D

Table 11. Experimental Liquid Heat Capacity Data for HFC-143a in PI Units.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	$lb \cdot ft^{-3}$	psia	$Btu \cdot lb^{-1} \cdot °F^{-1}$			
-149.068	81.99	1151.3	0.19469	0.21771	-11.82	B
-144.229	81.94	1733.4	0.19514	0.21796	-11.69	C
-141.016	81.90	2121.6	0.19546	0.21803	-11.55	B
-136.282	81.85	2692.1	0.19667	0.21805	-10.87	C
-133.049	81.81	3078.9	0.19703	0.21800	-10.65	B
-128.393	81.76	3630.4	0.19773	0.21789	-10.19	C
-125.162	81.72	4009.1	0.19837	0.21778	-9.78	B
-121.532	81.68	4430.3	0.19989	0.21764	-8.88	A
-120.566	81.67	4541.9	0.19958	0.21760	-9.03	C
-116.232	79.29	1059.1	0.19810	0.21331	-7.68	B
-112.475	79.25	1452.4	0.19851	0.21330	-7.46	A
-108.370	79.21	1889.7	0.20013	0.21330	-6.58	B
-104.631	79.17	2287.7	0.19972	0.21329	-6.80	A
-100.541	79.13	2717.7	0.20142	0.21328	-5.89	B
-96.838	79.09	3100.6	0.20137	0.21327	-5.91	A
-92.755	79.05	3515.5	0.20268	0.21327	-5.22	B
-89.083	79.01	3883.9	0.20339	0.21327	-4.86	A
-85.057	78.97	4285.7	0.20444	0.21328	-4.32	B
-81.398	78.94	4652.5	0.20573	0.21330	-3.68	A
-85.257	76.63	940.2	0.20226	0.21032	-3.99	B
-81.249	76.60	1304.3	0.20332	0.21049	-3.52	A
-77.407	76.56	1658.1	0.20358	0.21066	-3.48	B
-73.422	76.52	2025.7	0.20471	0.21083	-2.99	A
-69.659	76.49	2370.5	0.20549	0.21099	-2.68	B
-65.705	76.46	2729.1	0.20612	0.21116	-2.45	A
-61.982	76.42	3062.9	0.20694	0.21132	-2.12	B
-58.081	76.39	3408.9	0.20815	0.21149	-1.60	A
-54.357	76.35	3736.2	0.20919	0.21165	-1.18	B
-50.523	76.32	4070.9	0.20964	0.21182	-1.04	A
-43.048	76.26	4721.8	0.21108	0.21216	-0.51	A
-50.813	73.53	821.2	0.20788	0.20978	-0.92	B
-46.631	73.50	1138.2	0.20897	0.21012	-0.55	A
-43.056	73.47	1413.8	0.20921	0.21041	-0.57	B
-38.874	73.43	1739.5	0.21026	0.21073	-0.22	A
-35.370	73.41	2013.7	0.21108	0.21100	0.04	B
-31.193	73.37	2340.0	0.21233	0.21132	0.48	A
-27.757	73.35	2606.9	0.21310	0.21157	0.72	B
-23.573	73.31	2928.6	0.21425	0.21187	1.11	A
-20.257	73.29	3180.6	0.21445	0.21210	1.10	B
-16.021	73.26	3498.4	0.21602	0.21240	1.67	A
-12.812	73.23	3736.4	0.21704	0.21262	2.04	B
-8.551	73.20	4049.9	0.21724	0.21292	1.99	A
-5.416	73.18	4279.7	0.21862	0.21314	2.51	B
-1.170	73.14	4592.2	0.21875	0.21344	2.43	A
1.918	73.12	4822.2	0.21979	0.21366	2.79	B
-16.273	70.32	768.2	0.21532	0.21179	1.64	B
-12.255	70.29	1031.0	0.21532	0.21220	1.45	A
-8.563	70.27	1274.9	0.21598	0.21257	1.58	B
-4.613	70.24	1536.5	0.21746	0.21295	2.08	A
3.009	70.19	2038.4	0.21944	0.21366	2.63	A

Table 11. Experimental Liquid Heat Capacity Data for R143a in PI Units (continued).

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	$lb \cdot ft^{-3}$	psia	$Btu \cdot lb^{-1} \cdot °F^{-1}$			
6.589	70.16	2272.0	0.21967	0.21399	2.59	B
10.584	70.13	2531.0	0.22058	0.21436	2.82	A
14.130	70.11	2759.4	0.22158	0.21468	3.11	B
18.058	70.08	3011.1	0.22244	0.21504	3.32	A
21.606	70.06	3237.4	0.22335	0.21537	3.57	B
25.497	70.04	3484.9	0.22342	0.21574	3.44	A
29.045	70.01	3710.0	0.22434	0.21608	3.68	B
32.907	69.99	3954.4	0.22477	0.21646	3.70	A
36.419	69.96	4176.0	0.22592	0.21681	4.03	B
40.275	69.94	4418.5	0.22764	0.21722	4.58	A
43.728	69.91	4634.3	0.22857	0.21760	4.80	B
47.581	69.89	4873.2	0.22948	0.21803	4.99	A
19.671	66.68	719.6	0.22171	0.21632	2.87	B
27.309	66.64	1131.3	0.22431	0.21720	3.17	B
31.035	66.62	1332.8	0.22455	0.21763	3.08	A
34.873	66.59	1540.6	0.22483	0.21807	3.01	B
38.625	66.57	1743.9	0.22639	0.21850	3.49	A
42.391	66.55	1947.8	0.22663	0.21893	3.40	B
46.153	66.53	2151.4	0.22834	0.21938	3.92	A
49.874	66.51	2352.2	0.22877	0.21982	3.91	B
53.638	66.49	2554.8	0.22965	0.22029	4.08	A
57.317	66.47	2752.0	0.23043	0.22076	4.20	B
61.096	66.44	2953.6	0.23133	0.22126	4.35	A
64.717	66.44	3145.8	0.23247	0.22175	4.61	B
68.549	66.40	3348.2	0.23286	0.22230	4.53	A
72.088	66.38	3534.1	0.23384	0.22283	4.71	B
79.418	66.34	3916.6	0.23510	0.22399	4.73	B
83.344	66.32	4120.3	0.23643	0.22465	4.98	A
86.752	66.30	4296.7	0.23729	0.22526	5.07	B
90.692	66.28	4500.6	0.23875	0.22598	5.35	A
94.082	66.26	4676.3	0.23922	0.22663	5.27	B
97.985	66.24	4879.3	0.24018	0.22740	5.32	A
54.111	62.64	604.9	0.23079	0.22355	3.14	B
61.876	62.61	946.3	0.23171	0.22458	3.08	B
65.716	62.59	1115.0	0.23202	0.22510	2.98	A
69.601	62.57	1285.5	0.23263	0.22564	3.01	B
73.328	62.55	1448.8	0.23387	0.22616	3.30	A
77.247	62.53	1620.4	0.23443	0.22673	3.29	B
80.919	62.52	1780.9	0.23620	0.22728	3.78	A
88.538	62.48	2113.1	0.23749	0.22848	3.80	A
92.524	62.46	2286.4	0.23849	0.22913	3.92	B
96.125	62.44	2442.6	0.23809	0.22974	3.51	A
100.124	62.43	2615.7	0.23897	0.23044	3.57	B
103.684	62.41	2769.5	0.23973	0.24328	-1.48	A
107.634	62.39	2939.8	0.24112	0.24388	-1.14	B
111.187	62.37	3092.7	0.24118	0.24441	-1.34	A
115.194	62.35	3264.6	0.24277	0.24500	-0.92	B
118.639	62.34	3412.1	0.24282	0.24550	-1.10	A
122.709	62.32	3585.9	0.24382	0.24609	-0.93	B
126.064	62.30	3728.8	0.24491	0.24657	-0.67	A
130.167	62.28	3903.2	0.24630	0.24714	-0.34	B
133.467	62.27	4043.1	0.24642	0.24760	-0.48	A

Table 11. Experimental Liquid Heat Capacity Data for R143a in PI Units (continued).

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	$lb \cdot ft^{-3}$	psia	$Btu \cdot lb^{-1} \cdot °F^{-1}$			
137.623	62.25	4218.8	0.24802	0.24818	-0.06	B
140.891	62.23	4356.7	0.24778	0.24862	-0.34	A
145.052	62.21	4531.8	0.24874	0.24918	-0.18	B
148.300	62.20	4668.1	0.24845	0.24962	-0.47	A
152.478	62.18	4843.1	0.24939	0.25017	-0.31	B
155.677	62.16	4976.7	0.25086	0.25059	0.11	A
85.025	58.08	454.8	0.23803	0.23351	1.90	A
89.241	58.06	599.3	0.23817	0.23408	1.72	B
92.920	58.05	725.1	0.23881	0.23459	1.77	A
97.103	58.03	868.2	0.23871	0.23518	1.48	B
104.941	58.00	1136.7	0.24122	0.24571	-1.86	B
112.788	57.97	1406.3	0.24219	0.24670	-1.86	B
120.609	57.94	1675.3	0.24296	0.24765	-1.93	B
128.409	57.91	1943.3	0.24466	0.24857	-1.60	B
132.273	57.90	2075.7	0.24582	0.24901	-1.30	A
140.017	57.87	2340.3	0.24666	0.24989	-1.31	A
143.971	57.85	2475.1	0.24690	0.25033	-1.39	B
147.769	57.84	2604.5	0.24796	0.25075	-1.13	A
151.744	57.82	2739.9	0.24885	0.25118	-0.94	B
155.503	57.81	2868.2	0.24920	0.25158	-0.96	A
121.130	52.41	540.7	0.24804	0.25354	-2.21	A
123.243	52.41	593.4	0.24803	0.25370	-2.29	D
127.600	52.39	702.4	0.24853	0.25403	-2.21	C
131.427	52.38	798.5	0.24918	0.25430	-2.06	D
133.542	52.38	851.7	0.24956	0.25446	-1.96	B
135.786	52.37	908.2	0.25006	0.25462	-1.82	C
137.454	52.36	950.3	0.25026	0.25473	-1.79	A
139.651	52.36	1005.8	0.25049	0.25489	-1.76	D
141.720	52.35	1058.1	0.25019	0.25503	-1.93	B
143.968	52.34	1115.1	0.25055	0.25518	-1.85	C
145.633	52.34	1157.2	0.25111	0.25530	-1.67	A
149.864	52.33	1264.6	0.25090	0.25558	-1.86	B
152.115	52.32	1321.8	0.25157	0.25573	-1.65	C
156.085	52.31	1422.7	0.25208	0.25600	-1.55	D

Table 12. Experimental Two-phase Heat Capacity Data for HFC-143a in SI Units.

T	ρ_σ	P_σ	C_v[2]	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$				
164.8070	15.718	0.0015	101.70	101.63	93.36	8.14	G
167.0908	15.654	0.0019	102.07	101.99	93.99	7.84	H
169.5763	15.585	0.0024	102.30	102.20	94.68	7.36	G
171.8324	15.522	0.0030	102.46	102.35	95.32	6.87	H
174.2884	15.452	0.0037	102.93	102.80	96.02	6.60	G
176.5223	15.389	0.0045	103.09	102.94	96.65	6.10	H
178.9530	15.320	0.0055	103.54	103.36	97.35	5.81	G
181.1703	15.256	0.0065	103.59	103.39	97.99	5.22	H
183.5699	15.187	0.0079	104.16	103.94	98.68	5.06	G
185.7765	15.124	0.0093	104.34	104.09	99.31	4.59	H
188.1431	15.055	0.0111	104.79	104.51	99.99	4.32	G
190.3388	14.991	0.0130	105.12	104.81	100.62	4.00	H
192.6723	14.922	0.0153	105.80	105.46	101.28	3.97	G
194.8503	14.858	0.0177	105.84	105.47	101.89	3.40	H
197.1617	14.789	0.0206	106.36	105.95	102.53	3.23	G
199.3215	14.724	0.0237	106.60	106.16	103.13	2.86	H
201.6066	14.655	0.0273	106.90	106.42	103.75	2.51	G
203.7498	14.591	0.0311	107.34	106.82	104.33	2.33	H
206.0062	14.522	0.0356	107.80	107.24	104.94	2.15	G
208.1359	14.457	0.0403	108.23	107.64	105.50	1.99	H
210.3715	14.388	0.0457	108.55	107.91	106.08	1.69	G
212.4839	14.322	0.0513	109.11	108.44	106.63	1.67	H
214.6957	14.253	0.0578	109.43	108.71	107.20	1.39	G
216.7947	14.187	0.0645	109.77	109.01	107.73	1.18	H
218.9846	14.118	0.0722	110.40	109.61	108.28	1.21	G
223.2249	13.982	0.0892	111.74	110.86	109.34	1.37	G
227.4281	13.845	0.1089	112.60	111.64	110.37	1.14	G
229.4981	13.777	0.1198	112.74	111.75	110.88	0.78	H
231.6137	13.707	0.1319	113.41	112.39	111.39	0.89	G
233.6641	13.639	0.1444	113.59	112.53	111.90	0.56	H
235.7617	13.569	0.1581	114.39	113.30	112.41	0.79	G
237.7949	13.500	0.1724	114.80	113.69	112.91	0.68	H
239.8719	13.429	0.1880	115.42	114.28	113.42	0.75	G
241.8978	13.359	0.2043	115.80	114.64	113.93	0.62	H
243.9577	13.288	0.2219	116.40	115.22	114.45	0.67	G
245.9631	13.217	0.2401	117.03	115.84	114.96	0.76	H
250.0022	13.074	0.2804	118.19	116.98	116.00	0.83	H
252.0213	13.001	0.3024	118.58	117.37	116.54	0.71	G
254.0127	12.929	0.3253	118.91	117.71	117.08	0.54	H
256.0161	12.856	0.3497	119.71	118.52	117.63	0.75	G
257.9869	12.782	0.3751	120.18	119.00	118.19	0.69	H
259.9779	12.708	0.4020	120.69	119.55	118.76	0.66	G
261.9411	12.634	0.4301	121.12	120.00	119.34	0.55	H
263.9041	12.559	0.4596	121.87	120.80	119.94	0.71	G
265.8598	12.483	0.4904	122.21	121.19	120.55	0.53	H
267.8159	12.406	0.5229	123.17	122.21	121.18	0.85	G
269.7587	12.330	0.5566	123.43	122.53	121.82	0.58	H
271.6913	12.252	0.5919	124.64	123.83	122.48	1.09	G
273.6242	12.174	0.6287	124.81	124.09	123.17	0.75	H
277.4786	12.014	0.7074	126.07	125.58	124.61	0.77	H
279.3869	11.934	0.7490	127.05	126.69	125.36	1.05	G
281.3024	11.852	0.7925	127.51	127.31	126.15	0.91	H
283.1927	11.770	0.8373	128.16	128.13	126.96	0.91	G
285.1039	11.686	0.8845	128.95	129.11	127.81	1.01	H

Table 12. Experimental Two-phase Heat Capacity Data for HFC-143a in SI Units (continued).

T	ρ_σ	P_σ	$C_v^{(3)}$	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$				
286.9835	11.602	0.9329	129.48	129.85	128.69	0.90	G
288.8803	11.516	0.9836	130.11	130.72	129.62	0.84	H
290.7438	11.430	1.0355	130.95	131.82	130.56	0.96	G
294.4922	11.253	1.1459	132.18	133.65	132.58	0.80	G
296.3541	11.162	1.2039	132.79	134.60	133.73	0.65	H
300.0538	10.977	1.3257	134.69	137.31	135.84	1.07	H
301.9145	10.881	1.3903	135.14	138.24	137.35	0.64	G
303.7437	10.784	1.4561	135.62	139.23	138.79	0.32	H
305.5996	10.684	1.5252	136.88	141.07	140.29	0.55	G
307.4036	10.584	1.5947	136.74	141.55	141.85	-0.21	H
309.2661	10.479	1.6689	137.75	143.28	143.56	-0.20	G
311.0452	10.375	1.7422	138.64	144.94	145.33	-0.27	H
312.8998	10.265	1.8212	139.82	147.02	147.32	-0.21	G
304.0523	10.768	1.4674	145.37	139.40	139.03	0.26	A
306.2426	10.649	1.5497	146.25	140.63	140.83	-0.14	B
308.3481	10.531	1.6320	147.57	142.36	142.70	-0.24	A
312.6122	10.282	1.8088	150.21	146.10	147.04	-0.64	A
314.7920	10.148	1.9046	152.00	148.65	149.26	-0.41	B
316.8343	10.018	1.9977	153.09	150.59	151.54	-0.63	A
323.1489	9.581	2.3080	159.28	160.59	160.28	0.20	B
325.1497	9.428	2.4137	160.50	163.63	163.80	-0.11	A
327.2932	9.256	2.5310	163.00	168.54	168.17	0.22	B
329.2690	9.087	2.6432	164.40	172.72	172.90	-0.10	A
331.3935	8.892	2.7681	167.21	179.38	179.00	0.22	B
333.3317	8.700	2.8862	169.41	186.20	185.84	0.19	A
335.4371	8.471	3.0192	172.67	196.26	195.31	0.48	B
337.3469	8.239	3.1442	175.40	207.77	206.73	0.50	A
339.4069	7.953	3.2841	180.19	227.02	224.22	1.23	B
341.2663	7.646	3.4150	185.13	254.09	248.78	2.09	A
343.4200	7.182	3.5729	167.16	292.55	303.32	-3.68	B

Table 13. Experimental Two-Phase Heat Capacity Data for HFC-143a in PI Units.

T	ρ_σ	P_σ	C_v [2]	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
°F	lb·ft^{-3}	psia	Btu·lb^{-1}·°F^{-1}				
-163.017	82.46	0.22	0.28924	0.28903	0.26550	8.14	G
-158.907	82.13	0.28	0.29029	0.29004	0.26730	7.84	H
-154.433	81.77	0.35	0.29094	0.29065	0.26927	7.36	G
-150.372	81.43	0.43	0.29140	0.29107	0.27108	6.87	H
-145.951	81.07	0.53	0.29274	0.29235	0.27306	6.60	G
-141.930	80.74	0.65	0.29319	0.29275	0.27488	6.10	H
-137.555	80.38	0.79	0.29445	0.29395	0.27687	5.81	G
-133.563	80.04	0.95	0.29460	0.29403	0.27868	5.22	H
-129.244	79.68	1.14	0.29624	0.29560	0.28064	5.06	G
-125.272	79.35	1.35	0.29674	0.29602	0.28244	4.59	H
-121.012	78.98	1.61	0.29802	0.29722	0.28437	4.32	G
-117.060	78.65	1.88	0.29896	0.29808	0.28615	4.00	H
-112.860	78.29	2.22	0.30090	0.29994	0.28803	3.97	G
-108.939	77.95	2.57	0.30101	0.29996	0.28977	3.40	H
-104.779	77.59	2.99	0.30249	0.30133	0.29160	3.23	G
-100.891	77.25	3.44	0.30317	0.30191	0.29329	2.86	H
-96.778	76.89	3.96	0.30402	0.30266	0.29507	2.51	G
-92.920	76.55	4.52	0.30527	0.30380	0.29672	2.33	H
-88.859	76.19	5.16	0.30657	0.30499	0.29843	2.15	G
-85.025	75.85	5.84	0.30781	0.30612	0.30004	1.99	H
-81.001	75.48	6.62	0.30870	0.30690	0.30170	1.69	G
-77.199	75.14	7.44	0.31031	0.30839	0.30326	1.67	H
-73.218	74.78	8.38	0.31120	0.30916	0.30487	1.39	G
-69.440	74.43	9.36	0.31218	0.31003	0.30638	1.18	H
-65.498	74.07	10.48	0.31398	0.31171	0.30795	1.21	G
-57.865	73.35	12.93	0.31778	0.31528	0.31095	1.37	G
-50.299	72.64	15.80	0.32021	0.31750	0.31389	1.14	G
-46.573	72.28	17.38	0.32063	0.31781	0.31533	0.78	H
-42.765	71.92	19.12	0.32254	0.31963	0.31680	0.89	G
-39.075	71.56	20.94	0.32303	0.32003	0.31823	0.56	H
-35.299	71.19	22.93	0.32532	0.32223	0.31969	0.79	G
-31.639	70.83	25.01	0.32649	0.32332	0.32111	0.68	H
-27.901	70.45	27.27	0.32826	0.32502	0.32257	0.75	G
-24.254	70.09	29.63	0.32934	0.32604	0.32400	0.62	H
-20.546	69.71	32.18	0.33102	0.32767	0.32548	0.67	G
-16.936	69.34	34.83	0.33283	0.32943	0.32693	0.76	H
-9.666	68.59	40.67	0.33611	0.33267	0.32991	0.83	H
-6.032	68.21	43.86	0.33724	0.33380	0.33143	0.71	G
-2.447	67.83	47.18	0.33818	0.33476	0.33296	0.54	H
1.159	67.45	50.72	0.34045	0.33706	0.33453	0.75	G
4.706	67.06	54.40	0.34177	0.33844	0.33611	0.69	H
8.290	66.67	58.31	0.34325	0.33998	0.33775	0.66	G
11.824	66.28	62.38	0.34445	0.34128	0.33940	0.55	H
15.357	65.89	66.65	0.34660	0.34355	0.34109	0.71	G
18.878	65.49	71.13	0.34756	0.34465	0.34283	0.53	H
22.399	65.09	75.84	0.35029	0.34756	0.34462	0.85	G
25.896	64.69	80.74	0.35102	0.34848	0.34645	0.58	H
29.374	64.28	85.84	0.35447	0.35217	0.34833	1.09	G
32.854	63.87	91.19	0.35495	0.35291	0.35028	0.75	H
39.792	63.03	102.60	0.35853	0.35714	0.35437	0.77	H
43.226	62.61	108.63	0.36131	0.36031	0.35652	1.05	G
46.674	62.18	114.94	0.36263	0.36207	0.35876	0.91	H
50.077	61.75	121.44	0.36447	0.36439	0.36106	0.91	G
53.517	61.31	128.29	0.36673	0.36719	0.36349	1.01	H

Table 13. Experimental Two-Phase Heat Capacity Data for HFC-143a in PI units (continued).

T	ρ_σ	P_σ	C_v [2]	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
°F	lb·ft^{-3}	psia	Btu·lb^{-1}·°F^{-1}				
56.900	60.87	135.30	0.36824	0.36930	0.36599	0.90	G
60.315	60.42	142.66	0.37002	0.37175	0.36863	0.84	H
63.669	59.97	150.18	0.37243	0.37489	0.37130	0.96	G
70.416	59.04	166.20	0.37592	0.38009	0.37705	0.80	G
73.767	58.56	174.61	0.37765	0.38281	0.38032	0.65	H
80.427	57.59	192.27	0.38304	0.39050	0.38632	1.07	H
83.776	57.08	201.65	0.38434	0.39314	0.39062	0.64	G
87.069	56.58	211.19	0.38570	0.39597	0.39470	0.32	H
90.409	56.05	221.21	0.38929	0.40121	0.39898	0.55	G
93.656	55.53	231.29	0.38887	0.40257	0.40340	-0.21	H
97.009	54.98	242.06	0.39174	0.40749	0.40828	-0.20	G
100.211	54.43	252.69	0.39428	0.41221	0.41330	-0.27	H
103.550	53.85	264.15	0.39764	0.41812	0.41898	-0.21	G
87.624	56.49	212.83	0.41341	0.39644	0.39540	0.26	A
91.567	55.87	224.77	0.41594	0.39995	0.40053	-0.14	B
95.357	55.25	236.71	0.41968	0.40486	0.40583	-0.24	A
103.032	53.94	262.35	0.42718	0.41552	0.41819	-0.64	A
106.956	53.24	276.24	0.43227	0.42275	0.42449	-0.41	B
110.632	52.56	289.75	0.43538	0.42827	0.43097	-0.63	A
121.998	50.26	334.75	0.45297	0.45672	0.45582	0.20	B
125.600	49.47	350.07	0.45645	0.46534	0.46585	-0.11	A
129.458	48.56	367.10	0.46358	0.47932	0.47826	0.22	B
133.014	47.67	383.36	0.46754	0.49122	0.49171	-0.10	A
136.838	46.65	401.48	0.47553	0.51016	0.50906	0.22	B
140.327	45.64	418.61	0.48180	0.52954	0.52853	0.19	A
144.117	44.44	437.90	0.49106	0.55816	0.55546	0.48	B
147.554	43.23	456.03	0.49883	0.59089	0.58794	0.50	A
151.262	41.72	476.31	0.51244	0.64563	0.63767	1.23	B
154.609	40.11	495.31	0.52651	0.72262	0.70752	2.09	A
158.486	37.68	518.21	0.47540	0.83199	0.86262	-3.68	B

Table 14. Coefficients to the MBWR Equation of State for HFC-143a
[Units are K, bar, L, mol, R = 8.3145 J/(mol · K)].

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

$$
\begin{aligned}
a_1 &= RT \\
a_2 &= b_1 T + b_2 T^{0.5} + b_3 + b_4 / T + b_5 / T^2 \\
a_3 &= b_6 T + b_7 + b_8 / T + b_9 / T^2 \\
a_4 &= b_{10} T + b_{11} + b_{12} / T \\
a_5 &= b_{13} \\
a_6 &= b_{14} / T + b_{15} / T^2 \\
a_7 &= b_{16} / T \\
a_8 &= b_{17} / T + b_{18} / T^2 \\
a_9 &= b_{19} / T^2 \\
a_{10} &= b_{20} / T^2 + b_{21} / T^3 \\
a_{11} &= b_{22} / T^2 + b_{23} / T^4 \\
a_{12} &= b_{24} / T^2 + b_{25} / T^3 \\
a_{13} &= b_{26} / T^2 + b_{27} / T^4 \\
a_{14} &= b_{28} / T^2 + b_{29} / T^3 \\
a_{15} &= b_{30} / T^2 + b_{31} / T^3 + b_{32} / T^4
\end{aligned}
$$

i	b_i	i	b_i
1	$0.326053658322 \times 10^{-1}$	17	$-0.927939144228 \times 10^{-3}$
2	$-0.846331139371 \times 10^{-1}$	18	0.250947031242×10
3	$-0.305253599792 \times 10^{2}$	19	$-0.755054824294 \times 10^{-1}$
4	$0.917478595120 \times 10^{4}$	20	$-0.171719132604 \times 10^{6}$
5	$-0.165632008187 \times 10^{7}$	21	$-0.404322973367 \times 10^{8}$
6	$-0.474205931664 \times 10^{-2}$	22	$-0.119371454920 \times 10^{5}$
7	0.568175751594×10	23	$0.238466476268 \times 10^{9}$
8	$-0.232029232656 \times 10^{4}$	24	$-0.819911376240 \times 10^{2}$
9	$0.728436638001 \times 10^{6}$	25	$-0.686895987123 \times 10^{4}$
10	$0.214685469778 \times 10^{-3}$	26	$-0.134398312504 \times 10$
11	$0.132142017636 \times 10^{-1}$	27	$-0.107791878226 \times 10^{6}$
12	$-0.421876231759 \times 10^{2}$	28	$-0.161289900259 \times 10^{-1}$
13	$-0.128899645225 \times 10^{-1}$	29	0.705806081763×10
14	0.115735615336×10	30	$0.942860255089 \times 10^{-5}$
15	$-0.483926814735 \times 10^{3}$	31	$-0.562324749115 \times 10^{-1}$
16	$-0.222296460032 \times 10^{-1}$	32	0.499692107366×10

Table 15. Critical Parameters for HFC-143a for Use with the MBWR Equation of State.

T_c	346.751 K
P_c	38.32 bar
ρ_c	5.14868 mol/L

Table 16. Ideal Gas Heat Capacity Auxiliary Equation and its Coefficients for HFC-143a [Units are K and J/(mol · K)].

$$C_p^o = c_0 + c_1T + c_2T^2 + c_3T^3$$

i	c_i
0	19.09245
1	0.2035019
2	2.607884×10^{-5}
3	-1.724083×10^{-7}

Table 17a. Properties of Saturated Liquid and Saturated Vapor HFC-143a (SI Units).

Temp* °C	Pressure MPa	Density kg/m³ liq	Volume m³/kg vap	Enthalpy kJ/kg liq	Enthalpy kJ/kg vap	Entropy kJ/(kg·K) liq	Entropy kJ/(kg·K) vap	Specific Heat, C_p kJ/(kg·K) liq	Specific Heat, C_p kJ/(kg·K) vap	C_p/C_v vap	Vel of Sound m/s liq	Vel of Sound m/s vap
-111.33a	0.00112	1329.4	14.21813	53.19	320.53	0.3181	1.9701	1.188	0.621	1.192	1046.	138.
-110.00	0.00129	1326.1	12.50656	54.78	321.34	0.3278	1.9617	1.193	0.625	1.191	1040.	138.
-100.00	0.00332	1301.9	5.13897	66.87	327.50	0.3997	1.9050	1.222	0.652	1.185	994.	142.
-90.00	0.00758	1277.6	2.36952	79.19	333.77	0.4689	1.8589	1.241	0.680	1.181	947.	145.
-80.00	0.01569	1252.8	1.20117	91.68	340.12	0.5353	1.8215	1.257	0.711	1.179	900.	148.
-70.00	0.02987	1227.6	0.65848	104.34	346.48	0.5991	1.7910	1.274	0.744	1.178	851.	151.
-60.00	0.05302	1201.8	0.38517	117.18	352.82	0.6607	1.7662	1.293	0.781	1.180	802.	153.
-50.00	0.08869	1175.2	0.23780	130.24	359.10	0.7204	1.7460	1.316	0.821	1.185	754.	154.
-47.23b	0.10132	1167.6	0.20982	133.90	360.82	0.7367	1.7411	1.323	0.832	1.187	740.	155.
-40.00	0.14107	1147.7	0.15357	143.55	365.26	0.7786	1.7295	1.342	0.864	1.193	706.	155.
-30.00	0.21491	1119.1	0.10297	157.14	371.26	0.8354	1.7160	1.371	0.912	1.203	658.	156.
-20.00	0.31545	1089.3	0.07122	171.04	377.06	0.8910	1.7049	1.405	0.965	1.219	611.	156.
-10.00	0.44840	1058.1	0.05054	185.31	382.59	0.9458	1.6955	1.444	1.025	1.239	563.	155.
0.00	0.61988	1025.0	0.03661	200.00	387.77	1.0000	1.6874	1.490	1.094	1.267	516.	153.
10.00	0.83645	989.6	0.02695	215.17	392.51	1.0538	1.6801	1.546	1.175	1.306	468.	151.
20.00	1.10518	951.3	0.02007	230.91	396.66	1.1074	1.6728	1.617	1.276	1.362	420.	147.
30.00	1.43380	909.0	0.01503	247.37	399.99	1.1614	1.6649	1.713	1.412	1.447	371.	142.
40.00	1.83099	861.1	0.01126	264.76	402.16	1.2164	1.6552	1.856	1.614	1.588	320.	136.
50.00	2.30692	804.4	0.00834	283.50	402.51	1.2735	1.6418	2.101	1.968	1.857	266.	128.
60.00	2.87442	731.7	0.00598	304.53	399.59	1.3353	1.6207	2.671	2.814	2.537	207.	119.
70.00c	3.55262	610.9	0.00381	331.98	387.47	1.4134	1.5752	6.470	8.334	7.118	137.	106.
73.60	3.83200	432.7	0.00231	360.57	360.57	1.5163	1.5163	inf	inf	inf	0.	0.

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

Table 17b. Properties of Saturated Liquid and Saturated Vapor HFC-143a (PI Units).

Temp* °F	Pressure psia	Density lb/ft³ liq	Volume ft³/lb vap	Enthalpy BTU/lb liq	Enthalpy BTU/lb vap	Entropy BTU/(lb ·°F) liq	Entropy BTU/(lb ·°F) vap	Specific Heat, C_p BTU/(lb ·°F) liq	Specific Heat, C_p BTU/(lb ·°F) vap	C_p/C_v vap	Vel of Sound ft/s liq	Vel of Sound ft/s vap
-168.39a	0.163	82.99	227.7526	-38.871	76.139	-0.11006	0.28479	0.2839	0.1485	1.1924	3432.	452.
-160.00	0.260	82.28	146.8298	-36.470	77.364	-0.10193	0.27793	0.2880	0.1514	1.1892	3362.	458.
-140.00	0.704	80.60	57.6052	-30.641	80.333	-0.08311	0.26404	0.2943	0.1587	1.1831	3194.	470.
-120.00	1.666	78.90	25.7498	-24.709	83.351	-0.06512	0.25301	0.2987	0.1666	1.1794	3021.	481.
-100.00	3.525	77.17	12.7876	-18.691	86.392	-0.04792	0.24425	0.3030	0.1752	1.1782	2845.	491.
-80.00	6.806	75.39	6.9159	-12.578	89.428	-0.03140	0.23727	0.3080	0.1846	1.1797	2668.	500.
-60.00	12.181	73.55	4.0094	-6.354	92.434	-0.01546	0.23171	0.3139	0.1950	1.1844	2491.	506.
-53.02b	14.696	72.89	3.3609	-4.151	93.471	-0.01001	0.23005	0.3161	0.1989	1.1868	2429.	508.
-40.00	20.461	71.65	2.4600	0.000	95.382	0.00000	0.22728	0.3207	0.2066	1.1926	2315.	510.
-20.00	32.584	69.66	1.5809	6.504	98.247	0.01506	0.22373	0.3286	0.2194	1.2049	2141.	512.
0.00	49.601	67.58	1.0550	13.180	100.999	0.02981	0.22086	0.3378	0.2337	1.2226	1968.	511.
20.00	72.658	65.38	0.7256	20.054	103.600	0.04431	0.21848	0.3486	0.2502	1.2474	1796.	507.
40.00	102.999	63.03	0.5110	27.159	106.001	0.05864	0.21643	0.3618	0.2696	1.2827	1624.	499.
60.00	141.967	60.48	0.3661	34.540	108.135	0.07289	0.21451	0.3784	0.2935	1.3344	1449.	488.
80.00	191.028	57.66	0.2651	42.265	109.894	0.08719	0.21250	0.4009	0.3254	1.4142	1271.	472.
100.00	251.831	54.46	0.1924	50.442	111.106	0.10170	0.21009	0.4345	0.3730	1.5493	1087.	451.
120.00	326.304	50.65	0.1382	59.274	111.446	0.11674	0.20674	0.4934	0.4578	1.8156	893.	424.
140.00	416.899	45.68	0.0958	69.254	110.151	0.13307	0.20127	0.6384	0.6725	2.5366	681.	389.
160.00	527.402	36.63	0.0565	82.984	103.528	0.15475	0.18790	2.1370	2.8139	9.9860	420.	343.
164.48c	555.785	27.01	0.0370	93.367	93.367	0.16912	0.16912	inf	inf	inf	0.	0.

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

Table 18. Thermal Conductivity Data for HFC-143a From Steady-State Hot-Wire Experiments.

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)
7002	191.993	0.004	0.00670	-114.083	0.54	0.01159
7004	191.479	0.004	0.00666	-115.008	0.53	0.01152
7006	191.060	0.004	0.00662	-115.762	0.54	0.01145
7010	192.031	0.004	0.00661	-114.014	0.60	0.01143
7012	191.517	0.004	0.00653	-114.939	0.60	0.01129
7014	191.106	0.004	0.00639	-115.679	0.62	0.01105
7018	192.028	0.004	0.00663	-114.020	0.57	0.01147
7020	191.513	0.004	0.00655	-114.947	0.55	0.01133
7022	191.097	0.004	0.00643	-115.695	0.54	0.01112
7026	192.023	0.003	0.00664	-114.029	0.49	0.01148
7028	191.506	0.003	0.00657	-114.959	0.45	0.01136
7030	191.094	0.003	0.00643	-115.701	0.43	0.01112
7034	192.020	0.002	0.00664	-114.034	0.33	0.01148
7036	191.507	0.002	0.00657	-114.957	0.33	0.01136
7038	191.089	0.002	0.00647	-115.710	0.31	0.01119
7042	192.015	0.002	0.00664	-114.043	0.24	0.01148
7044	191.499	0.002	0.00658	-114.972	0.25	0.01138
7046	191.084	0.002	0.00650	-115.719	0.25	0.01124
7050	192.015	0.001	0.00664	-114.043	0.09	0.01148
7052	191.497	0.001	0.00658	-114.975	0.09	0.01138
7054	191.077	0.001	0.00651	-115.731	0.08	0.01126
7058	191.998	0.000	0.00660	-114.074	0.00	0.01141
7060	191.474	0.000	0.00656	-115.017	0.00	0.01135
7062	191.057	0.000	0.00647	-115.767	0.00	0.01119
7066	191.997	0.000	0.00659	-114.075	0.00	0.01140
7068	191.477	0.000	0.00654	-115.011	0.00	0.01131
7070	191.056	0.000	0.00647	-115.769	0.00	0.01119
7074	192.004	0.000	0.00655	-114.063	0.00	0.01133
7076	191.478	0.000	0.00651	-115.010	0.00	0.01126
7078	191.056	0.000	0.00643	-115.769	0.00	0.01112
8002	222.314	0.052	0.00888	-59.505	7.56	0.01536
8004	221.693	0.052	0.00885	-60.623	7.55	0.01531
8006	221.207	0.052	0.00875	-61.497	7.54	0.01513
8010	222.312	0.043	0.00890	-59.508	6.17	0.01539
8012	221.691	0.042	0.00884	-60.626	6.16	0.01529
8014	221.200	0.042	0.00875	-61.510	6.14	0.01513
8018	222.365	0.012	0.00873	-59.413	1.71	0.01510
8020	221.736	0.012	0.00866	-60.545	1.70	0.01498
8022	221.235	0.012	0.00853	-61.447	1.71	0.01475
9002	252.459	0.244	0.01149	-5.244	35.42	0.01987
9004	251.906	0.243	0.01129	-6.239	35.24	0.01953
9006	251.429	0.242	0.01116	-7.098	35.08	0.01930
9010	252.492	0.209	0.01135	-5.184	30.37	0.01963
9012	251.910	0.208	0.01124	-6.232	30.24	0.01944
9014	251.420	0.208	0.01117	-7.114	30.12	0.01932
9018	252.269	0.146	0.01112	-5.586	21.19	0.01923
9020	251.799	0.146	0.01106	-6.432	21.11	0.01913

Table 18. Thermal Conductivity Data for HFC-143a From Steady-State Hot-Wire Experiments (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)
9022	251.400	0.145	0.01095	-7.150	21.06	0.01894
9026	252.289	0.047	0.01099	-5.550	6.81	0.01901
9028	251.805	0.046	0.01092	-6.421	6.71	0.01889
9030	251.394	0.046	0.01085	-7.161	6.66	0.01877
10010	282.451	0.561	0.01440	48.742	81.37	0.02490
10014	281.524	0.556	0.01459	47.073	80.57	0.02523
10016	281.175	0.553	0.01444	46.445	80.18	0.02497
10018	282.689	0.324	0.01407	49.170	46.93	0.02433
10020	282.121	0.321	0.01395	48.148	46.62	0.02413
10022	281.623	0.319	0.01393	47.251	46.33	0.02409
10024	281.224	0.318	0.01385	46.533	46.05	0.02395
10026	282.493	0.141	0.01359	48.817	20.52	0.02350
10028	281.921	0.139	0.01351	47.788	20.18	0.02337
10030	281.451	0.137	0.01338	46.942	19.91	0.02314
10034	282.210	0.052	0.01356	48.308	7.59	0.02345
10036	281.764	0.052	0.01355	47.505	7.57	0.02343
10038	281.390	0.052	0.01351	46.832	7.55	0.02337
11051	312.620	0.590	0.01712	103.046	85.53	0.02961
11053	312.113	0.590	0.01699	102.133	85.52	0.02938
11055	311.674	0.590	0.01680	101.343	85.54	0.02906
11057	311.311	0.590	0.01655	100.690	85.53	0.02862
11059	312.590	0.368	0.01655	102.992	53.37	0.02862
11061	312.048	0.368	0.01649	102.016	53.36	0.02852
11063	311.591	0.368	0.01644	101.194	53.35	0.02843
11065	311.235	0.368	0.01628	100.553	53.35	0.02816
11067	312.636	0.129	0.01639	103.075	18.76	0.02835
11069	312.070	0.129	0.01633	102.056	18.74	0.02824
11071	311.602	0.129	0.01627	101.214	18.73	0.02814
11073	311.232	0.129	0.01604	100.548	18.75	0.02774
11075	312.349	0.069	0.01627	102.558	9.98	0.02814
11077	311.909	0.069	0.01621	101.766	9.97	0.02804
11079	311.534	0.069	0.01617	101.091	9.97	0.02797
11081	311.230	0.069	0.01603	100.544	9.98	0.02772
13083	342.807	0.802	0.02019	157.383	116.32	0.03492
13085	342.281	0.802	0.02008	156.436	116.32	0.03473
13087	341.822	0.802	0.01987	155.610	116.35	0.03437
13089	341.433	0.802	0.01974	154.909	116.35	0.03414
13091	342.938	0.573	0.01978	157.618	83.18	0.03421
13093	342.359	0.573	0.01961	156.576	83.18	0.03392
13095	341.862	0.573	0.01954	155.682	83.18	0.03379
13097	341.452	0.574	0.01950	154.944	83.20	0.03373
13099	342.563	0.319	0.01929	156.943	46.29	0.03336
13101	342.082	0.319	0.01925	156.078	46.28	0.03329
13103	341.679	0.319	0.01920	155.352	46.28	0.03321
13105	341.346	0.319	0.01898	154.753	46.28	0.03283
13107	342.637	0.041	0.01882	157.077	5.94	0.03255

Table 18. Thermal Conductivity Data for HFC-143a From Steady-State Hot-Wire Experiments (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)
13109	342.136	0.041	0.01875	156.175	5.95	0.03243
13111	341.718	0.041	0.01865	155.422	5.95	0.03226
13113	341.376	0.041	0.01841	154.807	5.94	0.03184
12686	370.251	1.335	0.02184	206.782	193.57	0.03777
12688	370.336	1.333	0.02181	206.935	193.38	0.03772
12690	370.428	1.331	0.02171	207.100	193.11	0.03755
12692	370.517	1.328	0.02159	207.261	192.63	0.03734
12694	370.622	1.326	0.02161	207.450	192.39	0.03737
12696	370.721	1.325	0.02147	207.628	192.21	0.03713
12698	370.839	1.324	0.02144	207.840	192.04	0.03708
12706	370.341	0.873	0.02155	206.944	126.57	0.03727
12708	370.428	0.873	0.02155	207.100	126.59	0.03727
12710	370.530	0.873	0.02144	207.284	126.61	0.03708
12712	370.638	0.873	0.02141	207.478	126.62	0.03703
12714	370.739	0.873	0.02138	207.660	126.64	0.03698
12716	370.852	0.873	0.02139	207.864	126.64	0.03699
12718	370.972	0.873	0.02141	208.080	126.67	0.03703
12720	371.085	0.873	0.02149	208.283	126.67	0.03717
12722	371.221	0.873	0.02131	208.528	126.66	0.03686
12724	371.340	0.873	0.02153	208.742	126.68	0.03724
12730	370.546	0.241	0.02110	207.313	34.89	0.03649
12732	370.661	0.241	0.02099	207.520	34.90	0.03630
12734	370.775	0.241	0.02093	207.725	34.94	0.03620
12736	370.903	0.241	0.02084	207.955	34.96	0.03604
12738	371.043	0.241	0.02078	208.207	34.98	0.03594
12740	371.178	0.241	0.02073	208.450	35.00	0.03585
12742	371.326	0.241	0.02069	208.717	35.01	0.03578
12744	371.473	0.241	0.02064	208.981	35.01	0.03570

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments.

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)
1001	192.774	71.947	0.13800	-112.677	10435.03	0.23867
1003	191.987	71.949	0.13849	-114.093	10435.31	0.23952
1005	191.316	71.919	0.13874	-115.301	10430.95	0.23995
1007	190.803	71.910	0.13903	-116.225	10429.65	0.24045
1009	192.714	72.448	0.13824	-112.785	10507.80	0.23909
1011	191.940	72.451	0.13862	-114.178	10508.19	0.23974
1013	191.275	72.455	0.13891	-115.375	10508.74	0.24024
1015	190.749	72.455	0.13937	-116.322	10508.81	0.24104
1017	192.826	54.967	0.13328	-112.583	7972.34	0.23051
1019	192.025	54.970	0.13386	-114.025	7972.71	0.23151
1021	191.350	54.977	0.13420	-115.240	7973.71	0.23210
1023	190.785	54.984	0.13446	-116.257	7974.79	0.23255
1025	192.958	38.367	0.12765	-112.346	5564.69	0.22077
1027	192.126	38.351	0.12870	-113.843	5562.43	0.22259
1029	191.416	38.360	0.12924	-115.121	5563.60	0.22352
1031	190.854	38.364	0.12948	-116.133	5564.26	0.22394
1033	192.827	24.258	0.12349	-112.581	3518.40	0.21358
1035	191.996	24.262	0.12447	-114.077	3518.97	0.21527
1037	191.296	24.259	0.12462	-115.337	3518.44	0.21553
1039	190.757	24.256	0.12509	-116.307	3518.00	0.21634
1041	192.881	11.274	0.11927	-112.484	1635.17	0.20628
1043	192.014	11.278	0.12000	-114.045	1635.71	0.20754
1045	191.288	11.277	0.12036	-115.352	1635.64	0.20816
1047	190.710	11.279	0.12062	-116.392	1635.89	0.20861
1049	192.977	2.345	0.11601	-112.311	340.10	0.20064
1051	192.089	2.351	0.11660	-113.910	341.05	0.20166
1053	191.349	2.353	0.11647	-115.242	341.30	0.20143
1055	190.769	2.352	0.11799	-116.286	341.09	0.20406
2001	223.141	72.204	0.12909	-58.016	10472.29	0.22326
2003	222.208	72.205	0.12952	-59.696	10472.53	0.22400
2005	221.440	72.205	0.12988	-61.078	10472.44	0.22463
2007	220.806	72.207	0.13052	-62.219	10472.75	0.22573
2009	222.989	56.905	0.12438	-58.290	8253.37	0.21512
2011	222.141	56.901	0.12484	-59.816	8252.80	0.21591
2013	221.427	56.899	0.12518	-61.101	8252.50	0.21650
2015	220.867	56.906	0.12558	-62.109	8253.52	0.21719
2017	223.065	42.930	0.11971	-58.153	6226.56	0.20704
2019	222.185	42.931	0.12012	-59.737	6226.71	0.20775
2021	221.447	42.934	0.12051	-61.065	6227.01	0.20842
2023	220.850	42.933	0.12089	-62.140	6226.89	0.20908
2025	223.342	31.506	0.11553	-57.654	4569.54	0.19981
2027	222.438	31.505	0.11577	-59.282	4569.40	0.20022
2029	221.674	31.502	0.11621	-60.657	4569.02	0.20099
2031	221.029	31.496	0.11644	-61.818	4568.19	0.20138
2033	223.296	20.044	0.11081	-57.737	2907.15	0.19165
2035	222.349	20.055	0.11112	-59.442	2908.68	0.19218
2037	221.562	20.064	0.11161	-60.858	2910.11	0.19303

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot Wire Experiments (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)
2039	220.940	20.073	0.11211	-61.978	2911.34	0.19389
2041	223.103	10.696	0.10682	-58.085	1551.27	0.18475
2043	222.185	10.704	0.10721	-59.737	1552.52	0.18542
2045	221.415	10.712	0.10749	-61.123	1553.62	0.18590
2047	220.809	10.715	0.10794	-62.214	1554.08	0.18668
2049	223.196	3.657	0.10339	-57.917	530.42	0.17881
2051	222.244	3.660	0.10381	-59.631	530.85	0.17954
2053	221.456	3.662	0.10408	-61.049	531.10	0.18001
2055	220.841	3.668	0.10489	-62.156	531.98	0.18141
3001	253.276	72.150	0.11989	-3.773	10464.47	0.20735
3003	252.298	72.147	0.12032	-5.534	10464.03	0.20809
3005	251.492	72.142	0.12100	-6.984	10463.33	0.20927
3007	250.852	72.133	0.12173	-8.136	10462.03	0.21053
3009	253.136	58.517	0.11504	-4.025	8487.20	0.19896
3011	252.253	58.525	0.11479	-5.615	8488.30	0.19853
3013	251.507	58.527	0.11508	-6.957	8488.66	0.19903
3015	250.911	58.528	0.11598	-8.030	8488.75	0.20059
3017	253.223	47.339	0.11068	-3.869	6865.96	0.19142
3019	252.314	47.348	0.11072	-5.505	6867.22	0.19149
3021	251.549	47.353	0.11111	-6.882	6868.06	0.19216
3023	250.922	47.354	0.11217	-8.010	6868.12	0.19400
3025	253.197	36.904	0.10627	-3.915	5352.42	0.18379
3027	252.232	36.902	0.10676	-5.652	5352.23	0.18464
3029	251.438	36.907	0.10685	-7.082	5352.88	0.18480
3031	250.809	36.886	0.10829	-8.214	5349.91	0.18729
3033	253.266	27.983	0.10254	-3.791	4058.60	0.17734
3035	252.268	27.982	0.10281	-5.588	4058.42	0.17781
3037	251.446	27.985	0.10282	-7.067	4058.89	0.17783
3039	250.799	27.988	0.10436	-8.232	4059.33	0.18049
3041	253.400	19.620	0.09847	-3.550	2845.70	0.17030
3043	252.358	19.621	0.09884	-5.426	2845.73	0.17094
3045	251.513	19.622	0.09915	-6.947	2845.96	0.17148
3047	250.844	19.625	0.10079	-8.151	2846.36	0.17432
3049	253.169	12.494	0.09474	-3.966	1812.06	0.16385
3051	252.230	12.492	0.09497	-5.656	1811.78	0.16425
3053	251.455	12.487	0.09535	-7.051	1811.11	0.16491
3055	250.833	12.482	0.09659	-8.171	1810.41	0.16705
3057	253.369	5.820	0.09085	-3.606	844.16	0.15713
3059	252.400	5.819	0.09140	-5.350	843.94	0.15808
3061	251.601	5.821	0.09136	-6.788	844.33	0.15801
3063	250.946	5.820	0.09282	-7.967	844.15	0.16053
3065	253.392	1.869	0.08833	-3.564	271.06	0.15277
3067	252.407	1.867	0.08911	-5.337	270.74	0.15412
3069	251.582	1.865	0.08922	-6.822	270.46	0.15431
3071	250.918	1.863	0.09042	-8.018	270.17	0.15638
4001	283.227	72.046	0.11185	50.139	10449.43	0.19344

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
4003	282.254	72.041	0.11191	48.387	10448.63	0.19355
4005	281.448	72.036	0.11198	46.936	10448.01	0.19367
4007	280.786	72.030	0.11361	45.745	10447.06	0.19649
4009	283.117	60.969	0.10761	49.941	8842.89	0.18611
4011	282.149	60.966	0.10755	48.198	8842.36	0.18601
4013	281.342	60.965	0.10817	46.746	8842.21	0.18708
4015	280.719	60.962	0.10962	45.624	8841.87	0.18959
4017	282.891	51.183	0.10367	49.534	7423.45	0.17930
4019	282.024	51.174	0.10413	47.973	7422.19	0.18009
4021	281.300	51.174	0.10451	46.670	7422.25	0.18075
4023	280.726	51.172	0.10585	45.637	7421.87	0.18307
4025	283.147	41.715	0.09971	49.995	6050.34	0.17245
4027	282.250	41.716	0.09984	48.380	6050.38	0.17267
4029	281.509	41.716	0.10026	47.046	6050.39	0.17340
4031	280.897	41.716	0.10199	45.945	6050.45	0.17639
4033	283.140	34.568	0.09651	49.982	5013.74	0.16691
4035	282.313	34.567	0.09663	48.493	5013.55	0.16712
4037	281.606	34.561	0.09671	47.221	5012.69	0.16726
4039	281.026	34.561	0.09779	46.177	5012.64	0.16913
4041	282.876	27.322	0.09304	49.507	3962.73	0.16091
4043	282.071	27.323	0.09321	48.058	3962.85	0.16121
4045	281.389	27.324	0.09302	46.830	3963.03	0.16088
4047	280.818	27.325	0.09471	45.802	3963.24	0.16380
4049	282.769	20.738	0.08918	49.314	3007.85	0.15424
4051	281.965	20.740	0.08946	47.867	3008.16	0.15472
4053	281.291	20.738	0.08949	46.654	3007.74	0.15477
4055	280.743	20.739	0.09098	45.667	3007.97	0.15735
4057	282.871	14.729	0.08563	49.498	2136.27	0.14810
4059	282.035	14.735	0.08539	47.993	2137.17	0.14768
4061	281.346	14.738	0.08596	46.753	2137.59	0.14867
4063	280.772	14.739	0.08702	45.720	2137.66	0.15050
4065	282.742	10.626	0.08255	49.266	1541.19	0.14277
4067	281.927	10.630	0.08277	47.799	1541.82	0.14315
4069	281.249	10.633	0.08386	46.578	1542.23	0.14504
4071	280.684	10.631	0.08510	45.561	1541.85	0.14718
4073	282.574	6.555	0.07993	48.963	950.76	0.13824
4075	281.769	6.552	0.08032	47.514	950.23	0.13891
4077	281.114	6.549	0.08101	46.335	949.93	0.14011
4079	280.577	6.545	0.08211	45.369	949.25	0.14201
4081	282.633	2.924	0.07729	49.069	424.09	0.13367
4083	281.805	2.918	0.07763	47.579	423.24	0.13426
4085	281.131	2.902	0.07823	46.366	420.94	0.13530
4087	280.585	2.894	0.07833	45.383	419.71	0.13547
4089	282.677	1.607	0.07617	49.149	233.11	0.13174
4091	281.840	1.609	0.07650	47.642	233.36	0.13231
4093	281.158	1.607	0.07713	46.414	233.06	0.13340
4095	280.604	1.606	0.07800	45.417	233.00	0.13490

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
5001	312.991	70.811	0.10478	103.714	10270.26	0.18122
5003	312.074	70.813	0.10476	102.063	10270.54	0.18118
5005	311.310	70.810	0.10491	100.688	10270.17	0.18144
5007	310.711	70.806	0.10572	99.610	10269.54	0.18284
5009	313.069	62.667	0.10140	103.854	9089.16	0.17537
5011	312.131	62.667	0.10150	102.166	9089.07	0.17554
5013	311.345	62.666	0.10151	100.751	9088.92	0.17556
5015	310.732	62.661	0.10230	99.648	9088.22	0.17693
5018	313.233	53.788	0.09737	104.149	7801.29	0.16840
5020	312.266	53.793	0.09784	102.409	7802.01	0.16921
5022	311.458	53.792	0.09792	100.954	7801.83	0.16935
5024	310.831	53.788	0.09883	99.826	7801.31	0.17093
5026	313.315	46.613	0.09424	104.297	6760.70	0.16299
5028	312.306	46.610	0.09440	102.481	6760.19	0.16326
5030	311.487	46.609	0.09490	101.007	6760.09	0.16413
5032	310.823	46.605	0.09519	99.811	6759.51	0.16463
5034	313.437	39.676	0.09089	104.517	5754.51	0.15719
5036	312.399	39.676	0.09114	102.648	5754.61	0.15763
5038	311.547	39.680	0.09124	101.115	5755.12	0.15780
5040	310.873	39.680	0.09175	99.901	5755.05	0.15868
5042	313.452	33.156	0.08753	104.544	4808.91	0.15138
5044	312.400	33.151	0.08773	102.650	4808.20	0.15173
5046	311.541	33.152	0.08787	101.104	4808.27	0.15197
5048	310.855	33.152	0.08904	99.869	4808.29	0.15399
5050	313.542	27.527	0.08422	104.706	3992.42	0.14566
5052	312.455	27.527	0.08446	102.749	3992.40	0.14607
5054	311.561	27.526	0.08489	101.140	3992.31	0.14682
5056	310.865	27.519	0.08551	99.887	3991.34	0.14789
5058	313.621	22.434	0.08114	104.848	3253.83	0.14033
5060	312.505	22.434	0.08136	102.839	3253.76	0.14071
5062	311.587	22.433	0.08178	101.187	3253.61	0.14144
5064	310.855	22.429	0.08221	99.869	3253.10	0.14218
5066	313.311	18.542	0.07849	104.290	2689.33	0.13575
5068	312.286	18.544	0.07886	102.445	2689.65	0.13639
5070	311.445	18.548	0.07931	100.931	2690.22	0.13717
5072	310.771	18.550	0.08026	99.718	2690.49	0.13881
5074	313.424	14.768	0.07589	104.493	2141.92	0.13125
5076	312.379	14.742	0.07624	102.612	2138.21	0.13186
5078	311.512	14.725	0.07629	101.052	2135.72	0.13194
5080	310.828	14.707	0.07744	99.820	2133.03	0.13393
5082	313.540	11.797	0.07334	104.702	1710.95	0.12684
5084	312.457	11.798	0.07372	102.753	1711.11	0.12750
5086	311.567	11.798	0.07387	101.151	1711.19	0.12776
5088	310.864	11.792	0.07501	99.885	1710.33	0.12973
5090	313.488	9.074	0.07091	104.608	1316.13	0.12264
5092	312.399	9.070	0.07142	102.648	1315.56	0.12352
5094	311.509	9.072	0.07156	101.046	1315.81	0.12376

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
5096	310.818	9.065	0.07273	99.802	1314.78	0.12579
5098	313.361	7.037	0.06917	104.380	1020.68	0.11963
5100	312.351	7.037	0.06938	102.562	1020.64	0.11999
5101	312.355	7.043	0.06937	102.569	1021.53	0.11998
5103	311.525	7.045	0.07020	101.075	1021.79	0.12141
5105	310.880	7.045	0.07061	99.914	1021.82	0.12212
5107	313.420	4.850	0.06662	104.486	703.38	0.11522
5109	312.386	4.850	0.06698	102.625	703.49	0.11584
5111	311.539	4.849	0.06769	101.100	703.23	0.11707
5113	310.856	4.847	0.06828	99.871	703.06	0.11809
5115	313.275	3.278	0.06460	104.225	475.50	0.11173
5117	312.241	3.277	0.06516	102.364	475.31	0.11269
5119	311.397	3.277	0.06563	100.845	475.35	0.11351
5121	310.745	3.277	0.06652	99.671	475.33	0.11505
5123	313.321	2.351	0.06325	104.308	341.01	0.10939
5125	312.269	2.352	0.06380	102.414	341.12	0.11034
5127	311.413	2.352	0.06457	100.873	341.06	0.11167
5129	310.742	2.352	0.06520	99.666	341.11	0.11276
6001	343.084	64.365	0.09642	157.881	9335.40	0.16676
6003	342.180	64.370	0.09628	156.254	9336.08	0.16652
6005	341.389	64.370	0.09637	154.830	9336.11	0.16667
6007	340.760	64.377	0.09713	153.698	9337.07	0.16799
6009	343.316	53.365	0.09142	158.299	7739.99	0.15811
6011	342.321	53.373	0.09156	156.508	7741.06	0.15835
6013	341.492	53.375	0.09165	155.016	7741.39	0.15851
6015	340.836	53.381	0.09188	153.835	7742.26	0.15891
6017	343.507	43.684	0.08645	158.643	6335.80	0.14952
6019	342.406	43.684	0.08647	156.661	6335.79	0.14955
6021	341.502	43.686	0.08683	155.034	6336.08	0.15017
6023	340.814	43.686	0.08758	153.795	6336.16	0.15147
6025	343.250	35.971	0.08255	158.180	5217.18	0.14277
6027	342.262	35.972	0.08256	156.402	5217.33	0.14279
6029	341.439	35.943	0.08275	154.920	5213.08	0.14312
6031	340.798	35.919	0.08311	153.766	5209.57	0.14374
6033	343.208	29.240	0.07856	158.104	4240.93	0.13587
6035	342.262	29.243	0.07862	156.402	4241.35	0.13597
6037	341.478	29.245	0.07880	154.990	4241.69	0.13628
6039	340.844	29.245	0.07898	153.849	4241.64	0.13660
6041	343.354	23.601	0.07467	158.367	3423.04	0.12914
6043	342.368	23.603	0.07484	156.592	3423.35	0.12944
6045	341.544	23.601	0.07485	155.109	3423.11	0.12945
6047	340.891	23.599	0.07498	153.934	3422.77	0.12968
6049	343.295	19.239	0.07149	158.261	2790.38	0.12364
6051	342.296	19.252	0.07128	156.463	2792.29	0.12328
6053	341.490	19.268	0.07176	155.012	2794.61	0.12411
6055	340.836	19.287	0.07221	153.835	2797.40	0.12489
6057	343.028	15.383	0.06816	157.780	2231.18	0.11788

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
6059	342.113	15.382	0.06817	156.133	2230.92	0.11790
6061	341.357	15.382	0.06854	154.773	2231.01	0.11854
6063	340.760	15.388	0.06870	153.698	2231.84	0.11882
6065	343.084	13.295	0.06614	157.881	1928.29	0.11439
6067	342.137	13.296	0.06629	156.177	1928.42	0.11465
6069	341.361	13.294	0.06663	154.780	1928.17	0.11524
6071	340.753	13.293	0.06667	153.685	1927.94	0.11531
6073	343.162	11.480	0.06418	158.022	1665.01	0.11100
6075	342.200	11.478	0.06435	156.290	1664.76	0.11129
6077	341.402	11.467	0.06456	154.854	1663.11	0.11166
6079	340.768	11.446	0.06474	153.712	1660.08	0.11197
6081	343.252	9.974	0.06240	158.184	1446.56	0.10792
6083	342.269	9.971	0.06257	156.414	1446.14	0.10821
6085	341.465	9.973	0.06311	154.967	1446.43	0.10915
6087	340.830	9.984	0.06313	153.824	1448.09	0.10918
6089	343.298	8.704	0.06076	158.266	1262.38	0.10508
6091	342.291	8.706	0.06096	156.454	1262.66	0.10543
6093	341.472	8.701	0.06149	154.980	1261.94	0.10635
6095	340.816	8.699	0.06166	153.799	1261.68	0.10664
6097	343.358	7.532	0.05905	158.374	1092.48	0.10213
6099	342.332	7.534	0.05932	156.528	1092.75	0.10259
6101	341.487	7.532	0.05990	155.007	1092.43	0.10360
6103	340.832	7.533	0.06014	153.828	1092.55	0.10401
6105	342.998	6.610	0.05775	157.726	958.71	0.09988
6107	342.146	6.611	0.05829	156.193	958.90	0.10081
6109	341.420	6.611	0.05842	154.886	958.84	0.10104
6111	340.834	6.613	0.05887	153.831	959.09	0.10182
6113	343.032	5.858	0.05637	157.788	849.63	0.09749
6115	342.155	5.857	0.05689	156.209	849.54	0.09839
6117	341.431	5.858	0.05712	154.906	849.63	0.09879
6119	340.846	5.858	0.05755	153.853	849.63	0.09953
6121	343.065	5.202	0.05506	157.847	754.48	0.09523
6123	342.179	5.203	0.05568	156.252	754.58	0.09630
6125	341.444	5.202	0.05591	154.929	754.47	0.09670
6127	340.844	5.202	0.05633	153.849	754.53	0.09742
6129	343.097	4.757	0.05404	157.905	689.98	0.09346
6131	342.205	4.758	0.05467	156.299	690.12	0.09455
6133	341.463	4.757	0.05499	154.963	689.98	0.09511
6135	340.872	4.758	0.05528	153.900	690.03	0.09561
6137	343.086	4.332	0.05298	157.885	628.26	0.09163
6139	342.191	4.332	0.05362	156.274	628.25	0.09274
6141	341.454	4.332	0.05402	154.947	628.35	0.09343
6143	340.854	4.331	0.05425	153.867	628.23	0.09383
6145	343.130	4.006	0.05212	157.964	581.00	0.09014
6147	342.243	4.006	0.05280	156.367	581.07	0.09132
6149	341.496	4.007	0.05320	155.023	581.13	0.09201
6151	340.902	4.007	0.05348	153.954	581.17	0.09249

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
6153	343.066	3.758	0.05216	157.849	545.07	0.09021
6155	342.195	3.759	0.05239	156.281	545.14	0.09061
6157	341.464	3.759	0.05263	154.965	545.25	0.09102
6159	340.867	3.760	0.05293	153.891	545.31	0.09154
7001	193.249	0.010	0.00807	-111.822	1.45	0.01396
7003	192.152	0.010	0.00768	-113.796	1.45	0.01328
7005	191.249	0.010	0.00744	-115.422	1.46	0.01287
7007	190.518	0.010	0.00701	-116.738	1.44	0.01212
7009	193.293	0.010	0.00856	-111.743	1.51	0.01480
7011	192.204	0.010	0.00804	-113.703	1.50	0.01391
7013	191.291	0.011	0.00790	-115.346	1.52	0.01366
7015	190.624	0.011	0.00767	-116.547	1.54	0.01327
7017	193.295	0.010	0.00919	-111.739	1.48	0.01589
7019	192.203	0.010	0.00858	-113.705	1.46	0.01484
7021	191.304	0.010	0.00826	-115.323	1.45	0.01429
7023	190.514	0.010	0.00802	-116.745	1.44	0.01387
7025	193.313	0.009	0.00889	-111.707	1.38	0.01538
7027	192.218	0.009	0.00850	-113.678	1.37	0.01470
7029	191.326	0.009	0.00802	-115.283	1.34	0.01387
7031	190.501	0.009	0.00789	-116.768	1.34	0.01365
7033	193.350	0.008	0.00862	-111.640	1.22	0.01491
7035	192.228	0.008	0.00853	-113.660	1.23	0.01475
7037	191.312	0.008	0.00814	-115.308	1.21	0.01408
7039	190.642	0.008	0.00785	-116.514	1.20	0.01358
7041	193.369	0.008	0.00871	-111.606	1.14	0.01506
7043	192.237	0.008	0.00845	-113.643	1.13	0.01461
7045	191.306	0.008	0.00847	-115.319	1.15	0.01465
7047	190.571	0.008	0.00858	-116.642	1.16	0.01484
7049	193.425	0.007	0.00807	-111.505	0.97	0.01396
7051	192.273	0.007	0.00799	-113.579	0.97	0.01382
7053	191.357	0.007	0.00803	-115.227	0.98	0.01389
7055	190.508	0.007	0.00802	-116.756	0.98	0.01387
7057	193.563	0.004	0.00657	-111.257	0.62	0.01136
7059	192.393	0.004	0.00633	-113.363	0.58	0.01095
7061	191.419	0.004	0.00622	-115.116	0.57	0.01076
7063	190.592	0.004	0.00620	-116.604	0.57	0.01072
7065	193.732	0.003	0.00626	-110.952	0.41	0.01083
7067	192.496	0.003	0.00621	-113.177	0.39	0.01074
7069	191.459	0.003	0.00619	-115.044	0.40	0.01071
7071	190.686	0.003	0.00618	-116.435	0.41	0.01069
7073	194.065	0.001	0.00666	-110.353	0.18	0.01152
7075	192.726	0.001	0.00664	-112.763	0.17	0.01148
7077	191.603	0.001	0.00663	-114.785	0.18	0.01147
7079	190.654	0.001	0.00658	-116.493	0.20	0.01138
8001	223.281	0.061	0.00839	-57.764	8.81	0.01451
8003	222.146	0.061	0.00826	-59.807	8.80	0.01429
8005	221.223	0.061	0.00817	-61.469	8.78	0.01413

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
8007	220.470	0.060	0.00811	-62.824	8.77	0.01403
8009	223.348	0.051	0.00863	-57.644	7.36	0.01493
8011	222.186	0.051	0.00853	-59.735	7.36	0.01475
8013	221.237	0.051	0.00848	-61.443	7.34	0.01467
8015	220.495	0.051	0.00839	-62.779	7.32	0.01451
8017	223.724	0.019	0.00918	-56.967	2.69	0.01588
8019	222.440	0.018	0.00907	-59.278	2.66	0.01569
8021	221.390	0.018	0.00903	-61.168	2.67	0.01562
8023	220.620	0.018	0.00929	-62.554	2.67	0.01607
9001	253.147	0.263	0.01040	-4.005	38.13	0.01799
9003	252.143	0.262	0.01025	-5.813	37.93	0.01773
9005	251.316	0.260	0.01016	-7.301	37.75	0.01757
9007	250.632	0.259	0.01010	-8.532	37.56	0.01747
9009	253.209	0.226	0.01057	-3.894	32.80	0.01828
9011	252.184	0.225	0.01048	-5.739	32.67	0.01813
9013	251.336	0.224	0.01035	-7.265	32.53	0.01790
9015	250.668	0.224	0.01050	-8.468	32.42	0.01816
9017	252.848	0.160	0.01049	-4.544	23.16	0.01814
9019	252.021	0.159	0.01037	-6.032	23.06	0.01793
9021	251.316	0.159	0.01034	-7.301	22.99	0.01788
9023	250.738	0.158	0.01039	-8.342	22.96	0.01797
9025	253.173	0.056	0.01090	-3.959	8.08	0.01885
9027	252.247	0.055	0.01079	-5.625	7.98	0.01866
9029	251.460	0.054	0.01065	-7.042	7.89	0.01842
9031	250.781	0.054	0.01083	-8.264	7.85	0.01873
10001	282.952	0.750	0.01334	49.644	108.83	0.02307
10003	282.069	0.747	0.01318	48.054	108.39	0.02279
10005	281.344	0.744	0.01332	46.749	107.89	0.02304
10007	280.744	0.739	0.01340	45.669	107.20	0.02318
10009	283.109	0.595	0.01336	49.926	86.27	0.02311
10011	282.176	0.594	0.01330	48.247	86.15	0.02300
10013	281.384	0.590	0.01333	46.821	85.59	0.02305
10015	280.756	0.587	0.01331	45.691	85.15	0.02302
10017	283.416	0.347	0.01317	50.479	50.27	0.02278
10019	282.399	0.344	0.01303	48.648	49.90	0.02254
10021	281.539	0.342	0.01317	47.100	49.61	0.02278
10023	280.849	0.340	0.01319	45.858	49.32	0.02281
10025	283.218	0.156	0.01317	50.122	22.61	0.02278
10027	282.189	0.153	0.01317	48.270	22.20	0.02278
10029	281.337	0.151	0.01318	46.737	21.86	0.02279
10031	280.670	0.149	0.01316	45.536	21.62	0.02276
10033	282.925	0.061	0.01379	49.595	8.88	0.02385
10035	282.055	0.061	0.01375	48.029	8.82	0.02378
10037	281.307	0.061	0.01378	46.683	8.80	0.02383
10039	280.675	0.061	0.01377	45.545	8.78	0.02382
11001	313.214	1.678	0.01770	104.115	243.36	0.03061
11003	312.277	1.677	0.01774	102.429	243.28	0.03068

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
11005	311.491	1.677	0.01776	101.014	243.29	0.03072
11007	310.858	1.677	0.01758	99.874	243.28	0.03040
11009	312.988	1.474	0.01719	103.708	213.80	0.02973
11011	312.176	1.474	0.01713	102.247	213.75	0.02963
11013	311.485	1.474	0.01712	101.003	213.75	0.02961
11015	310.898	1.474	0.01690	99.946	213.74	0.02923
11017	313.049	1.402	0.01695	103.818	203.27	0.02932
11019	312.233	1.395	0.01706	102.349	202.37	0.02951
11021	311.539	1.396	0.01698	101.100	202.46	0.02937
11023	310.927	1.397	0.01669	99.999	202.66	0.02887
11025	313.233	1.224	0.01667	104.149	177.51	0.02883
11027	312.227	1.224	0.01661	102.339	177.50	0.02873
11029	311.398	1.224	0.01654	100.846	177.50	0.02861
11031	310.737	1.224	0.01604	99.657	177.52	0.02774
11033	313.364	1.041	0.01643	104.385	150.95	0.02842
11035	312.312	1.041	0.01631	102.492	150.95	0.02821
11037	311.442	1.041	0.01625	100.926	150.92	0.02810
11039	310.744	1.041	0.01620	99.669	150.92	0.02802
11041	313.039	0.841	0.01614	103.800	121.99	0.02791
11043	312.156	0.841	0.01606	102.211	121.99	0.02778
11045	311.409	0.841	0.01596	100.866	121.99	0.02760
11047	310.804	0.841	0.01600	99.777	121.97	0.02767
11050	313.193	0.625	0.01595	104.077	90.58	0.02759
11052	312.261	0.625	0.01585	102.400	90.58	0.02741
11054	311.469	0.625	0.01583	100.974	90.60	0.02738
11056	310.838	0.625	0.01579	99.838	90.60	0.02731
11058	313.077	0.392	0.01588	103.869	56.86	0.02746
11060	312.144	0.392	0.01581	102.189	56.86	0.02734
11062	311.344	0.392	0.01570	100.749	56.84	0.02715
11064	310.717	0.392	0.01581	99.621	56.83	0.02734
11066	313.433	0.142	0.01613	104.509	20.57	0.02790
11068	312.388	0.142	0.01603	102.628	20.56	0.02772
11070	311.512	0.142	0.01591	101.052	20.55	0.02752
11072	310.780	0.142	0.01607	99.734	20.55	0.02779
11074	313.046	0.078	0.01699	103.813	11.36	0.02938
11076	312.190	0.078	0.01689	102.272	11.35	0.02921
11078	311.454	0.078	0.01676	100.947	11.35	0.02899
11080	310.849	0.078	0.01679	99.858	11.35	0.02904
13014	342.486	3.103	0.02697	156.805	450.13	0.04664
13015	341.592	3.102	0.02663	155.196	449.97	0.04606
13016	340.932	3.102	0.02751	154.008	449.94	0.04758
13017	343.687	3.033	0.02465	158.967	439.86	0.04263
13018	342.587	3.033	0.02479	156.987	439.84	0.04287
13019	341.679	3.032	0.02519	155.352	439.81	0.04357
13020	340.966	3.032	0.02542	154.069	439.82	0.04396
13021	343.026	2.925	0.02396	157.777	424.20	0.04144
13022	342.117	2.925	0.02422	156.141	424.18	0.04189

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
13023	341.368	2.924	0.02423	154.792	424.15	0.04191
13024	340.787	2.924	0.02426	153.747	424.16	0.04196
13025	343.074	2.868	0.02359	157.863	415.92	0.04080
13026	342.146	2.867	0.02382	156.193	415.85	0.04120
13027	341.378	2.867	0.02387	154.810	415.81	0.04128
13028	340.767	2.866	0.02380	153.711	415.75	0.04116
13029	343.222	2.734	0.02281	158.130	396.51	0.03945
13030	342.243	2.733	0.02291	156.367	396.44	0.03962
13031	341.430	2.733	0.02300	154.904	396.37	0.03978
13032	340.788	2.733	0.02285	153.748	396.33	0.03952
13033	343.333	2.658	0.02241	158.329	385.55	0.03876
13034	342.336	2.658	0.02248	156.535	385.50	0.03888
13035	341.502	2.658	0.02251	155.034	385.44	0.03893
13036	340.842	2.657	0.02243	153.846	385.38	0.03879
13037	343.222	2.528	0.02191	158.130	366.64	0.03789
13038	342.210	2.528	0.02196	156.308	366.64	0.03798
13039	341.384	2.528	0.02194	154.821	366.64	0.03795
13040	340.735	2.528	0.02202	153.653	366.68	0.03808
13041	343.338	2.395	0.02142	158.338	347.39	0.03705
13042	342.307	2.396	0.02140	156.483	347.50	0.03701
13043	341.439	2.395	0.02148	154.920	347.39	0.03715
13044	340.753	2.394	0.02146	153.685	347.27	0.03712
13045	343.070	2.259	0.02099	157.856	327.58	0.03630
13046	342.159	2.258	0.02097	156.216	327.50	0.03627
13047	341.393	2.257	0.02105	154.837	327.42	0.03641
13048	340.795	2.266	0.02183	153.761	328.63	0.03775
13049	343.191	2.195	0.02091	158.074	318.33	0.03616
13050	342.268	2.199	0.02106	156.412	318.99	0.03642
13051	343.099	2.227	0.02091	157.908	323.05	0.03616
13052	342.175	2.229	0.02087	156.245	323.24	0.03609
13053	341.405	2.230	0.02096	154.859	323.45	0.03625
13054	340.780	2.231	0.02086	153.734	323.63	0.03608
13055	343.291	1.953	0.02019	158.254	283.22	0.03492
13056	342.318	1.952	0.02012	156.502	283.18	0.03480
13057	341.501	1.952	0.02018	155.032	283.15	0.03490
13058	340.847	1.952	0.02002	153.855	283.12	0.03462
13059	343.399	1.772	0.01983	158.448	256.95	0.03430
13060	342.424	1.771	0.01977	156.693	256.87	0.03419
13061	341.571	1.770	0.01980	155.158	256.77	0.03424
13062	340.892	1.770	0.01959	153.936	256.71	0.03388
13063	343.171	1.616	0.01941	158.038	234.39	0.03357
13064	342.187	1.616	0.01939	156.267	234.37	0.03354
13065	341.385	1.615	0.01935	154.823	234.30	0.03347
13066	340.732	1.615	0.01955	153.648	234.25	0.03381
13067	343.279	1.405	0.01914	158.232	203.83	0.03310
13068	342.256	1.405	0.01910	156.391	203.78	0.03303
13069	341.407	1.404	0.01904	154.863	203.68	0.03293

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
13070	340.745	1.404	0.01929	153.671	203.66	0.03336
13072	343.368	1.287	0.01901	158.392	186.62	0.03288
13073	342.323	1.287	0.01900	156.511	186.60	0.03286
13074	341.462	1.287	0.01888	154.962	186.62	0.03265
13075	340.788	1.287	0.01902	153.748	186.62	0.03290
13077	343.055	1.057	0.01867	157.829	153.26	0.03229
13078	342.154	1.057	0.01863	156.207	153.27	0.03222
13079	341.403	1.057	0.01857	154.855	153.29	0.03212
13080	340.793	1.057	0.01872	153.757	153.27	0.03238
13082	343.222	0.813	0.01853	158.130	117.86	0.03205
13084	342.286	0.813	0.01848	156.445	117.87	0.03196
13086	341.496	0.813	0.01834	155.023	117.87	0.03172
13088	340.857	0.813	0.01858	153.873	117.88	0.03213
13090	343.387	0.581	0.01843	158.427	84.28	0.03187
13092	342.402	0.581	0.01844	156.654	84.28	0.03189
13094	341.576	0.581	0.01822	155.167	84.29	0.03151
13096	340.894	0.581	0.01839	153.939	84.28	0.03181
13098	342.860	0.323	0.01848	157.478	46.88	0.03196
13100	342.048	0.323	0.01837	156.016	46.90	0.03177
13102	341.357	0.323	0.01837	154.773	46.88	0.03177
13104	340.783	0.323	0.01832	153.739	46.89	0.03168
13106	343.480	0.041	0.01815	158.594	6.01	0.03139
13108	342.497	0.041	0.01820	156.825	6.02	0.03148
13110	341.664	0.042	0.01788	155.325	6.04	0.03092
13112	340.977	0.042	0.01801	154.089	6.03	0.03115
12001	370.790	66.648	0.08888	207.752	9666.55	0.15372
12003	370.956	66.648	0.08929	208.051	9666.55	0.15443
12005	371.123	66.649	0.08928	208.351	9666.62	0.15441
12007	371.300	66.650	0.08921	208.670	9666.74	0.15429
12009	371.494	66.650	0.08883	209.019	9666.81	0.15363
12011	371.690	66.651	0.08858	209.372	9667.01	0.15320
12013	371.901	66.654	0.08866	209.752	9667.31	0.15334
12015	372.127	66.655	0.08869	210.159	9667.53	0.15339
12017	372.357	66.655	0.08870	210.573	9667.48	0.15341
12019	372.601	66.655	0.08854	211.012	9667.52	0.15313
12021	370.794	59.348	0.08585	207.759	8607.74	0.14848
12022	370.969	59.350	0.08614	208.074	8607.99	0.14898
12023	371.154	59.348	0.08613	208.407	8607.80	0.14896
12024	371.336	59.348	0.08535	208.735	8607.77	0.14761
12025	371.542	59.349	0.08568	209.106	8607.93	0.14818
12026	371.746	59.350	0.08587	209.473	8608.06	0.14851
12027	371.970	59.351	0.08528	209.876	8608.18	0.14749
12028	372.196	59.352	0.08637	210.283	8608.28	0.14938
12029	372.436	59.353	0.08543	210.715	8608.42	0.14775
12030	372.690	59.354	0.08551	211.172	8608.59	0.14789
12031	370.824	52.382	0.08279	207.813	7597.34	0.14319
12032	371.018	52.382	0.08285	208.162	7597.33	0.14329

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12033	371.204	52.383	0.08291	208.497	7597.49	0.14339
12034	371.396	52.379	0.08216	208.843	7596.93	0.14210
12035	371.598	52.381	0.08260	209.206	7597.27	0.14286
12036	371.822	52.384	0.08277	209.610	7597.68	0.14315
12037	372.049	52.385	0.08254	210.018	7597.87	0.14275
12038	372.285	52.385	0.08265	210.443	7597.79	0.14294
12039	372.539	52.386	0.08215	210.900	7598.00	0.14208
12040	372.794	52.387	0.08203	211.359	7598.16	0.14187
12041	370.867	46.997	0.08110	207.891	6816.38	0.14026
12042	371.066	46.997	0.08017	208.249	6816.43	0.13865
12043	371.251	46.997	0.08051	208.582	6816.38	0.13924
12044	371.455	46.998	0.07987	208.949	6816.50	0.13814
12045	371.653	46.999	0.08048	209.305	6816.65	0.13919
12046	371.892	46.999	0.07956	209.736	6816.65	0.13760
12047	372.128	47.001	0.07987	210.160	6816.89	0.13814
12048	372.357	47.002	0.07967	210.573	6817.03	0.13779
12049	372.626	47.002	0.07984	211.057	6817.05	0.13808
12050	372.897	47.003	0.07967	211.545	6817.20	0.13779
12051	370.919	42.154	0.07795	207.984	6113.94	0.13481
12052	371.100	42.154	0.07778	208.310	6114.00	0.13452
12053	371.309	42.155	0.07770	208.686	6114.08	0.13438
12054	371.511	42.155	0.07749	209.050	6114.04	0.13402
12055	371.729	42.156	0.07742	209.442	6114.21	0.13390
12056	371.965	42.156	0.07735	209.867	6114.21	0.13378
12057	372.200	42.156	0.07729	210.290	6114.29	0.13367
12058	372.449	42.157	0.07707	210.738	6114.42	0.13329
12059	372.722	42.158	0.07710	211.230	6114.52	0.13334
12060	372.990	42.159	0.07715	211.712	6114.61	0.13343
12061	370.964	37.900	0.07559	208.065	5496.96	0.13073
12062	371.157	37.901	0.07547	208.413	5497.03	0.13053
12063	371.358	37.901	0.07512	208.774	5497.02	0.12992
12064	371.576	37.901	0.07531	209.167	5497.12	0.13025
12065	371.804	37.903	0.07523	209.577	5497.41	0.13011
12066	372.036	37.905	0.07504	209.995	5497.61	0.12978
12067	372.292	37.905	0.07491	210.456	5497.73	0.12956
12068	372.554	37.906	0.07480	210.927	5497.84	0.12937
12069	372.814	37.908	0.07490	211.395	5498.10	0.12954
12070	373.107	37.907	0.07520	211.923	5498.04	0.13006
12071	370.962	34.139	0.07340	208.062	4951.40	0.12695
12072	371.157	34.139	0.07319	208.413	4951.47	0.12658
12073	371.369	34.139	0.07292	208.794	4951.44	0.12612
12074	371.597	34.139	0.07309	209.205	4951.48	0.12641
12075	371.827	34.140	0.07313	209.619	4951.54	0.12648
12076	372.066	34.140	0.07286	210.049	4951.63	0.12601
12077	372.318	34.141	0.07280	210.502	4951.73	0.12591
12078	372.584	34.142	0.07251	210.981	4951.85	0.12541
12079	372.858	34.142	0.07253	211.474	4951.92	0.12544

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot Wire Experiments (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)
12080	373.161	34.143	0.07256	212.020	4951.99	0.12549
12081	370.818	30.655	0.07099	207.802	4446.14	0.12278
12082	371.014	30.655	0.07118	208.155	4446.18	0.12311
12083	371.215	30.656	0.07103	208.517	4446.22	0.12285
12084	371.424	30.656	0.07071	208.893	4446.25	0.12229
12085	371.650	30.656	0.07096	209.300	4446.34	0.12273
12086	371.882	30.657	0.07094	209.718	4446.41	0.12269
12087	372.132	30.658	0.07073	210.168	4446.59	0.12233
12088	372.391	30.658	0.07059	210.634	4446.57	0.12209
12089	372.661	30.658	0.07038	211.120	4446.63	0.12172
12090	372.952	30.659	0.07039	211.644	4446.67	0.12174
12091	370.843	27.059	0.06885	207.847	3924.62	0.11908
12092	371.040	27.059	0.06881	208.202	3924.60	0.11901
12093	371.251	27.060	0.06871	208.582	3924.68	0.11883
12094	371.467	27.060	0.06864	208.971	3924.80	0.11871
12095	371.702	27.062	0.06871	209.394	3925.04	0.11883
12096	371.940	27.063	0.06857	209.822	3925.13	0.11859
12097	372.196	27.064	0.06846	210.283	3925.30	0.11840
12098	372.475	27.064	0.06843	210.785	3925.35	0.11835
12099	372.766	27.065	0.06815	211.309	3925.44	0.11787
12100	373.051	27.066	0.06806	211.822	3925.54	0.11771
12101	370.873	24.405	0.06706	207.901	3539.60	0.11598
12102	371.084	24.406	0.06695	208.281	3539.82	0.11579
12103	371.291	24.407	0.06693	208.654	3539.88	0.11576
12104	371.518	24.407	0.06658	209.062	3539.97	0.11515
12105	371.755	24.408	0.06688	209.489	3540.04	0.11567
12106	372.005	24.409	0.06660	209.939	3540.20	0.11518
12107	372.269	24.410	0.06664	210.414	3540.39	0.11525
12108	372.552	24.411	0.06651	210.924	3540.56	0.11503
12109	372.836	24.412	0.06633	211.435	3540.62	0.11472
12110	373.140	24.413	0.06621	211.982	3540.87	0.11451
12111	370.911	21.928	0.06515	207.970	3180.38	0.11268
12112	371.125	21.927	0.06521	208.355	3180.25	0.11278
12113	371.335	21.927	0.06511	208.733	3180.20	0.11261
12114	371.570	21.925	0.06489	209.156	3180.00	0.11223
12115	371.815	21.924	0.06505	209.597	3179.85	0.11250
12116	372.071	21.923	0.06488	210.058	3179.72	0.11221
12117	372.345	21.923	0.06483	210.551	3179.71	0.11212
12118	372.625	21.923	0.06466	211.055	3179.66	0.11183
12119	372.931	21.924	0.06465	211.606	3179.82	0.11181
12120	373.230	21.922	0.06453	212.144	3179.47	0.11160
12121	370.947	19.815	0.06342	208.035	2873.98	0.10968
12122	371.168	19.817	0.06336	208.432	2874.15	0.10958
12123	371.392	19.822	0.06347	208.836	2874.88	0.10977
12124	371.621	19.818	0.06322	209.248	2874.42	0.10934
12125	371.871	19.817	0.06330	209.698	2874.26	0.10948
12126	372.134	19.819	0.06316	210.171	2874.49	0.10924

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12127	372.412	19.818	0.06316	210.672	2874.41	0.10924
12128	372.702	19.816	0.06293	211.194	2874.07	0.10884
12129	373.003	19.815	0.06295	211.735	2873.98	0.10887
12130	373.328	19.815	0.06300	212.320	2874.00	0.10896
12131	371.005	17.808	0.06172	208.139	2582.91	0.10674
12132	371.220	17.808	0.06164	208.526	2582.80	0.10661
12133	371.450	17.808	0.06157	208.940	2582.77	0.10649
12134	371.693	17.806	0.06148	209.377	2582.57	0.10633
12135	371.952	17.805	0.06151	209.844	2582.46	0.10638
12136	372.210	17.805	0.06154	210.308	2582.42	0.10643
12137	372.499	17.804	0.06137	210.828	2582.26	0.10614
12138	372.790	17.804	0.06123	211.352	2582.33	0.10590
12139	373.114	17.804	0.06121	211.935	2582.21	0.10586
12140	373.448	17.803	0.06111	212.536	2582.15	0.10569
12141	370.842	16.190	0.05974	207.846	2348.19	0.10332
12142	371.054	16.190	0.06033	208.227	2348.11	0.10434
12143	371.267	16.190	0.06008	208.611	2348.11	0.10391
12144	371.506	16.190	0.05990	209.041	2348.14	0.10360
12145	371.743	16.189	0.06015	209.467	2348.03	0.10403
12146	372.013	16.189	0.06006	209.953	2348.10	0.10387
12147	372.284	16.189	0.05993	210.441	2348.04	0.10365
12148	372.577	16.190	0.05980	210.969	2348.11	0.10342
12149	372.874	16.189	0.05973	211.503	2348.06	0.10330
12150	373.198	16.190	0.05976	212.086	2348.18	0.10335
12151	370.697	14.682	0.05871	207.585	2129.42	0.10154
12152	370.896	14.682	0.05836	207.943	2129.40	0.10093
12153	371.103	14.681	0.05854	208.315	2129.37	0.10124
12154	371.327	14.681	0.05857	208.719	2129.34	0.10130
12155	371.551	14.682	0.05836	209.122	2129.52	0.10093
12156	371.813	14.682	0.05856	209.593	2129.41	0.10128
12157	372.071	14.682	0.05855	210.058	2129.42	0.10126
12158	372.354	14.683	0.05859	210.567	2129.55	0.10133
12159	372.646	14.682	0.05818	211.093	2129.52	0.10062
12160	372.962	14.682	0.05827	211.662	2129.50	0.10078
12161	370.736	13.229	0.05715	207.655	1918.65	0.09884
12162	370.934	13.228	0.05691	208.011	1918.63	0.09843
12163	371.145	13.228	0.05714	208.391	1918.51	0.09882
12164	371.367	13.228	0.05696	208.791	1918.52	0.09851
12165	371.620	13.227	0.05671	209.246	1918.49	0.09808
12166	371.872	13.229	0.05691	209.700	1918.78	0.09843
12167	372.138	13.229	0.05682	210.178	1918.72	0.09827
12168	372.437	13.228	0.05680	210.717	1918.62	0.09824
12169	372.727	13.228	0.05672	211.239	1918.58	0.09810
12170	373.053	13.230	0.05673	211.825	1918.81	0.09811
12171	370.598	12.120	0.05587	207.406	1757.83	0.09663
12172	370.746	12.119	0.05567	207.673	1757.77	0.09628
12173	370.898	12.121	0.05538	207.946	1757.94	0.09578

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12174	371.076	12.120	0.05568	208.267	1757.93	0.09630
12175	371.242	12.120	0.05562	208.566	1757.84	0.09619
12176	371.431	12.118	0.05577	208.906	1757.63	0.09645
12177	371.618	12.118	0.05542	209.242	1757.62	0.09585
12178	371.823	12.118	0.05557	209.611	1757.59	0.09611
12179	372.045	12.118	0.05556	210.011	1757.57	0.09609
12180	372.261	12.117	0.05547	210.400	1757.45	0.09594
12181	370.602	11.233	0.05488	207.414	1629.27	0.09491
12182	370.775	11.233	0.05457	207.725	1629.23	0.09438
12183	370.928	11.233	0.05428	208.000	1629.23	0.09388
12184	371.093	11.233	0.05459	208.297	1629.24	0.09441
12185	371.272	11.233	0.05461	208.620	1629.21	0.09445
12186	371.469	11.233	0.05454	208.974	1629.16	0.09433
12187	371.663	11.233	0.05423	209.323	1629.25	0.09379
12188	371.868	11.232	0.05445	209.692	1629.10	0.09417
12189	372.090	11.232	0.05446	210.092	1629.12	0.09419
12190	372.320	11.232	0.05433	210.506	1629.07	0.09396
12191	370.429	10.362	0.05337	207.102	1502.88	0.09230
12192	370.579	10.362	0.05360	207.372	1502.85	0.09270
12193	370.733	10.362	0.05325	207.649	1502.83	0.09210
12194	370.885	10.362	0.05303	207.923	1502.86	0.09172
12195	371.050	10.361	0.05338	208.220	1502.79	0.09232
12196	371.240	10.362	0.05332	208.562	1502.82	0.09222
12197	371.418	10.362	0.05329	208.882	1502.87	0.09217
12198	371.627	10.362	0.05317	209.259	1502.91	0.09196
12199	371.833	10.362	0.05317	209.629	1502.89	0.09196
12200	372.043	10.363	0.05330	210.007	1502.96	0.09218
12201	370.515	9.662	0.05202	207.257	1401.41	0.08997
12202	370.668	9.662	0.05241	207.532	1401.32	0.09064
12203	370.815	9.661	0.05225	207.797	1401.25	0.09037
12204	370.976	9.662	0.05191	208.087	1401.30	0.08978
12205	371.145	9.662	0.05252	208.391	1401.29	0.09083
12206	371.325	9.662	0.05225	208.715	1401.32	0.09037
12207	371.511	9.662	0.05223	209.050	1401.32	0.09033
12208	371.716	9.662	0.05206	209.419	1401.39	0.09004
12209	371.926	9.662	0.05220	209.797	1401.41	0.09028
12210	372.152	9.662	0.05225	210.204	1401.42	0.09037
12211	370.368	9.059	0.05129	206.992	1313.85	0.08871
12212	370.464	9.059	0.05177	207.165	1313.89	0.08954
12213	370.572	9.059	0.05123	207.360	1313.89	0.08860
12214	370.676	9.059	0.05146	207.547	1313.94	0.08900
12215	370.783	9.059	0.05131	207.739	1313.96	0.08874
12216	370.905	9.060	0.05124	207.959	1313.98	0.08862
12217	371.026	9.060	0.05102	208.177	1314.01	0.08824
12218	371.156	9.060	0.05122	208.411	1314.05	0.08858
12219	371.298	9.060	0.05108	208.666	1314.05	0.08834
12220	371.436	9.060	0.05121	208.915	1314.08	0.08857

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12221	370.366	8.558	0.05054	206.989	1241.27	0.08741
12222	370.474	8.558	0.05084	207.183	1241.29	0.08793
12223	370.574	8.558	0.05039	207.363	1241.30	0.08715
12224	370.681	8.558	0.05042	207.556	1241.29	0.08720
12225	370.793	8.558	0.05030	207.757	1241.29	0.08699
12226	370.909	8.559	0.05040	207.966	1241.33	0.08717
12227	371.036	8.559	0.05017	208.195	1241.37	0.08677
12228	371.171	8.559	0.05032	208.438	1241.39	0.08703
12229	371.303	8.559	0.05033	208.675	1241.38	0.08705
12230	371.440	8.559	0.05048	208.922	1241.40	0.08731
12231	370.376	8.100	0.04950	207.007	1174.74	0.08561
12232	370.471	8.100	0.04955	207.178	1174.76	0.08570
12233	370.577	8.100	0.04949	207.369	1174.80	0.08559
12234	370.681	8.100	0.04962	207.556	1174.85	0.08582
12235	370.803	8.101	0.04941	207.775	1174.89	0.08545
12236	370.917	8.101	0.04927	207.981	1174.90	0.08521
12237	371.051	8.101	0.04913	208.222	1174.93	0.08497
12238	371.187	8.101	0.04941	208.467	1174.97	0.08545
12239	371.325	8.102	0.04939	208.715	1175.04	0.08542
12240	371.460	8.102	0.04947	208.958	1175.07	0.08556
12241	370.331	7.705	0.04865	206.926	1117.56	0.08414
12242	370.436	7.705	0.04896	207.115	1117.55	0.08468
12243	370.543	7.705	0.04845	207.307	1117.54	0.08379
12244	370.656	7.705	0.04876	207.511	1117.55	0.08433
12245	370.329	7.705	0.04832	206.922	1117.55	0.08357
12246	370.439	7.705	0.04882	207.120	1117.58	0.08443
12247	370.540	7.706	0.04836	207.302	1117.61	0.08364
12248	370.649	7.705	0.04874	207.498	1117.58	0.08430
12249	370.761	7.706	0.04843	207.700	1117.61	0.08376
12250	370.887	7.705	0.04844	207.927	1117.58	0.08378
12251	371.013	7.706	0.04837	208.153	1117.61	0.08366
12252	371.147	7.706	0.04864	208.395	1117.65	0.08412
12253	371.289	7.706	0.04857	208.650	1117.64	0.08400
12254	371.433	7.706	0.04876	208.909	1117.62	0.08433
12255	370.218	7.416	0.04786	206.722	1075.65	0.08277
12256	370.324	7.416	0.04793	206.913	1075.66	0.08289
12257	370.424	7.416	0.04801	207.093	1075.66	0.08303
12258	370.526	7.416	0.04783	207.277	1075.64	0.08272
12259	370.642	7.416	0.04795	207.486	1075.61	0.08293
12260	370.765	7.416	0.04769	207.707	1075.65	0.08248
12261	370.877	7.416	0.04795	207.909	1075.63	0.08293
12262	370.998	7.416	0.04786	208.126	1075.65	0.08277
12263	371.144	7.416	0.04790	208.389	1075.66	0.08284
12264	371.279	7.416	0.04803	208.632	1075.67	0.08307
12265	370.261	7.129	0.04701	206.800	1033.92	0.08130
12266	370.352	7.129	0.04723	206.964	1033.92	0.08168
12267	370.451	7.129	0.04695	207.142	1033.93	0.08120

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12268	370.557	7.129	0.04702	207.333	1033.97	0.08132
12269	370.667	7.129	0.04708	207.531	1033.97	0.08142
12270	370.789	7.129	0.04697	207.750	1033.98	0.08123
12271	370.914	7.129	0.04678	207.975	1034.00	0.08091
12272	371.038	7.129	0.04715	208.198	1034.01	0.08155
12273	371.179	7.129	0.04728	208.452	1034.01	0.08177
12274	371.310	7.129	0.04734	208.688	1034.04	0.08187
12275	370.243	6.876	0.04658	206.767	997.29	0.08056
12276	370.342	6.876	0.04628	206.946	997.26	0.08004
12277	370.447	6.876	0.04600	207.135	997.26	0.07956
12278	370.556	6.876	0.04640	207.331	997.25	0.08025
12279	370.679	6.876	0.04652	207.552	997.24	0.08046
12280	370.784	6.876	0.04635	207.741	997.22	0.08016
12281	370.902	6.876	0.04619	207.954	997.21	0.07989
12282	371.042	6.875	0.04643	208.206	997.19	0.08030
12283	371.181	6.875	0.04664	208.456	997.19	0.08066
12284	371.321	6.875	0.04678	208.708	997.16	0.08091
12285	370.274	6.694	0.04529	206.823	970.83	0.07833
12286	370.334	6.694	0.04580	206.931	970.93	0.07921
12287	370.399	6.694	0.04575	207.048	970.93	0.07912
12288	370.465	6.694	0.04574	207.167	970.95	0.07911
12289	370.538	6.694	0.04538	207.298	970.96	0.07848
12290	370.610	6.695	0.04571	207.428	970.98	0.07906
12291	370.682	6.695	0.04584	207.558	971.00	0.07928
12292	370.764	6.695	0.04579	207.705	971.01	0.07919
12293	370.839	6.695	0.04573	207.840	971.01	0.07909
12294	370.916	6.695	0.04571	207.979	971.02	0.07906
12295	370.266	6.540	0.04462	206.809	948.57	0.07717
12296	370.334	6.540	0.04522	206.931	948.52	0.07821
12297	370.399	6.540	0.04519	207.048	948.50	0.07816
12298	370.467	6.540	0.04525	207.171	948.54	0.07826
12299	370.539	6.540	0.04477	207.300	948.54	0.07743
12300	370.610	6.540	0.04494	207.428	948.55	0.07772
12301	370.688	6.540	0.04529	207.568	948.56	0.07833
12302	370.755	6.540	0.04518	207.689	948.55	0.07814
12303	370.849	6.540	0.04520	207.858	948.56	0.07817
12304	370.922	6.540	0.04524	207.990	948.60	0.07824
12305	370.219	6.397	0.04445	206.724	927.79	0.07688
12306	370.292	6.397	0.04404	206.856	927.81	0.07617
12307	370.357	6.397	0.04487	206.973	927.83	0.07760
12308	370.413	6.398	0.04451	207.073	927.89	0.07698
12309	370.483	6.398	0.04479	207.199	927.88	0.07746
12310	370.552	6.398	0.04430	207.324	927.90	0.07662
12311	370.619	6.398	0.04450	207.444	927.91	0.07696
12312	370.693	6.398	0.04455	207.577	927.95	0.07705
12313	370.770	6.398	0.04474	207.716	927.96	0.07738
12314	370.863	6.398	0.04471	207.883	927.97	0.07733

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12315	370.232	6.242	0.04357	206.748	905.32	0.07535
12316	370.289	6.242	0.04343	206.850	905.35	0.07511
12317	370.362	6.242	0.04391	206.982	905.38	0.07594
12318	370.427	6.242	0.04389	207.099	905.38	0.07591
12319	370.489	6.242	0.04395	207.210	905.38	0.07601
12320	370.567	6.243	0.04364	207.351	905.43	0.07548
12321	370.629	6.243	0.04390	207.462	905.42	0.07593
12322	370.700	6.243	0.04406	207.590	905.44	0.07620
12323	370.787	6.243	0.04398	207.747	905.45	0.07606
12324	370.860	6.243	0.04400	207.878	905.48	0.07610
12325	370.164	6.132	0.04310	206.625	889.36	0.07454
12326	370.230	6.132	0.04343	206.744	889.36	0.07511
12327	370.283	6.132	0.04289	206.839	889.38	0.07418
12328	370.351	6.132	0.04346	206.962	889.38	0.07516
12329	370.415	6.132	0.04327	207.077	889.39	0.07484
12330	370.479	6.132	0.04333	207.192	889.39	0.07494
12331	370.553	6.132	0.04307	207.325	889.39	0.07449
12332	370.615	6.132	0.04328	207.437	889.40	0.07485
12333	370.689	6.132	0.04360	207.570	889.41	0.07541
12334	370.772	6.132	0.04360	207.720	889.42	0.07541
12335	370.142	6.061	0.04311	206.586	879.12	0.07456
12336	370.200	6.061	0.04282	206.690	879.12	0.07406
12337	370.272	6.061	0.04244	206.820	879.14	0.07340
12338	370.326	6.062	0.04295	206.917	879.16	0.07428
12339	370.390	6.062	0.04281	207.032	879.17	0.07404
12340	370.450	6.061	0.04295	207.140	879.15	0.07428
12341	370.533	6.061	0.04300	207.289	879.15	0.07437
12342	370.593	6.062	0.04293	207.397	879.17	0.07425
12343	370.677	6.062	0.04318	207.549	879.17	0.07468
12344	370.743	6.062	0.04321	207.667	879.20	0.07473
12345	370.062	5.974	0.04193	206.442	866.49	0.07252
12346	370.200	5.974	0.04232	206.690	866.50	0.07319
12347	370.206	5.974	0.04266	206.701	866.50	0.07378
12348	370.268	5.974	0.04191	206.812	866.50	0.07248
12349	370.336	5.974	0.04254	206.935	866.52	0.07357
12350	370.389	5.974	0.04245	207.030	866.50	0.07342
12351	370.452	5.974	0.04240	207.144	866.51	0.07333
12352	370.532	5.974	0.04225	207.288	866.52	0.07307
12353	370.594	5.975	0.04245	207.399	866.53	0.07342
12354	370.672	5.975	0.04270	207.540	866.53	0.07385
12355	370.108	5.882	0.04189	206.524	853.19	0.07245
12356	370.181	5.883	0.04190	206.656	853.22	0.07247
12357	370.227	5.883	0.04109	206.739	853.22	0.07107
12358	370.290	5.883	0.04168	206.852	853.21	0.07209
12359	370.352	5.883	0.04191	206.964	853.23	0.07248
12360	370.420	5.883	0.04165	207.086	853.24	0.07203
12361	370.490	5.883	0.04202	207.212	853.25	0.07267

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12362	370.559	5.883	0.04154	207.336	853.24	0.07184
12363	370.631	5.883	0.04197	207.466	853.24	0.07259
12364	370.702	5.883	0.04225	207.594	853.25	0.07307
12365	370.092	5.806	0.04153	206.496	842.14	0.07183
12366	370.159	5.806	0.04142	206.616	842.15	0.07164
12367	370.219	5.806	0.04055	206.724	842.13	0.07013
12368	370.285	5.806	0.04137	206.843	842.15	0.07155
12369	370.348	5.807	0.04118	206.956	842.17	0.07122
12370	370.414	5.806	0.04140	207.075	842.16	0.07160
12371	370.482	5.806	0.04141	207.198	842.16	0.07162
12372	370.550	5.807	0.04117	207.320	842.17	0.07120
12373	370.633	5.807	0.04141	207.469	842.18	0.07162
12374	370.705	5.807	0.04174	207.599	842.17	0.07219
12375	370.080	5.734	0.04070	206.474	831.68	0.07039
12376	370.142	5.734	0.04079	206.586	831.68	0.07055
12377	370.204	5.734	0.03996	206.697	831.68	0.06911
12378	370.266	5.734	0.04059	206.809	831.67	0.07020
12379	370.334	5.734	0.04095	206.931	831.67	0.07082
12380	370.400	5.734	0.04080	207.050	831.70	0.07056
12381	370.473	5.734	0.04083	207.181	831.69	0.07062
12382	370.553	5.734	0.04070	207.325	831.70	0.07039
12383	370.620	5.734	0.04097	207.446	831.67	0.07086
12384	370.694	5.734	0.04124	207.579	831.68	0.07132
12385	370.102	5.659	0.03992	206.514	820.83	0.06904
12386	370.170	5.659	0.04021	206.636	820.83	0.06954
12387	370.240	5.659	0.03930	206.762	820.83	0.06797
12388	370.300	5.660	0.04012	206.870	820.86	0.06939
12389	370.365	5.659	0.03994	206.987	820.84	0.06908
12390	370.440	5.660	0.04020	207.122	820.87	0.06953
12391	370.516	5.659	0.03995	207.259	820.84	0.06909
12392	370.586	5.659	0.04012	207.385	820.84	0.06939
12393	370.669	5.660	0.04053	207.534	820.85	0.07010
12394	370.750	5.659	0.04052	207.680	820.84	0.07008
12395	370.042	5.582	0.03918	206.406	809.67	0.06776
12396	370.103	5.583	0.03948	206.515	809.68	0.06828
12397	370.170	5.583	0.03959	206.636	809.69	0.06847
12398	370.238	5.582	0.03876	206.758	809.66	0.06704
12399	370.306	5.582	0.03945	206.881	809.67	0.06823
12400	370.369	5.582	0.03952	206.994	809.66	0.06835
12401	370.442	5.582	0.03940	207.126	809.67	0.06814
12402	370.513	5.583	0.03935	207.253	809.68	0.06806
12403	370.593	5.582	0.03964	207.397	809.67	0.06856
12404	370.662	5.583	0.03993	207.522	809.68	0.06906
12405	370.022	5.501	0.03837	206.370	797.83	0.06636
12406	370.096	5.501	0.03877	206.503	797.82	0.06705
12407	370.154	5.501	0.03897	206.607	797.81	0.06740
12408	370.222	5.501	0.03823	206.730	797.81	0.06612

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12409	370.293	5.501	0.03861	206.857	797.80	0.06678
12410	370.363	5.501	0.03873	206.983	797.81	0.06698
12411	370.437	5.501	0.03903	207.117	797.81	0.06750
12412	370.519	5.501	0.03882	207.264	797.83	0.06714
12413	370.592	5.501	0.03911	207.396	797.82	0.06764
12414	370.679	5.501	0.03922	207.552	797.82	0.06783
12415	370.044	5.424	0.03760	206.409	786.67	0.06503
12416	370.114	5.424	0.03788	206.535	786.69	0.06551
12417	370.188	5.424	0.03845	206.668	786.67	0.06650
12418	370.254	5.424	0.03773	206.787	786.70	0.06525
12419	370.323	5.424	0.03830	206.911	786.68	0.06624
12420	370.408	5.424	0.03817	207.064	786.69	0.06602
12421	370.477	5.424	0.03831	207.189	786.70	0.06626
12422	370.557	5.424	0.03785	207.333	786.70	0.06546
12423	370.649	5.424	0.03843	207.498	786.68	0.06646
12424	370.739	5.424	0.03885	207.660	786.70	0.06719
12425	370.100	5.338	0.03782	206.510	774.23	0.06541
12426	370.155	5.338	0.03749	206.609	774.21	0.06484
12427	370.245	5.338	0.03688	206.771	774.22	0.06378
12428	370.311	5.338	0.03723	206.890	774.22	0.06439
12429	370.381	5.338	0.03727	207.016	774.23	0.06446
12430	370.462	5.338	0.03755	207.162	774.24	0.06494
12431	370.546	5.338	0.03735	207.313	774.23	0.06460
12432	370.628	5.338	0.03741	207.460	774.25	0.06470
12433	370.714	5.338	0.03777	207.615	774.25	0.06532
12434	370.809	5.338	0.03782	207.786	774.27	0.06541
12435	370.197	5.229	0.03624	206.685	758.44	0.06268
12436	370.256	5.229	0.03648	206.791	758.45	0.06309
12437	370.339	5.229	0.03614	206.940	758.45	0.06250
12438	370.405	5.229	0.03618	207.059	758.46	0.06257
12439	370.482	5.229	0.03654	207.198	758.45	0.06320
12440	370.553	5.229	0.03642	207.325	758.44	0.06299
12441	370.635	5.229	0.03672	207.473	758.47	0.06351
12442	370.711	5.229	0.03632	207.610	758.47	0.06282
12443	370.808	5.229	0.03653	207.784	758.44	0.06318
12444	370.896	5.229	0.03676	207.943	758.45	0.06358
12445	370.196	5.119	0.03581	206.683	742.47	0.06193
12446	370.270	5.119	0.03544	206.816	742.47	0.06129
12447	370.346	5.119	0.03498	206.953	742.49	0.06050
12448	370.420	5.119	0.03519	207.086	742.46	0.06086
12449	370.495	5.119	0.03577	207.221	742.45	0.06186
12450	370.579	5.119	0.03554	207.372	742.48	0.06147
12451	370.659	5.119	0.03561	207.516	742.46	0.06159
12452	370.742	5.119	0.03533	207.666	742.39	0.06110
12453	370.833	5.117	0.03558	207.829	742.18	0.06154
12454	370.936	5.118	0.03565	208.015	742.34	0.06166
12455	370.198	5.008	0.03485	206.686	726.34	0.06027

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12456	370.262	5.008	0.03414	206.802	726.32	0.05905
12457	370.353	5.008	0.03406	206.965	726.34	0.05891
12458	370.421	5.008	0.03437	207.088	726.33	0.05944
12459	370.509	5.008	0.03444	207.246	726.32	0.05956
12460	370.596	5.008	0.03464	207.403	726.31	0.05991
12461	370.680	5.008	0.03432	207.554	726.31	0.05936
12462	370.775	5.008	0.03456	207.725	726.29	0.05977
12463	370.874	5.008	0.03469	207.903	726.30	0.06000
12464	370.967	5.008	0.03471	208.071	726.30	0.06003
12465	370.198	4.877	0.03377	206.686	707.30	0.05841
12466	370.290	4.877	0.03361	206.852	707.28	0.05813
12467	370.364	4.877	0.03312	206.985	707.28	0.05728
12468	370.459	4.877	0.03366	207.156	707.29	0.05821
12469	370.548	4.876	0.03339	207.316	707.22	0.05775
12470	370.624	4.876	0.03363	207.453	707.24	0.05816
12471	370.719	4.876	0.03326	207.624	707.25	0.05752
12472	370.826	4.876	0.03347	207.817	707.24	0.05789
12473	370.925	4.876	0.03368	207.995	707.23	0.05825
12474	371.033	4.876	0.03354	208.189	707.26	0.05801
12475	370.231	4.741	0.03240	206.746	687.62	0.05604
12476	370.300	4.741	0.03259	206.870	687.63	0.05636
12477	370.394	4.741	0.03206	207.039	687.59	0.05545
12478	370.474	4.741	0.03253	207.183	687.60	0.05626
12479	370.571	4.741	0.03242	207.358	687.60	0.05607
12480	370.661	4.741	0.03259	207.520	687.63	0.05636
12481	370.766	4.741	0.03226	207.709	687.63	0.05579
12482	370.871	4.741	0.03244	207.898	687.66	0.05610
12483	370.973	4.741	0.03250	208.081	687.65	0.05621
12484	371.090	4.741	0.03243	208.292	687.65	0.05609
12485	370.249	4.584	0.03124	206.778	664.81	0.05403
12486	370.340	4.584	0.03162	206.942	664.80	0.05469
12487	370.432	4.584	0.03107	207.108	664.81	0.05374
12488	370.515	4.584	0.03143	207.257	664.79	0.05436
12489	370.617	4.584	0.03140	207.441	664.78	0.05431
12490	370.719	4.584	0.03113	207.624	664.79	0.05384
12491	370.824	4.584	0.03133	207.813	664.79	0.05419
12492	370.930	4.584	0.03158	208.004	664.79	0.05462
12493	371.054	4.583	0.03119	208.227	664.71	0.05394
12494	371.172	4.583	0.03123	208.440	664.70	0.05401
12495	370.310	4.420	0.03025	206.888	641.02	0.05232
12496	370.410	4.420	0.02978	207.068	641.01	0.05150
12497	370.501	4.420	0.03025	207.232	641.02	0.05232
12498	370.599	4.420	0.03030	207.408	641.03	0.05240
12499	370.703	4.420	0.03026	207.595	641.01	0.05233
12500	370.806	4.420	0.03017	207.781	641.06	0.05218
12501	370.918	4.420	0.03030	207.982	641.02	0.05240
12502	371.030	4.420	0.03019	208.184	641.02	0.05221

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot Wire Experiments (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)
12503	371.157	4.420	0.03010	208.413	641.01	0.05206
12504	371.282	4.419	0.03044	208.638	640.99	0.05265
12505	370.348	4.206	0.02922	206.956	609.99	0.05054
12507	370.455	4.205	0.02851	207.149	609.96	0.04931
12509	370.550	4.205	0.02906	207.320	609.85	0.05026
12511	370.659	4.205	0.02905	207.516	609.89	0.05024
12513	370.764	4.205	0.02882	207.705	609.87	0.04984
12515	370.866	4.205	0.02892	207.889	609.87	0.05002
12517	370.997	4.205	0.02910	208.125	609.87	0.05033
12519	371.129	4.205	0.02876	208.362	609.90	0.04974
12521	371.251	4.205	0.02887	208.582	609.90	0.04993
12523	371.394	4.205	0.02892	208.839	609.90	0.05002
12525	370.375	4.022	0.02797	207.005	583.36	0.04837
12527	370.475	4.022	0.02744	207.185	583.36	0.04746
12529	370.585	4.022	0.02815	207.383	583.37	0.04869
12531	370.680	4.022	0.02796	207.554	583.40	0.04836
12533	370.793	4.022	0.02801	207.757	583.40	0.04844
12535	370.911	4.023	0.02791	207.970	583.47	0.04827
12537	371.029	4.023	0.02826	208.182	583.49	0.04888
12539	371.160	4.023	0.02805	208.418	583.53	0.04851
12541	371.291	4.023	0.02797	208.654	583.54	0.04837
12543	371.418	4.023	0.02819	208.882	583.50	0.04875
12545	370.441	3.773	0.02671	207.124	547.30	0.04619
12547	370.553	3.772	0.02641	207.325	547.01	0.04568
12549	370.658	3.770	0.02702	207.514	546.82	0.04673
12551	370.761	3.770	0.02693	207.700	546.75	0.04658
12553	370.874	3.769	0.02702	207.903	546.71	0.04673
12555	370.994	3.769	0.02676	208.119	546.70	0.04628
12557	371.113	3.769	0.02694	208.333	546.66	0.04659
12559	371.253	3.769	0.02668	208.585	546.64	0.04614
12561	371.392	3.769	0.02694	208.836	546.63	0.04659
12563	371.524	3.769	0.02667	209.073	546.62	0.04613
12565	370.444	3.542	0.02593	207.129	513.68	0.04485
12567	370.556	3.542	0.02576	207.331	513.69	0.04455
12569	370.662	3.542	0.02627	207.522	513.74	0.04543
12571	370.772	3.543	0.02607	207.720	513.80	0.04509
12573	370.903	3.543	0.02595	207.955	513.86	0.04488
12575	371.017	3.543	0.02610	208.161	513.91	0.04514
12577	371.151	3.544	0.02583	208.402	513.98	0.04467
12579	371.285	3.544	0.02587	208.643	514.02	0.04474
12581	371.429	3.544	0.02597	208.902	514.05	0.04492
12583	371.584	3.545	0.02601	209.181	514.12	0.04498
12585	370.469	3.249	0.02489	207.174	471.20	0.04305
12587	370.599	3.248	0.02483	207.408	471.07	0.04294
12589	370.701	3.247	0.02520	207.592	470.92	0.04358
12591	370.822	3.246	0.02500	207.810	470.86	0.04324
12593	370.948	3.246	0.02471	208.036	470.86	0.04274

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot Wire Experiments (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)
12595	371.085	3.246	0.02519	208.283	470.84	0.04357
12597	371.219	3.246	0.02486	208.524	470.82	0.04300
12599	371.369	3.246	0.02508	208.794	470.84	0.04338
12601	371.524	3.247	0.02509	209.073	470.89	0.04339
12603	371.682	3.247	0.02498	209.358	470.88	0.04320
12605	370.490	2.975	0.02463	207.212	431.53	0.04260
12607	370.621	2.975	0.02442	207.448	431.43	0.04223
12609	370.735	2.974	0.02442	207.653	431.32	0.04223
12611	370.858	2.974	0.02439	207.874	431.28	0.04218
12613	370.987	2.973	0.02411	208.107	431.24	0.04170
12615	371.132	2.973	0.02431	208.368	431.24	0.04204
12617	371.281	2.973	0.02413	208.636	431.27	0.04173
12619	371.435	2.973	0.02438	208.913	431.26	0.04217
12621	371.596	2.973	0.02420	209.203	431.24	0.04185
12623	371.773	2.973	0.02425	209.521	431.17	0.04194
12625	370.465	2.623	0.02342	207.167	380.51	0.04050
12627	370.594	2.623	0.02314	207.399	380.47	0.04002
12629	370.705	2.623	0.02356	207.599	380.37	0.04075
12631	370.840	2.622	0.02339	207.842	380.34	0.04045
12633	370.982	2.622	0.02334	208.098	380.33	0.04037
12635	371.122	2.622	0.02357	208.350	380.34	0.04076
12637	371.273	2.622	0.02333	208.621	380.29	0.04035
12639	371.432	2.622	0.02346	208.908	380.29	0.04057
12641	371.609	2.622	0.02332	209.226	380.30	0.04033
12643	371.784	2.622	0.02346	209.541	380.33	0.04057
12645	370.495	2.222	0.02318	207.221	322.29	0.04009
12647	370.620	2.222	0.02278	207.446	322.34	0.03940
12649	370.776	2.223	0.02277	207.727	322.45	0.03938
12651	370.900	2.225	0.02274	207.950	322.64	0.03933
12653	371.055	2.226	0.02272	208.229	322.79	0.03929
12655	371.197	2.227	0.02263	208.485	323.01	0.03914
12657	371.362	2.228	0.02262	208.782	323.17	0.03912
12659	371.532	2.230	0.02289	209.088	323.39	0.03959
12661	371.716	2.231	0.02266	209.419	323.52	0.03919
12663	371.906	2.232	0.02275	209.761	323.68	0.03935
12665	370.465	1.800	0.02219	207.167	261.06	0.03838
12667	370.587	1.799	0.02156	207.387	260.94	0.03729
12669	370.729	1.799	0.02216	207.642	260.86	0.03833
12671	370.874	1.798	0.02215	207.903	260.79	0.03831
12673	371.019	1.798	0.02182	208.164	260.80	0.03774
12675	371.170	1.798	0.02218	208.436	260.78	0.03836
12677	371.332	1.798	0.02190	208.728	260.82	0.03788
12679	371.502	1.798	0.02207	209.034	260.83	0.03817
12681	371.693	1.798	0.02197	209.377	260.83	0.03800
12683	371.864	1.799	0.02213	209.685	260.86	0.03827
12685	370.502	1.353	0.02177	207.234	196.20	0.03765
12687	370.648	1.352	0.02139	207.496	196.04	0.03699

Table 19. Thermal Conductivity Data For HFC-143a From Transient Hot-Wire Experiments (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)
12689	370.786	1.350	0.02166	207.745	195.82	0.03746
12691	370.928	1.348	0.02175	208.000	195.47	0.03762
12693	371.082	1.345	0.02150	208.278	195.05	0.03718
12695	371.255	1.343	0.02155	208.589	194.81	0.03727
12697	371.444	1.342	0.02158	208.929	194.66	0.03732
12699	371.626	1.341	0.02172	209.257	194.51	0.03756
12701	371.820	1.340	0.02147	209.606	194.36	0.03713
12703	372.021	1.339	0.02169	209.968	194.20	0.03751
12705	370.611	0.884	0.02140	207.430	128.25	0.03701
12707	370.761	0.884	0.02146	207.700	128.26	0.03712
12709	370.906	0.884	0.02116	207.961	128.27	0.03660
12711	371.061	0.884	0.02145	208.240	128.28	0.03710
12713	371.225	0.885	0.02128	208.535	128.30	0.03680
12715	371.414	0.885	0.02113	208.875	128.33	0.03654
12717	371.597	0.885	0.02136	209.205	128.34	0.03694
12719	371.798	0.885	0.02150	209.566	128.34	0.03718
12721	372.001	0.885	0.02127	209.932	128.36	0.03679
12723	372.228	0.885	0.02148	210.340	128.35	0.03715
12725	370.732	0.243	0.02122	207.648	35.29	0.03670
12727	370.901	0.244	0.02148	207.952	35.33	0.03715
12729	371.067	0.244	0.02154	208.251	35.34	0.03725
12731	371.258	0.244	0.02136	208.594	35.36	0.03694
12733	371.468	0.244	0.02125	208.972	35.39	0.03675
12735	371.674	0.244	0.02149	209.343	35.41	0.03717
12737	371.898	0.244	0.02159	209.746	35.43	0.03734
12739	372.129	0.244	0.02136	210.162	35.44	0.03694
12741	372.379	0.244	0.02160	210.612	35.45	0.03736
12743	372.645	0.245	0.02158	211.091	35.46	0.03732

Table 20. Thermal Conductivity Correlation Parameters for HFC-143a with Thermal Conductivity in W/(m·K), Temperature in K, and Density in mol/L. The parameters are explained in Appendix B.

Refrigerant	**HFC-143a**
Dilute Gas Terms	
a_1	-7.00852×10^{-3}
a_2	6.56307×10^{-5}
a_3	2.62499×10^{-8}
Excess Function Terms	
b_1	8.04276×10^{-4}
b_2	9.36503×10^{-5}
b_3	2.33955×10^{-5}
b_4	-1.24590×10^{-8}
Critical Enhancement Parameters	
T_c	346.75 K
P_c	38.32 bar
ρ_c	5.149 mol/L
q_D	4.0×10^{9} m^{-1}

Table 21a. Experimental Viscosity Data for HFC-143a Vapor in SI Units. (h_{ECS}, the viscosity calculated from extended corresponding states model in REFPROP. D, the percentage difference between experimental and REFPROP value.)

p / MPa	T / K	ρ / kg·m^{-3}	η_{ECS} / μPa·s	η_{exp} / μPa·s	Δ / %
0.5171	274.582	21.6272	10.77	11.16	3.61
0.5172	274.591	21.6328	10.77	11.19	3.91
0.5173	274.602	21.6348	10.77	11.20	3.97
0.5172	274.611	21.6270	10.77	11.22	4.19
0.3453	274.950	13.7441	10.68	12.45	16.6
0.3452	274.961	13.7404	10.68	12.21	14.3
0.3454	274.967	13.7490	10.68	12.21	14.3
0.3456	274.966	13.7550	10.68	12.20	14.2
0.1606	275.002	6.11387	10.59	11.20	5.75
0.1606	275.007	6.11102	10.59	11.18	5.58
0.1605	275.011	6.10820	10.59	11.23	6.06
0.1606	275.016	6.11351	10.59	11.23	6.03
0.8013	284.736	34.3066	11.36	11.21	-1.28
0.8012	284.737	34.2990	11.36	11.21	-1.31
0.8013	284.734	34.3070	11.36	11.20	-1.42
0.8012	284.735	34.2994	11.36	11.20	-1.40
0.6882	284.733	28.4960	11.27	11.44	1.49
0.6882	284.731	28.4998	11.27	11.42	1.32
0.6882	284.733	28.4994	11.27	11.41	1.29
0.6882	284.731	28.4964	11.27	11.42	1.33
0.5537	284.724	22.1238	11.17	11.44	2.42
0.5536	284.725	22.1174	11.17	11.45	2.52
0.5536	284.727	22.1172	11.17	11.46	2.59
0.2415	284.727	8.98619	10.99	11.49	4.52
0.2414	284.727	8.98080	10.99	11.47	4.35
0.2414	284.728	8.98076	10.99	11.50	4.58
0.8556	293.947	35.0517	11.74	11.56	-1.53
0.8556	293.970	35.0432	11.74	11.55	-1.62
0.8558	293.991	35.0525	11.74	11.57	-1.44
0.8558	294.005	35.0460	11.74	11.57	-1.43
1.0063	294.283	42.9054	11.89	11.62	-2.27
1.0064	294.298	42.9086	11.89	11.65	-2.04
1.0064	294.301	42.9076	11.89	11.68	-1.80
1.0065	294.312	42.9076	11.89	11.66	-1.95
0.6480	294.501	25.1537	11.60	11.61	0.08
0.6480	294.527	25.1534	11.60	11.59	-0.06
0.6480	294.607	25.1430	11.60	11.60	0.01
0.6482	294.500	25.1631	11.60	11.58	-0.19
0.4369	294.524	16.2141	11.46	11.52	0.50
0.4368	294.533	16.2107	11.46	11.51	0.39

Table 21a. Experimental Viscosity Data for HFC-143a Vapor in SI Units (continued).

p / MPa	T / K	ρ / kg·m^{-3}	η_{ECS} / μPa·s	η_{exp} / μPa·s	Δ / %
0.4367	294.532	16.2080	11.46	11.54	0.70
0.4368	294.537	16.2104	11.46	11.51	0.43
0.2410	294.582	8.61822	11.36	11.53	1.54
0.2410	294.585	8.61896	11.36	11.51	1.36
0.2410	294.585	8.61581	11.36	11.54	1.57
0.2411	294.595	8.61987	11.36	11.53	1.52
1.3041	302.398	57.2040	12.50	12.22	-2.21
1.3057	302.475	57.2654	12.50	12.40	-0.81
1.3061	302.543	57.2535	12.51	12.55	0.38
1.3087	302.608	57.3845	12.51	12.40	-0.89
0.4792	303.443	17.2427	11.82	12.02	1.69
0.4793	303.459	17.2424	11.82	12.03	1.80
0.4794	303.475	17.2462	11.82	12.03	1.77
0.4795	303.489	17.2511	11.82	12.04	1.85
0.6892	303.646	25.7695	11.96	12.06	0.82
0.6894	303.649	25.7779	11.96	12.05	0.75
0.6896	303.650	25.7866	11.96	12.06	0.78
0.6897	303.659	25.7883	11.96	12.05	0.74
0.8647	303.705	33.5196	12.10	12.15	0.41
0.8647	303.706	33.5226	12.10	12.16	0.51
0.8647	303.706	33.5226	12.10	12.14	0.37
0.8647	303.708	33.5222	12.10	12.14	0.34
1.0358	303.616	41.7964	12.25	12.25	0.03
1.0358	303.618	41.7959	12.25	12.25	0.01
1.0359	303.610	41.8051	12.25	12.23	-0.16
1.0359	303.584	41.8120	12.25	12.24	-0.07
1.2073	303.547	50.9834	12.42	12.28	-1.14
1.2073	303.578	50.9676	12.42	12.27	-1.25
1.2073	303.574	50.9691	12.42	12.27	-1.25
1.2073	303.573	50.9695	12.42	12.27	-1.25
1.2839	303.610	55.4066	12.51	12.40	-0.92
1.2837	303.602	55.4018	12.51	12.42	-0.74
1.2837	303.609	55.3945	12.51	12.43	-0.69
1.2839	303.630	55.4019	12.51	12.42	-0.77
0.2795	303.590	9.71585	11.71	12.22	4.37
0.2795	303.608	9.71473	11.71	12.19	4.10
0.2795	303.601	9.71483	11.71	12.20	4.16
0.2797	303.602	9.71919	11.71	12.20	4.16
0.2782	316.721	9.20962	12.19	12.61	3.44
0.2784	316.760	9.21571	12.19	12.61	3.40
0.2785	316.796	9.21801	12.20	12.58	3.14
0.2784	316.829	9.21351	12.20	12.60	3.34

Table 21a. Experimental Viscosity Data for HFC-143a Vapor in SI Units (continued).

p / MPa	T / K	ρ / kg·m^{-3}	η_{ECS} / μPa·s	η_{exp} / μPa·s	Δ / %
1.1044	317.081	41.7354	12.78	12.60	-1.46
1.1047	317.092	41.7456	12.79	12.58	-1.57
1.1045	317.100	41.7373	12.79	12.59	-1.50
1.1047	317.106	41.7423	12.79	12.59	-1.52
1.9653	316.881	93.7360	13.98	13.52	-3.28
1.9654	316.886	93.7419	13.98	13.51	-3.37
1.9655	316.891	93.7410	13.98	13.51	-3.35
1.9656	316.893	93.7446	13.98	13.50	-3.42
1.7130	316.925	74.9009	13.51	13.11	-2.91
1.7128	316.921	74.8898	13.51	13.07	-3.22
1.7127	316.926	74.8771	13.51	13.10	-3.00
1.7125	316.925	74.8645	13.51	13.12	-2.88
1.4136	316.965	57.1016	13.10	13.12	0.12
1.4138	316.968	57.1079	13.10	13.09	-0.06
1.4140	316.976	57.1192	13.10	13.11	0.04
1.4138	316.978	57.1039	13.10	13.16	0.47
0.2792	326.869	8.92171	12.56	12.89	2.63
0.2792	326.904	8.92155	12.56	12.89	2.61
0.2793	326.941	8.92195	12.56	12.82	2.05
0.2794	326.975	8.92353	12.57	12.83	2.12
2.4001	327.480	117.734	15.15	14.60	-3.62
2.4001	327.483	117.728	15.15	14.63	-3.41
2.4002	327.482	117.737	15.15	14.60	-3.64
2.4003	327.480	117.747	15.15	14.61	-3.58
2.1399	327.482	95.7180	14.51	13.95	-3.90
2.1402	327.484	95.7366	14.51	13.96	-3.82
2.1403	327.486	95.7449	14.51	13.97	-3.76
2.1407	327.491	95.7648	14.51	13.94	-3.93
1.8146	327.525	74.3927	13.95	13.83	-0.90
1.8153	327.524	74.4296	13.95	13.79	-1.15
1.8157	327.526	74.4565	13.95	13.81	-1.03
1.8162	327.529	74.4828	13.95	13.81	-1.02
1.4449	327.557	54.7923	13.48	13.67	1.35
1.4447	327.563	54.7864	13.49	13.66	1.30
1.4445	327.565	54.7733	13.48	13.64	1.14
1.4442	327.568	54.7620	13.48	13.66	1.30
0.9626	327.601	33.6462	13.04	12.97	-0.49
0.9626	327.604	33.6411	13.04	12.98	-0.42
0.9624	327.607	33.6361	13.04	12.98	-0.46
0.9624	327.606	33.6350	13.04	12.98	-0.46
0.9935	337.692	33.3228	13.42	13.40	-0.14
0.9935	337.707	33.3255	13.42	13.40	-0.13
0.9937	337.710	33.3356	13.42	13.38	-0.32
0.9939	337.713	33.3397	13.42	13.39	-0.23

Table 21a. Experimental Viscosity Data for HFC-143a Vapor in SI Units (continued).

p / MPa	T / K	ρ / kg·m^{-3}	η_{ECS} / μPa·s	η_{exp} / μPa·s	Δ / %
0.2810	337.754	8.65948	12.95	13.64	5.30
0.2812	337.757	8.66354	12.95	13.66	5.41
0.2811	337.761	8.66199	12.95	13.63	5.21
0.2812	337.767	8.66563	12.95	13.64	5.33
2.9534	336.682	158.130	16.96	16.53	-2.53
2.9541	336.698	158.157	16.97	16.52	-2.64
2.9547	336.712	158.201	16.97	16.52	-2.67
2.9552	336.728	158.211	16.97	16.51	-2.70
2.7569	336.883	134.582	16.15	15.54	-3.75
2.7574	336.898	134.592	16.15	15.52	-3.92
2.7578	336.908	134.611	16.15	15.53	-3.83
2.7582	336.929	134.608	16.15	15.51	-3.95
2.4882	337.036	110.928	15.40	14.78	-4.01
2.4886	337.052	110.934	15.40	14.77	-4.04
2.4887	337.061	110.933	15.40	14.74	-4.26
2.4890	337.072	110.940	15.40	14.75	-4.23
2.0668	337.169	83.0078	14.59	14.06	-3.68
2.0670	337.175	83.0045	14.59	14.09	-3.43
2.0670	337.187	82.9981	14.59	14.09	-3.47
2.0672	337.191	83.0115	14.59	14.09	-3.48
1.4351	337.293	51.3789	13.80	13.61	-1.38
1.4349	337.305	51.3688	13.80	13.63	-1.26
1.4349	337.310	51.3675	13.80	13.62	-1.34
1.4348	337.320	51.3648	13.80	13.59	-1.52

Table 21b. Experimental Viscosity Data for HFC-143a Vapor in PI Units.

p / psia	T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-6} lb·s^{-1}·ft^{-1}
75.000	34.578	1.35014	7.499
75.020	34.594	1.35049	7.519
75.030	34.614	1.35061	7.526
75.010	34.630	1.35013	7.539
50.080	35.240	0.85801	8.366
50.070	35.260	0.85778	8.205
50.100	35.271	0.85832	8.205
50.120	35.269	0.85869	8.198
23.300	35.334	0.38168	7.526
23.290	35.343	0.38150	7.513
23.280	35.350	0.38132	7.546
23.300	35.359	0.38165	7.546
116.220	52.855	2.14169	7.533
116.200	52.857	2.14121	7.533
116.220	52.851	2.14171	7.526
116.200	52.853	2.14124	7.526
99.810	52.849	1.77894	7.687
99.820	52.846	1.77918	7.674
99.820	52.849	1.77916	7.667
99.810	52.846	1.77897	7.674
80.310	52.833	1.38114	7.687
80.290	52.835	1.38074	7.694
80.290	52.839	1.38073	7.701
35.030	52.839	0.56099	7.721
35.010	52.839	0.56065	7.707
35.010	52.840	0.56065	7.728
124.100	69.435	2.18820	7.768
124.090	69.476	2.18767	7.761
124.130	69.514	2.18825	7.775
124.120	69.539	2.18785	7.775
145.950	70.039	2.67849	7.808
145.971	70.066	2.67869	7.828
145.971	70.072	2.67863	7.849
145.979	70.092	2.67863	7.835
93.980	70.432	1.57029	7.802
93.990	70.479	1.57027	7.788
93.990	70.623	1.56962	7.795
94.010	70.430	1.57088	7.781
63.360	70.473	1.01221	7.741
63.350	70.489	1.01200	7.734
63.340	70.488	1.01183	7.755
63.350	70.497	1.01198	7.734

Table 21b. Experimental Viscosity Data for HFC-143a Vapor in PI Units (continued).

p / psia	T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-6} lb·s^{-1}·ft^{-1}
34.960	70.578	0.53802	7.748
34.960	70.583	0.53806	7.734
34.950	70.583	0.53787	7.755
34.970	70.601	0.53812	7.748
189.150	84.646	3.57112	8.211
189.380	84.785	3.57495	8.332
189.430	84.907	3.57421	8.433
189.810	85.024	3.58239	8.332
69.500	86.527	1.07642	8.077
69.510	86.556	1.07641	8.084
69.530	86.585	1.07664	8.084
69.550	86.610	1.07695	8.091
99.960	86.893	1.60873	8.104
99.990	86.898	1.60926	8.097
100.020	86.900	1.60980	8.104
100.030	86.916	1.60991	8.097
125.410	86.999	2.09256	8.164
125.420	87.001	2.09274	8.171
125.420	87.001	2.09274	8.158
125.420	87.004	2.09272	8.158
150.230	86.839	2.60926	8.232
150.230	86.842	2.60923	8.232
150.251	86.828	2.60980	8.218
150.251	86.781	2.61023	8.225
175.110	86.715	3.18278	8.252
175.100	86.770	3.18180	8.245
175.100	86.763	3.18189	8.245
175.100	86.761	3.18191	8.245
186.210	86.828	3.45891	8.332
186.190	86.814	3.45861	8.346
186.179	86.826	3.45816	8.353
186.220	86.864	3.45862	8.346
40.540	86.792	0.60654	8.211
40.540	86.824	0.60647	8.191
40.540	86.812	0.60648	8.198
40.560	86.814	0.60675	8.198
40.350	110.428	0.57494	8.474
40.380	110.498	0.57532	8.474
40.400	110.563	0.57546	8.453
40.380	110.622	0.57518	8.467

Table 21b. Experimental Viscosity Data for HFC-143a Vapor in PI Units (continued).

p / psia	T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-6} lb·s^{-1}·ft^{-1}
160.180	111.076	2.60545	8.467
160.221	111.096	2.60609	8.453
160.200	111.110	2.60557	8.460
160.221	111.121	2.60588	8.460
285.040	110.716	5.85173	9.085
285.061	110.725	5.85210	9.078
285.069	110.734	5.85205	9.078
285.079	110.737	5.85227	9.072
248.450	110.795	4.67590	8.810
248.420	110.788	4.67521	8.783
248.399	110.797	4.67441	8.803
248.370	110.795	4.67363	8.816
205.030	110.867	3.56473	8.816
205.050	110.872	3.56512	8.796
205.090	110.887	3.56583	8.810
205.050	110.890	3.56487	8.843
40.500	128.694	0.55696	8.662
40.500	128.757	0.55695	8.662
40.510	128.824	0.55698	8.615
40.520	128.885	0.55708	8.621
348.110	129.794	7.34988	9.811
348.110	129.799	7.34950	9.831
348.120	129.798	7.35006	9.811
348.130	129.794	7.35069	9.817
310.370	129.798	5.97547	9.374
310.410	129.801	5.97663	9.381
310.431	129.805	5.97715	9.387
310.480	129.814	5.97839	9.367
263.190	129.875	4.64417	9.293
263.280	129.873	4.64648	9.266
263.350	129.877	4.64816	9.280
263.419	129.882	4.64980	9.280
209.560	129.933	3.42056	9.186
209.531	129.943	3.42020	9.179
209.510	129.947	3.41938	9.166
209.470	129.952	3.41867	9.179
139.620	130.012	2.10046	8.715
139.610	130.017	2.10014	8.722
139.590	130.023	2.09983	8.722
139.580	130.021	2.09976	8.722

Table 21b. Experimental Viscosity Data for HFC-143a Vapor in PI Units (continued).

p / psia	T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-6} lb·s^{-1}·ft^{-1}
144.090	148.176	2.08027	9.004
144.100	148.203	2.08044	9.004
144.130	148.208	2.08107	8.991
144.160	148.213	2.08132	8.998
40.760	148.287	0.54059	9.166
40.780	148.293	0.54085	9.179
40.770	148.300	0.54075	9.159
40.790	148.311	0.54098	9.166
428.360	146.358	9.87171	11.11
428.450	146.386	9.87340	11.10
428.550	146.412	9.87614	11.10
428.621	146.440	9.87677	11.09
399.860	146.719	8.40166	10.44
399.921	146.746	8.40228	10.43
399.980	146.764	8.40347	10.44
400.039	146.802	8.40328	10.42
360.889	146.995	6.92499	9.932
360.940	147.024	6.92537	9.925
360.960	147.040	6.92531	9.905
361.000	147.060	6.92574	9.912
299.770	147.234	5.18200	9.448
299.791	147.245	5.18179	9.468
299.799	147.267	5.18139	9.468
299.820	147.274	5.18223	9.468
208.150	147.457	3.20747	9.145
208.119	147.479	3.20684	9.159
208.111	147.488	3.20676	9.152
208.101	147.506	3.20659	9.132

Table 22a. **Experimental Viscosity Data for Saturated Liquid HFC-143a in SI Units. Correlated Data Calculated From the Fit of the Experimental Data, Eq. (2).**

T / K	ρ_{exp} / kg·m^{-3}	η_{exp} / mPa·s	η_{corr} / mPa·s	Δ / %
255.62	1080.5	0.1961	0.1964	-0.166
260.67	1063.8	0.1839	0.1839	0.021
267.38	1040.7	0.1689	0.1686	0.197
273.74	1018.0	0.1557	0.1554	0.181
285.58	973.1	0.1337	0.1337	-0.011
290.14	954.1	0.1260	0.1260	0.014
295.07	931.9	0.1174	0.1178	-0.375
302.64	893.3	0.1057	0.1056	0.140
306.87	867.8	0.0987	0.0985	0.187
308.43	857.9	0.0959	0.0960	-0.053

Table 22b. **Experimental Viscosity Data for Saturated Liquid HFC-143a in PI Units.**

T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-3} lb·s^{-1}·ft^{-1}
0.45	67.45	0.1318
9.54	66.41	0.1236
21.61	64.97	0.1135
33.06	63.55	0.1046
54.37	60.75	0.0898
62.58	59.56	0.0847
71.46	58.18	0.0789
85.08	55.77	0.0710
92.70	54.17	0.0663
95.50	53.56	0.0644

Table 23a. Viscosity of Saturated Liquid HFC-143a From Eq. (2) in SI Units.

T / K	p_s / MPa	ρ / kg·m^{-3}	η / mPa·s
240	0.1440	1126	0.2412
250	0.2245	1097	0.2110
260	0.3368	1066	0.1856
270	0.4881	1034	0.1638
280	0.6865	998.6	0.1447
290	0.9400	960.7	0.1278
300	1.2565	919.0	0.1125
310	1.6442	872.3	0.0983
320	2.1110	818.2	0.0848
330	2.6656	751.5	0.0713
340	3.3185	654.7	0.0558

Table 23b. Viscosity of Saturated Liquid HFC-143a From Eq. (2) in PI Units.

T / °F	p_s / psia	ρ / lb·ft^{-3}	η, 10^{-3} lb·s^{-1}·ft^{-1}
-30	19.66	70.52	0.1649
-20	25.37	69.53	0.1530
-10	32.31	68.52	0.1421
0	40.67	67.47	0.1323
10	50.62	66.39	0.1233
20	62.36	65.26	0.1150
30	76.08	64.09	0.1073
40	91.97	62.88	0.1002
50	110.24	61.62	0.0935
60	131.08	60.29	0.0873
70	154.71	58.89	0.0814
80	181.31	57.42	0.0758
90	211.09	55.85	0.0704
100	244.25	54.16	0.0652
110	280.98	52.33	0.0601
120	321.50	50.31	0.0552
130	366.03	48.02	0.0501
140	414.82	45.32	0.0449
150	468.18	41.87	0.0391

Table 24a. Viscosity of Liquid HFC-143a in mPa·s From Eq. (2) in SI Units.

	ρ / kg·m^{-3}												
T / K	**700**	**750**	**800**	**850**	**900**	**950**	**1000**	**1050**	**1100**	**1150**	**1200**	**1250**	**1300**
240	0.0983	0.1098	0.1222	0.1359	0.1508	0.1672	0.1854	0.2056	0.2283	0.2538	0.2828	0.3160	0.3544
250	0.0915	0.1021	0.1137	0.1264	0.1402	0.1555	0.1725	0.1913	0.2123	0.2361	0.2630	0.2939	0.3297
260	0.0858	0.0958	0.1066	0.1185	0.1315	0.1459	0.1617	0.1794	0.1991	0.2214	0.2467	0.2756	0.3092
270	0.0810	0.0904	0.1007	0.1119	0.1242	0.1378	0.1527	0.1694	0.1881	0.2091	0.2330	0.2603	0.2920
280	0.0770	0.0859	0.0957	0.1063	0.1180	0.1309	0.1451	0.1610	0.1787	0.1987	0.2213	0.2473	0.2774
290	0.0735	0.0821	0.0914	0.1016	0.1127	0.1250	0.1386	0.1537	0.1706	0.1897	0.2114	0.2362	0.2649
300	0.0705	0.0787	0.0877	0.0974	0.1081	0.1199	0.1330	0.1475	0.1637	0.1820	0.2028	0.2266	0.2542
310	0.0679	0.0758	0.0844	0.0938	0.1042	0.1155	0.1281	0.1420	0.1577	0.1753	0.1953	0.2183	0.2448
320	0.0656	0.0733	0.0816	0.0907	0.1007	0.1116	0.1238	0.1373	0.1524	0.1695	0.1888	0.2110	0.2366
330	0.0636	0.0711	0.0791	0.0879	0.0976	0.1082	0.1200	0.1331	0.1478	0.1643	0.1830	0.2045	0.2294
340	0.0619	0.0691	0.0769	0.0855	0.0949	0.1052	0.1167	0.1294	0.1436	0.1597	0.1779	0.1988	0.2230

Table 24b. Viscosity of Liquid HFC-143a in 10^{-6} lb·s^{-1}·ft^{-1} From Eq. (2) in PI Units.

	ρ / lb·ft^{-3}								
T / °F	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**
-30	69.9	83.1	98.4	116	137	162	193	230	279
-20	67.0	79.7	94.3	111	131	155	185	221	267
-10	64.4	76.7	90.7	107	126	149	178	212	257
0	62.1	73.9	87.4	103	122	144	171	205	248
10	60.0	71.4	84.5	99.7	118	139	165	198	239
20	58.1	69.1	81.8	96.6	114	135	160	192	232
30	56.4	67.1	79.4	93.7	111	131	155	186	225
40	54.8	65.2	77.1	91.1	107	127	151	181	219
50	53.4	63.5	75.1	88.6	105	124	147	176	213
60	52.0	61.9	73.2	86.4	102	121	143	172	208
70	50.8	60.4	71.5	84.4	99.6	118	140	167	203
80	49.7	59.1	69.9	82.5	97.4	115	137	164	198
90	48.6	57.8	68.4	80.8	95.3	113	134	160	194
100	47.6	56.7	67.1	79.2	93.4	110	131	157	190
110	46.7	55.6	65.8	77.7	91.6	108	129	154	186
120	45.9	54.6	64.6	76.3	90.0	106	126	151	183
130	45.1	53.7	63.5	75.0	88.5	105	124	149	180
140	44.4	52.8	62.5	73.7	87.0	103	122	146	177
150	43.7	52.0	61.5	72.6	85.7	101	120	144	174

Table 25. Residual Concept Correlation of the Viscosity of HFC-143a in the Fluid Region. (h in Pa·s, T in K, r in kg·m^{-3}).

$$\eta(\rho,T) = \frac{5}{16}\sqrt{\frac{Mk_B}{\pi N_A}}\frac{\sqrt{T}}{\sigma^2\Omega(T^*)} + b_1\rho + b_2\rho^2$$

where

$$T^* = \frac{T}{\left(\frac{\varepsilon}{k_B}\right)}$$

$$ln\Omega(T^*) = \sum_{i=0}^{4} a_i (lnT^*)^i$$

a_0	=	0.4425728	ε/k_B	=	345 K
a_1	=	-0.5138403	σ	=	0.46 nm
a_2	=	0.1547566	b_1	=	$-9.0208\cdot10^{9}$ Pa·s·m^3·kg^{-1}
a_3	=	$-2.821844\cdot10^{-2}$	b_2	=	$1.7932\cdot10^{-10}$ Pa·s·m^6·kg^{-2}
a_4	=	$1.578286\cdot10^{-3}$			

Table 26a. Viscosity of HFC-143a Vapor in mPa·s From Correlation in Table 25 in SI Units.

	ρ / kg·m^{-3}										
T / K	0	20	40	60	80	100	120	140	160	180	200
200	6.53	6.78	7.17	7.71	8.39	9.22	10.19	11.30	12.56	13.96	15.50
205	6.72	6.98	7.37	7.91	8.59	9.42	10.39	11.50	12.76	14.16	15.70
210	6.92	7.17	7.57	8.11	8.79	9.62	10.59	11.70	12.96	14.36	15.90
215	7.12	7.37	7.77	8.31	8.99	9.81	10.78	11.90	13.15	14.55	16.10
220	7.32	7.57	7.96	8.50	9.19	10.01	10.98	12.09	13.35	14.75	16.29
225	7.51	7.76	8.16	8.70	9.38	10.21	11.18	12.29	13.55	14.95	16.49
230	7.71	7.96	8.36	8.89	9.58	10.40	11.37	12.49	13.74	15.14	16.68
235	7.90	8.15	8.55	9.09	9.77	10.60	11.57	12.68	13.94	15.34	16.88
240	8.10	8.35	8.74	9.28	9.97	10.79	11.76	12.87	14.13	15.53	17.07
245	8.29	8.54	8.94	9.48	10.16	10.99	11.95	13.07	14.32	15.72	17.27
250	8.48	8.73	9.13	9.67	10.35	11.18	12.15	13.26	14.52	15.92	17.46
255	8.67	8.93	9.32	9.86	10.54	11.37	12.34	13.45	14.71	16.11	17.65
260	8.87	9.12	9.51	10.05	10.73	11.56	12.53	13.64	14.90	16.30	17.84
265	9.06	9.31	9.70	10.24	10.93	11.75	12.72	13.83	15.09	16.49	18.03
270	9.25	9.50	9.89	10.43	11.11	11.94	12.91	14.02	15.28	16.68	18.22
275	9.43	9.69	10.08	10.62	11.30	12.13	13.10	14.21	15.47	16.87	18.41
280	9.62	9.87	10.27	10.81	11.49	12.32	13.29	14.40	15.66	17.06	18.60
285	9.81	10.06	10.46	11.00	11.68	12.50	13.47	14.59	15.84	17.24	18.79
290	10.00	10.25	10.64	11.18	11.87	12.69	13.66	14.77	16.03	17.43	18.97
295	10.18	10.43	10.83	11.37	12.05	12.88	13.85	14.96	16.22	17.62	19.16
300	10.37	10.62	11.01	11.55	12.24	13.06	14.03	15.14	16.40	17.80	19.34
305	10.55	10.80	11.20	11.74	12.42	13.25	14.22	15.33	16.58	17.98	19.53
310	10.73	10.99	11.38	11.92	12.60	13.43	14.40	15.51	16.77	18.17	19.71
315	10.92	11.17	11.56	12.10	12.79	13.61	14.58	15.69	16.95	18.35	19.89
320	11.10	11.35	11.75	12.29	12.97	13.79	14.76	15.88	17.13	18.53	20.08
325	11.28	11.53	11.93	12.47	13.15	13.98	14.94	16.06	17.31	18.71	20.26
330	11.46	11.71	12.11	12.65	13.33	14.16	15.12	16.24	17.49	18.89	20.44
335	11.64	11.89	12.29	12.83	13.51	14.34	15.30	16.42	17.67	19.07	20.62
340	11.82	12.07	12.47	13.01	13.69	14.51	15.48	16.60	17.85	19.25	20.80
345	12.00	12.25	12.64	13.18	13.87	14.69	15.66	16.77	18.03	19.43	20.97
350	12.17	12.43	12.82	13.36	14.04	14.87	15.84	16.95	18.21	19.61	21.15
355	12.35	12.60	13.00	13.54	14.22	15.05	16.02	17.13	18.38	19.78	21.33
360	12.53	12.78	13.17	13.71	14.40	15.22	16.19	17.30	18.56	19.96	21.50
365	12.70	12.95	13.35	13.89	14.57	15.40	16.37	17.48	18.74	20.14	21.68
370	12.88	13.13	13.52	14.06	14.75	15.57	16.54	17.65	18.91	20.31	21.85
375	13.05	13.30	13.70	14.24	14.92	15.75	16.72	17.83	19.08	20.48	22.03
380	13.22	13.48	13.87	14.41	15.09	15.92	16.89	18.00	19.26	20.66	22.20
385	13.40	13.65	14.04	14.58	15.27	16.09	17.06	18.17	19.43	20.83	22.37
390	13.57	13.82	14.22	14.75	15.44	16.26	17.23	18.35	19.60	21.00	22.54
395	13.74	13.99	14.39	14.93	15.61	16.43	17.40	18.52	19.77	21.17	22.72
400	13.91	14.16	14.56	15.10	15.78	16.60	17.57	18.69	19.94	21.34	22.89

Table 26b. Viscosity of HFC-143a Vapor in 10^{-6} lb·s^{-1}·ft^{-1} From Correlation in Table 25 in PI Units.

	ρ / lb·ft^{-3}										
T / °F	0.00	1.25	2.50	3.75	5.00	6.25	7.50	8.75	10.00	11.25	12.50
-90.0	4.53	4.70	4.96	5.33	5.79	6.34	7.00	7.74	8.59	9.53	10.6
-77.5	4.71	4.88	5.15	5.51	5.97	6.53	7.18	7.93	8.78	9.72	10.8
-65.0	4.90	5.07	5.33	5.70	6.16	6.71	7.36	8.11	8.96	9.90	10.9
-52.5	5.08	5.25	5.52	5.88	6.34	6.89	7.55	8.30	9.14	10.1	11.1
-40.0	5.26	5.43	5.70	6.06	6.52	7.08	7.73	8.48	9.32	10.3	11.3
-27.5	5.44	5.61	5.88	6.24	6.70	7.26	7.91	8.66	9.51	10.4	11.5
-15.0	5.62	5.79	6.06	6.42	6.88	7.44	8.09	8.84	9.69	10.6	11.7
-2.5	5.80	5.97	6.24	6.60	7.06	7.62	8.27	9.02	9.87	10.8	11.8
10.0	5.98	6.15	6.42	6.78	7.24	7.80	8.45	9.20	10.0	11.0	12.0
22.5	6.16	6.33	6.59	6.96	7.42	7.97	8.63	9.38	10.2	11.2	12.2
35.0	6.33	6.50	6.77	7.13	7.59	8.15	8.80	9.55	10.4	11.3	12.4
47.5	6.51	6.68	6.95	7.31	7.77	8.32	8.98	9.73	10.6	11.5	12.6
60.0	6.68	6.85	7.12	7.48	7.94	8.50	9.15	9.90	10.7	11.7	12.7
72.5	6.86	7.03	7.29	7.66	8.12	8.67	9.33	10.1	10.9	11.9	12.9
85.0	7.03	7.20	7.47	7.83	8.29	8.84	9.50	10.2	11.1	12.0	13.1
97.5	7.20	7.37	7.64	8.00	8.46	9.02	9.67	10.4	11.3	12.2	13.2
110.0	7.37	7.54	7.81	8.17	8.63	9.19	9.84	10.6	11.4	12.4	13.4
122.5	7.54	7.71	7.98	8.34	8.80	9.36	10.0	10.8	11.6	12.5	13.6
135.0	7.71	7.88	8.15	8.51	8.97	9.52	10.2	10.9	11.8	12.7	13.8
147.5	7.88	8.05	8.31	8.68	9.14	9.69	10.3	11.1	11.9	12.9	13.9
160.0	8.04	8.21	8.48	8.84	9.30	9.86	10.5	11.3	12.1	13.0	14.1
172.5	8.21	8.38	8.65	9.01	9.47	10.0	10.7	11.4	12.3	13.2	14.3
185.0	8.37	8.54	8.81	9.17	9.63	10.2	10.8	11.6	12.4	13.4	14.4
197.5	8.54	8.71	8.97	9.34	9.80	10.4	11.0	11.8	12.6	13.5	14.6
210.0	8.70	8.87	9.14	9.50	9.96	10.5	11.2	11.9	12.8	13.7	14.7
222.5	8.86	9.03	9.30	9.66	10.1	10.7	11.3	12.1	12.9	13.9	14.9
235.0	9.02	9.19	9.46	9.82	10.3	10.8	11.5	12.2	13.1	14.0	15.1
247.5	9.18	9.35	9.62	9.98	10.4	11.0	11.7	12.4	13.2	14.2	15.2
260.0	9.34	9.51	9.78	10.1	10.6	11.2	11.8	12.6	13.4	14.3	15.4

Table 27. Liquid-Phases Isochoric PVT Data for HFC-152a in SI Units.

T K	p MPa	ρ mol·dm^{-3}
158.000	2.0532	17.9861
159.999	6.2101	17.9814
162.001	10.3677	17.9769
163.999	14.4983	17.9727
165.999	18.6184	17.9685
167.999	22.7175	17.9645
169.999	26.7906	17.9606
172.000	30.8398	17.9567
173.999	34.8680	17.9529
172.000	4.0876	17.6281
173.998	7.8607	17.6237
176.000	11.6379	17.6196
177.999	15.3875	17.6157
179.998	19.1318	17.6118
182.000	22.8553	17.6080
183.999	26.5465	17.6043
186.000	30.2329	17.6006
188.001	33.8923	17.5970
186.000	2.3909	17.2166
188.001	5.7776	17.2124
190.000	9.1578	17.2085
191.998	12.5271	17.2047
194.000	15.8806	17.2010
196.000	19.2218	17.1974
197.999	22.5526	17.1939
200.000	25.8697	17.1904
201.999	29.1668	17.1869
203.999	32.4492	17.1835
202.000	2.5931	16.7705
203.999	5.6013	16.7666
206.000	8.6034	16.7629
208.002	11.6004	16.7593
209.999	14.5831	16.7558
212.000	17.5591	16.7524
214.000	20.5255	16.7491
215.999	23.4741	16.7458
218.001	26.4143	16.7425
220.001	29.3377	16.7392
222.002	32.2541	16.7360
224.001	35.1551	16.7328
218.000	2.4324	16.3094
220.001	5.1044	16.3058
222.000	7.7671	16.3023
224.001	10.4261	16.2989
225.999	13.0764	16.2957
228.000	15.7221	16.2924
229.999	18.3531	16.2892
232.001	20.9727	16.2861
234.000	23.5847	16.2830
236.000	26.1893	16.2799
237.999	28.7830	16.2768

Table 27. Liquid-Phase Isochoric PVT Data for HFC-152a in SI Units (continued).

T K	p MPa	ρ mol·dm^{-3}
240.002	31.3724	16.2737
242.000	33.9424	16.2707
238.002	2.5163	15.7214
240.002	4.8077	15.7180
242.000	7.0957	15.7148
244.000	9.3804	15.7117
246.000	11.6574	15.7086
248.001	13.9293	15.7056
249.999	16.1916	15.7026
252.002	18.4541	15.6997
254.001	20.7080	15.6967
255.998	22.9500	15.6938
257.999	25.1911	15.6909
259.999	27.4200	15.6881
262.000	29.6454	15.6852
264.002	31.8625	15.6823
266.000	34.0709	15.6795
262.002	1.5085	14.9906
264.000	3.1649	14.9371
265.999	5.0393	14.9342
268.001	6.9109	14.9312
269.998	8.7754	14.9284
272.000	10.6387	14.9256
274.001	12.5001	14.9228
276.000	14.3578	14.9201
278.000	16.2110	14.9174
280.000	18.0546	14.9146
282.000	19.8961	14.9120
284.000	21.7394	14.9093
286.001	23.5761	14.9066
288.001	25.4049	14.9040
290.002	27.2316	14.9013
292.001	29.0521	14.8987
293.999	30.8632	14.8961
296.001	32.6744	14.8934
298.002	34.4724	14.8909
290.000	3.1810	14.0600
294.001	6.1731	14.0547
298.001	9.1621	14.0496
302.001	12.1423	14.0446
306.000	15.1166	14.0396
310.000	18.0822	14.0346
314.002	21.0380	14.0297
318.001	23.9805	14.0248
322.002	26.9065	14.0200
326.001	29.8207	14.0152
329.999	32.7241	14.0105
322.000	2.9890	12.7911
325.998	5.1497	12.7865
330.002	7.3132	12.7820
334.000	9.4752	12.7776

Table 27. Liquid-Phase Isochoric PVT Data for HFC-152a in SI Units (continued).

T	p	ρ
K	MPa	$mol \cdot dm^{-3}$
338.000	11.6384	12.7732
342.001	13.7931	12.7689
346.000	15.9514	12.7649
349.999	18.1092	12.7605
354.000	20.2635	12.7562
358.000	22.4109	12.7518
362.001	24.5563	12.7474
366.002	26.6939	12.7431
370.000	28.8263	12.7387
373.999	30.9537	12.7343
378.001	33.0760	12.7299
382.001	35.1906	12.7255
350.001	3.0051	11.3371
352.000	3.7405	11.3351
356.001	5.2170	11.3313
359.998	6.6996	11.3274
363.999	8.1895	11.3236
368.000	9.6841	11.3198
372.002	11.1814	11.3160
376.000	12.6808	11.3122
379.998	14.1824	11.3084
384.001	15.6860	11.3046
387.999	17.1924	11.3008
391.998	18.6961	11.2970
395.998	20.2028	11.2931
400.000	21.7082	11.2893
372.000	3.7739	9.6952
376.000	4.7159	9.6921
380.000	5.6709	9.6890
384.001	6.6377	9.6859
388.002	7.6118	9.6827
391.999	8.5934	9.6796
396.001	9.5809	9.6764
400.000	10.5733	9.6732

Table 28. Liquid-Phase Isochoric PVT Data for HFC-152a in PI Units.

T	p	ρ
°F	psia	$lb \cdot ft^{-3}$
-175.27	297.790	74.165
-171.67	900.705	74.145
-168.07	1503.705	74.127
-164.47	2102.806	74.109
-160.87	2700.374	74.092
-157.27	3294.908	74.075
-153.67	3885.649	74.059
-150.07	4472.947	74.043
-146.47	5057.180	74.027
-150.07	592.857	72.688
-146.47	1140.104	72.670
-142.87	1687.939	72.653
-139.27	2231.768	72.637
-135.67	2774.836	72.621
-132.07	3314.885	72.605
-128.47	3850.258	72.590
-124.87	4384.922	72.575
-121.27	4915.677	72.560
-124.87	346.767	70.992
-121.27	837.965	70.974
-117.67	1328.233	70.958
-114.07	1816.900	70.942
-110.47	2303.287	70.927
-106.87	2787.886	70.912
-103.27	3270.985	70.898
-99.67	3752.089	70.883
-96.07	4230.288	70.869
-92.47	4706.368	70.855
-96.07	376.097	69.152
-92.47	812.406	69.136
-88.87	1247.815	69.121
-85.27	1682.505	69.106
-81.67	2115.099	69.092
-78.07	2546.742	69.078
-74.47	2976.982	69.064
-70.87	3404.631	69.050
-67.27	3831.083	69.036
-63.67	4255.086	69.023
-60.07	4678.066	69.010
-56.47	5098.822	68.997
-67.27	352.785	67.251
-63.67	740.332	67.236
-60.07	1126.520	67.221
-56.47	1512.178	67.208
-52.87	1896.570	67.194
-49.27	2280.302	67.181
-45.67	2661.897	67.168
-42.07	3041.837	67.155
-38.47	3420.683	67.142
-34.87	3798.446	67.129
-31.27	4174.633	67.116

Table 28. Liquid-Phase Isochoric PVT Data for HFC-152a in PI Units (continued).

T	p	ρ
°F	psia	lb·ft^{-3}
-27.67	4550.183	67.104
-24.07	4922.941	67.091
-31.27	364.956	64.826
-27.67	697.293	64.812
-24.07	1029.147	64.799
-20.47	1360.520	64.786
-16.87	1690.772	64.773
-13.27	2020.284	64.761
-9.67	2348.399	64.749
-6.07	2676.549	64.736
-2.47	3003.441	64.724
1.13	3328.628	64.712
4.73	3653.662	64.700
8.33	3976.946	64.689
11.93	4299.712	64.677
15.53	4621.273	64.665
19.13	4941.578	64.653
11.93	218.789	61.812
15.53	459.033	61.592
19.13	730.891	61.580
22.73	1002.347	61.568
26.33	1272.765	61.556
29.93	1543.014	61.545
33.53	1812.994	61.533
37.13	2082.422	61.522
40.73	2351.211	61.511
44.33	2618.609	61.500
47.93	2885.696	61.488
51.53	3153.036	61.477
55.13	3419.426	61.466
58.73	3684.676	61.455
62.33	3949.615	61.445
65.93	4213.664	61.434
69.53	4476.332	61.423
73.13	4739.029	61.412
76.73	4999.809	61.401
62.33	461.365	57.976
69.53	895.334	57.954
76.73	1328.858	57.933
83.93	1761.088	57.912
91.13	2192.484	57.891
98.33	2622.603	57.871
105.53	3051.309	57.851
112.73	3478.079	57.830
119.93	3902.462	57.810
127.13	4325.133	57.791
134.33	4746.235	57.771
119.93	433.514	52.743
127.13	746.899	52.724
134.33	1060.696	52.706

Table 28. Liquid-Phase Isochoric PVT Data for HFC-152a in PI Units (continued).

T	P	ρ
°F	psia	$lb \cdot ft^{-3}$
141.53	1374.260	52.687
148.73	1688.003	52.669
155.93	2000.528	52.652
163.13	2313.565	52.635
170.33	2626.522	52.617
177.53	2938.982	52.599
184.73	3250.436	52.581
191.93	3561.599	52.563
199.13	3871.630	52.545
206.33	4180.906	52.527
213.53	4489.458	52.509
220.73	4797.277	52.491
227.93	5103.981	52.473
170.33	435.856	46.748
173.93	542.522	46.740
181.13	756.662	46.724
188.33	971.697	46.708
195.53	1187.787	46.692
202.73	1404.560	46.676
209.93	1621.735	46.661
217.13	1839.199	46.645
224.33	2056.985	46.629
231.53	2275.060	46.614
238.73	2493.550	46.598
245.93	2711.652	46.582
253.13	2930.168	46.566
260.33	3148.509	46.551
209.93	547.358	39.978
217.13	683.991	39.965
224.33	822.489	39.952
231.53	962.721	39.939
238.73	1104.007	39.926
245.93	1246.365	39.913
253.13	1389.593	39.900
260.33	1533.524	39.887

Table 29. Vapor Pressure Data for HFC-152a Using Ebulliometer.

Temperature K	Pressure kPa	Temperature °F	Pressure psia
219.9213	22.723	-63.812	3.296
223.0822	27.322	-58.122	3.963
224.6703	29.885	-55.263	4.334
225.9588	32.125	-52.944	4.659
227.8497	35.645	-49.541	5.170
229.2783	38.501	-46.969	5.584
230.9236	42.018	-44.008	6.094
232.5666	45.792	-41.050	6.642
234.0807	49.497	-38.325	7.179
235.5396	53.303	-35.699	7.731
234.9021	51.588	-36.846	7.482
236.4962	55.911	-33.977	8.109
236.0588	54.700	-34.764	7.934
237.9380	60.052	-31.382	8.710
239.5278	64.912	-28.520	9.415
241.2953	70.666	-25.338	10.249
242.8216	75.955	-22.591	11.016
244.1488	80.807	-20.202	11.720
245.8435	87.351	-17.152	12.669
247.4888	94.123	-14.190	13.651
249.2616	101.864	-10.999	14.774
250.7699	108.836	-8.284	15.785
250.1258	105.788	-9.444	15.343
251.5337	112.496	-6.909	16.316
253.2189	120.958	-3.876	17.544
254.7683	129.162	-1.087	18.733
256.5187	138.939	2.064	20.152
258.1101	148.335	4.928	21.514
259.7447	158.511	7.870	22.990
261.3099	168.744	10.688	24.474
262.6793	178.124	13.153	25.835
264.7567	193.084	16.892	28.005
266.6026	207.226	20.215	30.056
268.3214	221.084	23.309	32.066
268.2057	220.076	23.100	31.919
269.9179	234.549	26.182	34.019
271.5728	249.218	29.161	36.146
273.1388	263.726	31.980	38.250

Table 30. Speed of Sound Data for HFC-152a.

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
242.776	-22.672	69.297	10.051	184.3142	604.7054	26.7
		65.179	9.453	184.5916	605.6155	27.6
		62.954	9.131	184.7403	606.1033	32.9
		59.212	8.588	184.9874	606.9140	12.1
		55.685	8.076	185.2171	607.6677	12.0
		51.438	7.460	185.5013	608.6000	7.1
		48.384	7.018	185.7121	609.2917	22.6
257.973	4.682	124.900	18.115	187.6295	615.5823	34.8
		118.774	17.227	187.9597	616.6657	32.2
		108.555	15.745	188.5042	618.4521	28.8
		99.302	14.403	188.9914	620.0505	26.4
		88.901	12.894	189.5343	621.8317	22.4
		78.928	11.448	190.0498	623.5230	25.7
		70.300	10.196	190.4913	624.9714	24.2
		59.873	8.684	191.0191	626.7031	19.5
		50.735	7.358	191.4783	628.2097	34.5
		40.717	5.905	191.9704	629.8242	67.5
273.130	31.964	208.589	30.253	189.8258	622.7881	88.9
		194.016	28.140	190.5045	625.0148	78.6
		175.289	25.424	191.3685	627.8494	64.7
		154.413	22.396	192.3131	630.9485	58.0
		136.215	19.756	193.1260	633.6155	41.7
		117.452	17.035	193.9511	636.3225	27.5
		97.204	14.098	194.8286	639.2014	13.0
		79.143	11.479	195.5989	641.7287	12.1
		59.463	8.624	196.4277	644.4479	4.3
		40.717	5.905	197.2149	647.0305	77.2
289.946	62.233	379.117	54.986	190.1302	623.7867	100.9
		344.600	49.980	191.5789	628.5397	100.2
		292.273	42.391	193.6657	635.3862	100.7
		264.481	38.360	194.7467	638.9327	100.8
		238.982	34.661	195.7270	642.1490	100.7
		218.133	31.638	196.5001	644.6854	104.7
		163.244	23.677	198.5477	651.4032	48.1
		133.592	19.376	199.6279	654.9472	27.1
		94.865	13.759	201.0189	659.5109	18.4
		89.182	12.935	201.2145	660.1525	8.5
		79.229	11.491	201.5665	661.3074	2.3
		73.751	10.697	201.7396	661.8753	11.8
		66.392	9.629	202.0156	662.7808	29.5
		60.029	8.706	202.2418	663.5230	25.0
		53.590	7.773	202.4391	664.1703	90.6
		47.994	6.961	202.6631	664.9052	25.0
		40.674	5.899	202.9477	665.8389	33.9

Table 30. Speed of Sound Data for HFC-152a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
300.013	80.354	473.878	68.730	191.3815	627.8921	90.3
		438.842	63.649	192.7164	632.2717	58.0
		398.755	57.835	194.2023	637.1467	49.6
		359.025	52.072	195.6401	641.8639	48.2
		314.274	45.582	197.2253	647.0646	43.8
		268.528	38.947	198.8068	652.2532	38.9
		226.974	32.920	200.2116	656.8622	41.1
		185.610	26.920	201.5855	661.3698	31.6
		145.986	21.173	202.8757	665.6027	28.6
		125.632	18.221	203.5322	667.7565	26.4
		125.681	18.228	203.5311	667.7529	25.6
		108.776	15.777	204.0708	669.5236	24.9
		101.681	14.748	204.2917	670.2484	26.9
		101.674	14.747	204.2929	670.2523	27.3
		98.766	14.325	204.3903	670.5718	31.4
		95.643	13.872	204.4852	670.8832	26.0
		89.645	13.002	204.6795	671.5207	33.7
		87.597	12.705	204.7393	671.7169	28.7
		80.936	11.739	204.9494	672.4062	30.0
		77.140	11.188	205.0752	672.8189	29.7
		74.313	10.778	205.1559	673.0837	23.4
		68.326	9.910	205.3501	673.7208	16.1
		61.727	8.953	205.5569	674.3993	13.1
		54.897	7.962	205.7593	675.0633	34.6
		47.172	6.842	206.0082	675.8799	4.9
		40.813	5.919	206.2073	676.5331	12.4
309.991	98.313	667.796	96.856	189.4653	621.6053	83.0
		611.372	88.672	191.5241	628.3599	96.7
		501.479	72.733	195.3295	640.8448	25.0
		480.440	69.682	196.0509	643.2116	86.0
		419.400	60.829	198.0611	649.8068	84.4
		362.511	52.578	199.8834	655.7855	80.8
		232.548	33.728	203.8814	668.9022	57.0
		163.940	23.777	205.9122	675.5649	43.1
		98.955	14.352	207.7979	681.7516	33.2
		93.354	13.540	207.9572	682.2743	24.1
		86.932	12.608	208.1385	682.8691	1.2
		80.312	11.648	208.3246	683.4797	1.7
		56.316	8.168	209.0094	685.7264	37.2
		50.699	7.353	209.1726	686.2618	25.0
		46.742	6.779	209.2865	686.6355	63.2
		41.971	6.087	209.4214	687.0781	25.0
		38.785	5.625	209.5130	687.3786	25.0

Table 30. Speed of Sound Data for HFC-152a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
329.945	134.232	1029.783	149.357	188.8217	619.4938	59.5
		821.186	119.103	195.3172	640.8044	77.0
		631.811	91.636	200.7613	658.6657	77.5
		557.900	80.917	202.7786	665.2841	72.1
		454.698	65.948	205.5165	674.2667	74.2
		368.364	53.427	207.7353	681.5463	61.2
		276.417	40.091	210.0353	689.0922	47.7
		185.203	26.861	212.2585	696.3862	29.6
		120.131	17.424	213.8180	701.5026	7.9
		103.515	15.014	214.1945	702.7379	36.7
		96.548	14.003	214.3604	703.2822	3.7
		89.409	12.968	214.5391	703.8684	3.9
		86.322	12.520	214.6048	704.0840	0.4
		75.979	11.020	214.8480	704.8819	8.7
		75.633	10.970	214.8626	704.9297	10.3
		65.189	9.455	215.1126	705.7500	5.8
		63.256	9.175	215.1555	705.8907	17.9
		58.083	8.424	215.2718	706.2723	23.0
		51.742	7.505	215.4213	706.7628	42.9
		45.643	6.620	215.5659	707.2372	51.7
		39.973	5.798	215.6944	707.6588	34.9
349.990	170.312	1014.575	147.152	200.5890	658.1004	119.8
		913.799	132.535	203.0093	666.0410	83.5
		766.833	111.220	206.3374	676.9600	263.3
		693.330	100.559	207.9909	682.3849	220.3
		531.155	77.038	211.6543	694.4039	71.0
		449.681	65.221	213.3834	700.0768	92.6
		363.687	52.748	215.1891	706.0010	71.2
		309.614	44.906	216.2950	709.6293	58.0
		182.801	26.513	218.8805	718.1119	14.7
		93.872	13.615	220.6438	723.8970	3.5
		93.918	13.622	220.6364	723.8727	2.9
		87.436	12.682	220.7666	724.2999	1.3
		82.225	11.926	220.8704	724.6404	13.4
		74.760	10.843	221.0172	725.1220	15.8
		68.065	9.872	221.1496	725.5564	16.4
		50.945	7.389	221.4993	726.7037	2.6
		50.923	7.386	221.5091	726.7359	32.1
		46.673	6.769	221.5952	727.0184	25.0
		34.704	5.033	221.8563	727.8750	25.0

Table 30. Speed of Sound Data for HFC-152a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	$10^6\delta u/u$
369.985	206.303	1016.462	147.425	210.1440	689.4488	54.0
		799.807	116.002	214.2621	702.9597	66.8
		611.982	88.760	217.6876	714.1982	79.7
		445.385	64.598	220.6314	723.8563	95.7
		189.751	27.521	225.0360	738.3071	61.6
		104.789	15.198	226.4667	743.0010	0.2
		98.457	14.280	226.5765	743.3613	3.3
		94.527	13.710	226.6414	743.5742	6.5
		87.668	12.715	226.7576	743.9554	8.7
		82.416	11.953	226.8511	744.2621	17.7
		76.485	11.093	226.9479	744.5798	16.0
		69.414	10.068	227.0641	744.9609	11.6
		62.278	9.033	227.1885	745.3691	56.6
		56.502	8.195	227.2844	745.6837	35.2
		47.642	6.910	227.4317	746.1670	48.4
		41.067	5.956	227.5493	746.5528	25.0
399.959	260.256	1005.176	145.788	222.7795	730.9039	58.1
		955.631	138.603	223.4874	733.2264	62.6
		947.797	137.466	223.6012	733.5997	67.1
		947.770	137.462	223.5994	733.5938	57.1
		947.642	137.444	223.6024	733.6037	53.5
		820.092	118.944	225.4018	739.5072	76.3
		505.233	73.278	229.7674	753.8300	70.2
		459.746	66.681	230.3910	755.8760	62.2
		375.462	54.456	231.5337	759.6250	54.1
		335.836	48.709	232.0694	761.3825	50.0
		204.089	29.601	233.8379	767.1848	16.1
		107.554	15.599	235.1222	771.3983	2.8
		106.925	15.508	235.1329	771.4334	6.8
		97.359	14.121	235.2617	771.8560	9.0
		92.530	13.420	235.3286	772.0754	5.5
		87.856	12.742	235.3933	772.2877	16.2
		82.236	11.927	235.4686	772.5348	17.1
		82.082	11.905	235.4734	772.5505	12.3

Table 31. Ideal-Gas Heat Capacity, C_p°, of HFC-152a.

T/K	T/°F	C_p°/R	$\sigma(C_p^\circ)/R$
242.776	-22.672	6.97240	0.012
257.973	4.682	7.31965	0.011
273.130	31.964	7.62731	0.006
289.946	62.233	7.97092	0.019
300.013	80.354	8.15861	0.007
309.991	98.313	8.32217	0.008
329.945	134.232	8.70200	0.008
349.990	170.312	9.05906	0.012
369.985	206.303	9.44295	0.007
399.959	260.256	9.97502	0.005

Table 32a. Acoustic Virial Coefficients for HFC-152a (SI Units).

T K	$10^6 \beta_a$ m^3/mol	$10^9 \gamma_a$ $m^3/(mol \cdot Pa)$	$10^{17} \delta_a$ $m^3/(mol \cdot Pa^2)$
242.776	-1392.40 ± 4.9	-	-
257.973	-1044.15 ± 6.1	-0.4400 ± .035	-
273.130	-951.01 ± 1.6	-0.2736 ± .015	-
289.946	-797.76 ± 6.6	-0.1307 ± .018	-
300.013	-736.65 ± 2.4	-0.0606 ± .010	-8.45 ± 1.3
309.991	-683.93 ± 2.6	-0.0358 ± .009	-6.24 ± 0.8
329.945	-583.73 ± 1.2	-0.0313 ± .003	-2.25 ± 0.2
349.990	-531.30 ± 4.1	-0.0366 ± .011	-1.38 ± 0.3
369.985	-451.95 ± 1.8	-0.0054 ± .004	-
399.959	-370.38 ± 0.6	-0.0035 ± .001	-

Table 32b. Acoustic Virial Coefficients for HFC-152a (PI Units).

T °F	$10^4 \beta_a$ $Btu/(psi \cdot mol)$	$10^6 \gamma_a$ $Btu/(mol \cdot psi^2)$	$10^9 \delta_a$ $Btu/(mol \cdot psi^3)$
-22.672	-91.054	-	-
4.682	-68.281	-19.84 ± 1.6	-
31.964	-62.190	-12.34 ± 0.7	-
62.233	-52.168	-5.893 ± 0.8	-
80.354	-48.171	-2.732 ± 0.4	-26.3 ± 4.0
98.313	-44.725	-1.614 ± 0.4	-19.4 ± 2.5
134.232	-38.172	-1.411 ± 0.1	-6.99 ± 0.6
170.312	-34.744	-1.650 ± 0.5	-4.29 ± 0.9
206.303	-29.555	-0.243 ± 0.2	-
260.256	-24.220	-0.158 ± 0.04	-

Table 33. Experimental Liquid Heat Capacity Data for HFC-152a in SI Units.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$			
164.2305	17.878	8.903	68.47	65.03	5.02	A
168.3638	17.857	16.441	68.72	68.49	0.33	A
172.4621	17.837	23.743	69.09	70.71	-2.34	A
174.7253	17.825	27.726	68.95	71.54	-3.76	B
176.5224	17.816	30.870	69.64	72.05	-3.46	A
186.6279	17.232	5.728	68.16	71.54	-4.96	A
190.7495	17.214	12.211	68.72	71.58	-4.16	A
192.5569	17.206	15.031	68.62	71.53	-4.25	B
194.8352	17.195	18.564	68.89	71.44	-3.70	A
196.6300	17.187	21.329	68.94	71.34	-3.48	B
198.8941	17.177	24.791	69.36	71.19	-2.64	A
200.6744	17.169	27.490	69.29	71.07	-2.56	B
202.9139	17.159	30.854	69.58	70.89	-1.88	A
212.0842	16.512	4.924	69.14	68.88	0.38	A
214.2033	16.503	7.750	69.18	68.77	0.59	B
216.1625	16.496	10.349	69.40	68.67	1.05	A
218.2660	16.487	13.122	69.50	68.57	1.33	B
222.3026	16.472	18.391	69.78	68.39	2.00	B
224.2446	16.464	20.900	70.14	68.31	2.61	A
226.3064	16.456	23.544	70.20	68.23	2.81	B
228.2340	16.449	25.997	70.65	68.16	3.52	A
230.2770	16.441	28.578	70.72	68.10	3.72	B
232.2033	16.434	30.993	71.17	68.04	4.39	A
239.1601	15.714	4.192	70.32	67.09	4.58	B
241.1884	15.707	6.429	70.44	67.12	4.72	A
243.2038	15.701	8.641	70.80	67.15	5.16	B
247.2244	15.687	13.018	71.36	67.21	5.81	B
249.2580	15.681	15.214	71.47	67.25	5.90	A
251.2208	15.674	17.322	71.93	67.29	6.46	B
253.2553	15.668	19.494	71.99	67.33	6.47	A
255.1956	15.661	21.554	72.29	67.38	6.80	B
259.1340	15.648	25.697	72.67	67.48	7.14	B
261.1626	15.642	27.812	72.86	67.53	7.31	A
263.0467	15.636	29.764	73.24	67.59	7.72	B
265.0773	15.629	31.854	73.41	67.65	7.85	A
262.0871	15.012	4.112	72.21	67.31	6.78	A
263.9639	15.007	5.854	72.36	67.40	6.85	B
266.1362	15.001	7.865	72.56	67.51	6.97	A
267.9869	14.995	9.573	72.74	67.60	7.07	B
270.1639	14.989	11.573	72.93	67.70	7.17	A
271.9894	14.984	13.244	73.21	67.79	7.40	B
274.1650	14.978	15.227	73.35	67.89	7.43	A
275.9661	14.973	16.861	73.72	67.98	7.79	B
278.1458	14.966	18.830	74.03	68.09	8.03	A
282.0988	14.955	22.375	74.33	68.28	8.14	A
283.8473	14.950	23.932	74.79	68.36	8.59	B
286.0329	14.944	25.869	74.68	68.47	8.32	A
287.7488	14.939	27.383	75.24	68.55	8.88	B
289.9306	14.933	29.298	75.28	68.66	8.80	A
293.8240	14.922	32.691	75.81	68.85	9.17	A

Table 33. Experimental Liquid Heat Capacity Data for HFC-152a in SI Units (continued).

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$			
288.0405	14.136	3.597	74.52	68.95	7.47	A
289.9902	14.131	5.057	75.18	69.08	8.12	B
292.0922	14.126	6.628	75.35	69.22	8.14	A
294.0453	14.122	8.085	75.50	69.34	8.15	B
300.1578	14.107	12.623	76.05	69.72	8.33	A
302.0982	14.103	14.055	76.33	69.84	8.51	B
304.1544	14.098	15.567	76.60	69.96	8.68	A
308.1387	14.089	18.484	77.15	70.18	9.03	A
312.1127	14.079	21.372	77.43	70.40	9.08	A
316.0694	14.070	24.227	78.00	70.61	9.47	A
320.0177	14.061	27.057	78.59	70.81	9.90	A
323.9573	14.052	29.860	78.96	71.00	10.08	A
327.8836	14.043	32.637	79.23	71.17	10.18	A
329.8431	14.038	34.016	79.44	71.24	10.32	B
306.1876	13.454	3.260	76.65	70.85	7.56	A
308.2253	13.450	4.549	76.92	70.99	7.71	B
310.3180	13.446	5.872	77.23	71.12	7.91	A
312.3627	13.442	7.162	77.38	71.25	7.92	B
316.4948	13.434	9.764	77.72	71.50	8.00	B
318.5128	13.429	11.031	77.70	71.61	7.84	A
322.5989	13.421	13.589	78.36	71.83	8.34	A
326.6732	13.413	16.129	78.68	72.02	8.47	A
328.8479	13.409	17.480	79.13	72.11	8.87	B
332.9423	13.400	20.014	79.64	72.26	9.27	B
337.0356	13.392	22.534	80.15	72.36	9.72	B
338.8581	13.388	23.651	80.22	72.39	9.76	A
341.1235	13.384	25.035	80.40	72.41	9.94	B
342.9291	13.380	26.136	80.51	72.40	10.08	A
327.1226	12.558	3.027	79.30	73.76	6.98	A
331.3742	12.551	5.171	79.67	73.96	7.17	A
333.5828	12.547	6.285	79.80	74.04	7.22	B
335.6247	12.544	7.314	79.92	74.11	7.27	A
339.8725	12.537	9.454	80.28	74.20	7.57	A
342.1118	12.533	10.581	80.71	74.22	8.04	B

Table 34. Experimental Liquid Heat Capacity Data for HFC-152a in PI Units.

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v, %	Run
°F	$lb \cdot ft^{-3}$	psia	$Btu \cdot lb^{-1} \cdot °F^{-1}$			
-164.055	73.72	1291.3	0.24777	0.23532	5.02	A
-156.615	73.63	2384.6	0.24865	0.24783	0.33	A
-149.238	73.55	3443.7	0.24999	0.25585	-2.34	A
-145.164	73.50	4021.3	0.24950	0.25888	-3.76	B
-141.930	73.46	4477.3	0.25201	0.26073	-3.46	A
-123.740	71.06	830.8	0.24664	0.25888	-4.96	A
-116.321	70.98	1771.1	0.24865	0.25900	-4.16	A
-113.068	70.95	2180.1	0.24829	0.25884	-4.25	B
-108.967	70.90	2692.5	0.24929	0.25850	-3.70	A
-105.736	70.87	3093.5	0.24947	0.25814	-3.48	B
-101.661	70.83	3595.6	0.25098	0.25761	-2.64	A
-98.456	70.80	3987.1	0.25074	0.25715	-2.56	B
-94.425	70.76	4475.1	0.25178	0.25652	-1.88	A
-77.918	68.08	714.1	0.25018	0.24924	0.38	A
-74.104	68.05	1124.0	0.25031	0.24885	0.59	B
-70.577	68.02	1501.0	0.25113	0.24849	1.05	A
-66.791	67.98	1903.2	0.25148	0.24813	1.33	B
-59.525	67.92	2667.4	0.25251	0.24746	2.00	B
-56.030	67.89	3031.2	0.25379	0.24717	2.61	A
-52.318	67.86	3414.8	0.25402	0.24689	2.81	B
-48.849	67.83	3770.6	0.25565	0.24664	3.52	A
-45.171	67.79	4144.9	0.25592	0.24641	3.72	B
-41.704	67.76	4495.1	0.25752	0.24621	4.39	A
-29.182	64.80	608.0	0.25444	0.24278	4.58	B
-25.531	64.77	932.5	0.25490	0.24287	4.72	A
-21.903	64.74	1253.3	0.25619	0.24297	5.16	B
-14.666	64.69	1888.1	0.25821	0.24321	5.81	B
-11.006	64.66	2206.6	0.25861	0.24335	5.90	A
-7.473	64.63	2512.3	0.26029	0.24349	6.46	B
-3.811	64.60	2827.3	0.26051	0.24365	6.47	A
-0.318	64.58	3126.1	0.26158	0.24381	6.80	B
6.771	64.53	3727.1	0.26295	0.24417	7.14	B
10.423	64.50	4033.8	0.26363	0.24437	7.31	A
13.814	64.47	4316.9	0.26503	0.24456	7.72	B
17.469	64.45	4620.0	0.26562	0.24478	7.85	A
12.087	61.90	596.4	0.26128	0.24355	6.78	A
15.465	61.88	849.1	0.26182	0.24389	6.85	B
19.375	61.85	1140.8	0.26257	0.24427	6.97	A
22.706	61.83	1388.4	0.26322	0.24459	7.07	B
26.625	61.81	1678.6	0.26391	0.24498	7.17	A
29.911	61.79	1920.9	0.26490	0.24530	7.40	B
33.827	61.76	2208.5	0.26540	0.24568	7.43	A
37.069	61.74	2445.6	0.26676	0.24599	7.79	B
40.992	61.71	2731.1	0.26789	0.24637	8.03	A
48.108	61.67	3245.2	0.26897	0.24707	8.14	A
51.255	61.65	3471.1	0.27062	0.24737	8.59	B
55.189	61.62	3752.0	0.27023	0.24776	8.32	A
58.278	61.60	3971.5	0.27225	0.24806	8.88	B
62.205	61.58	4249.3	0.27241	0.24845	8.80	A
69.213	61.53	4741.5	0.27431	0.24915	9.17	A

Table 34. Experimental Liquid Heat Capacity Data for HFC-152a in PI Units (continued).

T	ρ	P	$C_{v,exp}$	$C_{v,cal}$	δC_v,%	Run
°F	$lb \cdot ft^{-3}$	psia	$Btu \cdot lb^{-1} \cdot °F^{-1}$			
58.803	58.29	521.8	0.26966	0.24951	7.47	A
62.312	58.27	733.4	0.27206	0.24998	8.12	B
66.096	58.25	961.3	0.27267	0.25047	8.14	A
69.612	58.23	1172.6	0.27319	0.25092	8.15	B
76.876	58.19	1607.8	0.27380	0.25183	8.03	B
80.614	58.17	1830.8	0.27520	0.25228	8.33	A
84.107	58.15	2038.5	0.27622	0.25270	8.51	B
87.808	58.13	2257.9	0.27719	0.25314	8.68	A
94.980	58.09	2680.8	0.27919	0.25396	9.03	A
102.133	58.06	3099.7	0.28019	0.25476	9.08	A
109.255	58.02	3513.9	0.28225	0.25552	9.47	A
116.362	57.98	3924.2	0.28439	0.25624	9.90	A
123.453	57.94	4330.9	0.28572	0.25692	10.08	A
130.521	57.90	4733.6	0.28669	0.25752	10.18	A
134.048	57.88	4933.6	0.28745	0.25779	10.32	B
91.468	55.48	472.8	0.27735	0.25637	7.56	A
95.135	55.46	659.8	0.27833	0.25686	7.71	B
98.902	55.44	851.7	0.27945	0.25735	7.91	A
102.583	55.43	1038.8	0.27999	0.25782	7.92	B
110.021	55.39	1416.1	0.28122	0.25871	8.00	B
113.653	55.38	1599.9	0.28117	0.25912	7.84	A
121.008	55.34	1971.0	0.28355	0.25990	8.34	A
128.342	55.31	2339.4	0.28472	0.26061	8.47	A
132.256	55.29	2535.3	0.28634	0.26094	8.87	B
139.626	55.26	2902.8	0.28818	0.26148	9.27	B
146.994	55.22	3268.2	0.29004	0.26185	9.72	B
150.275	55.21	3430.3	0.29027	0.26195	9.76	A
154.352	55.19	3631.1	0.29092	0.26200	9.94	B
157.602	55.17	3790.7	0.29133	0.26197	10.08	A
129.151	51.78	439.0	0.28694	0.26690	6.98	A
136.804	51.75	750.0	0.28827	0.26762	7.17	A
140.779	51.74	911.5	0.28876	0.26792	7.22	B
144.454	51.72	1060.8	0.28919	0.26816	7.27	A
152.100	51.70	1371.2	0.29049	0.26850	7.57	A
156.131	51.68	1534.7	0.29205	0.26857	8.04	B

Table 35. Experimental Two-phase Heat Capacity Data for HFC-152a in SI Units.

T	ρ_σ	P_σ	C_v[2]	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$				
162.6371	17.833	0.0002	99.48	99.47	90.79	8.73	C
164.8155	17.773	0.0002	99.66	99.65	91.14	8.53	D
166.9061	17.715	0.0003	99.77	99.75	91.43	8.35	C
169.0700	17.655	0.0004	99.74	99.73	91.61	8.14	D
171.1473	17.597	0.0005	100.09	100.07	91.85	8.22	C
173.2928	17.537	0.0006	99.98	99.96	92.10	7.86	D
175.3744	17.479	0.0007	99.88	99.86	92.37	7.50	C
179.5738	17.362	0.0011	100.25	100.22	92.99	7.21	C
181.6327	17.304	0.0013	100.62	100.58	93.23	7.31	D
183.7548	17.244	0.0016	100.43	100.39	93.55	6.82	C
185.7637	17.188	0.0019	100.73	100.68	93.86	6.78	D
187.8901	17.128	0.0023	101.10	101.05	94.20	6.78	C
189.8629	17.072	0.0027	100.97	100.92	94.53	6.33	D
191.9879	17.012	0.0033	101.10	101.04	94.89	6.09	C
196.0482	16.896	0.0045	101.43	101.35	95.60	5.67	C
200.0957	16.780	0.0061	101.61	101.52	96.35	5.09	C
202.0482	16.724	0.0071	101.89	101.79	96.71	4.99	D
204.1358	16.664	0.0082	102.07	101.96	97.11	4.76	C
206.0734	16.608	0.0094	102.33	102.21	97.48	4.63	D
208.1465	16.548	0.0108	102.48	102.35	97.88	4.36	C
210.0544	16.492	0.0123	102.54	102.40	98.25	4.05	D
212.1332	16.432	0.0141	103.10	102.95	98.67	4.16	C
213.9907	16.377	0.0158	102.94	102.77	99.03	3.64	D
216.0952	16.316	0.0180	103.36	103.18	99.45	3.62	C
217.9074	16.262	0.0201	103.58	103.39	99.81	3.46	D
220.0072	16.200	0.0228	103.69	103.49	100.22	3.15	C
223.8995	16.084	0.0286	104.26	104.03	101.00	2.92	C
225.7149	16.030	0.0317	104.32	104.09	101.36	2.62	D
227.7714	15.968	0.0355	104.76	104.52	101.76	2.63	C
229.5773	15.914	0.0391	104.99	104.74	102.12	2.50	D
231.6096	15.853	0.0436	105.42	105.15	102.52	2.51	C
233.3990	15.798	0.0478	105.47	105.19	102.87	2.20	D
235.4249	15.736	0.0530	105.92	105.64	103.27	2.24	C
237.2013	15.682	0.0579	105.97	105.67	103.62	1.95	D
239.2215	15.620	0.0640	106.40	106.10	104.01	1.97	C
242.9877	15.503	0.0766	106.82	106.50	104.74	1.65	C
244.7449	15.448	0.0831	107.62	107.30	105.08	2.07	D
248.4897	15.330	0.0984	108.13	107.80	105.80	1.85	D
250.4687	15.268	0.1074	108.19	107.86	106.18	1.55	C
252.2114	15.212	0.1159	108.51	108.17	106.52	1.53	D
254.1822	15.149	0.1260	108.75	108.42	106.90	1.40	C
255.9141	15.093	0.1355	109.32	108.99	107.24	1.60	D
257.8719	15.030	0.1469	109.58	109.25	107.62	1.49	C
259.5977	14.974	0.1576	109.83	109.50	107.96	1.41	D
261.5485	14.910	0.1704	109.95	109.63	108.34	1.18	C
263.2630	14.853	0.1822	110.53	110.22	108.68	1.40	D
265.1908	14.789	0.1964	110.65	110.36	109.06	1.17	C
268.8353	14.667	0.2254	111.49	111.23	109.79	1.29	C
270.5443	14.610	0.2401	111.53	111.29	110.14	1.03	D
272.4806	14.544	0.2576	112.16	111.95	110.54	1.26	C
276.1095	14.419	0.2931	112.84	112.68	111.31	1.21	C
279.7196	14.293	0.3320	113.67	113.58	112.09	1.31	C
281.3531	14.235	0.3509	114.28	114.23	112.46	1.55	D
283.3177	14.165	0.3747	114.58	114.58	112.90	1.46	C

Table 35. Experimental Two-phase Heat Capacity Data for HFC-152a in SI Units (continued).

T	ρ_σ	P_σ	C_v[2]	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
K	$mol \cdot dm^{-3}$	MPa	$J \cdot mol^{-1} \cdot K^{-1}$				
284.9340	14.107	0.3952	114.87	114.91	113.27	1.43	D
286.8977	14.036	0.4212	115.14	115.24	113.74	1.30	C
288.5131	13.977	0.4435	115.76	115.91	114.13	1.54	D
292.0801	13.846	0.4961	116.14	116.42	115.01	1.21	D
293.9998	13.774	0.5262	116.88	117.24	115.51	1.48	C
295.6262	13.713	0.5529	116.88	117.32	115.94	1.17	D
297.5080	13.641	0.5850	117.53	118.05	116.45	1.36	C
299.1478	13.578	0.6140	118.10	118.70	116.91	1.51	D
301.0038	13.506	0.6483	118.72	119.43	117.44	1.67	C
302.6614	13.441	0.6800	119.06	119.87	117.93	1.62	D
304.4901	13.368	0.7164	119.60	120.52	118.49	1.69	C
306.1538	13.301	0.7508	120.20	121.23	119.01	1.84	D
309.6370	13.160	0.8268	121.15	122.44	120.16	1.87	D
311.4236	13.086	0.8679	120.93	122.37	120.77	1.30	C
313.0962	13.016	0.9078	121.29	122.88	121.37	1.23	D
314.8787	12.940	0.9518	121.94	123.70	122.04	1.34	C

Table 36. Experimental Two-Phase Heat Capacity Data for HFC-152a in PI Units.

T	ρ_σ	P_σ	$C_v^{(2)}$	C_σ	$C_{\sigma,calc}$	δC_σ,%	Run
°F	lb·ft^{-3}	psia	Btu·lb^{-1}·°F^{-1}				
-166.923	73.53	0.03	0.35998	0.35995	0.32852	8.73	C
-163.002	73.29	0.03	0.36061	0.36057	0.32980	8.53	D
-159.239	73.05	0.04	0.36100	0.36096	0.33083	8.35	C
-155.344	72.80	0.05	0.36093	0.36088	0.33149	8.14	D
-151.605	72.56	0.07	0.36217	0.36211	0.33236	8.22	C
-147.743	72.31	0.09	0.36176	0.36169	0.33328	7.86	D
-143.996	72.07	0.11	0.36142	0.36134	0.33425	7.50	C
-136.437	71.59	0.16	0.36275	0.36264	0.33648	7.21	C
-132.731	71.35	0.19	0.36408	0.36396	0.33736	7.31	D
-128.911	71.11	0.23	0.36342	0.36328	0.33851	6.82	C
-125.295	70.87	0.28	0.36449	0.36433	0.33964	6.78	D
-121.468	70.63	0.34	0.36585	0.36566	0.34087	6.78	C
-117.917	70.39	0.40	0.36538	0.36517	0.34205	6.33	D
-114.092	70.15	0.47	0.36585	0.36562	0.34336	6.09	C
-106.783	69.67	0.65	0.36703	0.36675	0.34594	5.67	C
-99.498	69.19	0.89	0.36769	0.36734	0.34863	5.09	C
-95.983	68.96	1.03	0.36869	0.36832	0.34995	4.99	D
-92.226	68.71	1.19	0.36934	0.36893	0.35138	4.76	C
-88.738	68.48	1.36	0.37029	0.36985	0.35273	4.63	D
-85.006	68.23	1.57	0.37083	0.37035	0.35418	4.36	C
-81.572	68.01	1.78	0.37106	0.37054	0.35553	4.05	D
-77.830	67.76	2.04	0.37307	0.37251	0.35702	4.16	C
-74.487	67.53	2.29	0.37248	0.37188	0.35835	3.64	D
-70.699	67.28	2.62	0.37400	0.37335	0.35985	3.62	C
-67.437	67.06	2.92	0.37479	0.37411	0.36115	3.46	D
-63.657	66.80	3.31	0.37519	0.37447	0.36266	3.15	C
-56.651	66.32	4.15	0.37726	0.37645	0.36546	2.92	C
-53.383	66.10	4.60	0.37749	0.37664	0.36676	2.62	D
-49.682	65.84	5.15	0.37908	0.37819	0.36823	2.63	C
-46.431	65.62	5.67	0.37991	0.37899	0.36952	2.50	D
-42.773	65.37	6.32	0.38147	0.38050	0.37097	2.51	C
-39.552	65.14	6.93	0.38163	0.38063	0.37224	2.20	D
-35.905	64.89	7.69	0.38328	0.38224	0.37368	2.24	C
-32.708	64.66	8.40	0.38344	0.38237	0.37493	1.95	D
-29.071	64.41	9.28	0.38503	0.38392	0.37636	1.97	C
-22.292	63.93	11.10	0.38653	0.38537	0.37900	1.65	C
-19.129	63.70	12.05	0.38942	0.38825	0.38023	2.07	D
-12.389	63.21	14.28	0.39128	0.39007	0.38284	1.85	D
-8.826	62.96	15.58	0.39149	0.39028	0.38423	1.55	C
-5.689	62.73	16.81	0.39264	0.39143	0.38545	1.53	D
-2.142	62.47	18.28	0.39352	0.39230	0.38683	1.40	C
0.975	62.24	19.66	0.39558	0.39437	0.38804	1.60	D
4.499	61.97	21.31	0.39652	0.39533	0.38942	1.49	C
7.606	61.74	22.86	0.39741	0.39624	0.39064	1.41	D
11.117	61.48	24.71	0.39785	0.39671	0.39202	1.18	C
14.203	61.25	26.43	0.39994	0.39883	0.39325	1.40	D
17.673	60.98	28.48	0.40038	0.39932	0.39463	1.17	C
24.234	60.48	32.69	0.40343	0.40249	0.39729	1.29	C
27.310	60.24	34.82	0.40358	0.40270	0.39855	1.03	D
30.795	59.97	37.36	0.40587	0.40509	0.40000	1.26	C
37.327	59.45	42.51	0.40830	0.40772	0.40277	1.21	C
43.825	58.94	48.16	0.41131	0.41098	0.40561	1.31	C
46.766	58.70	50.90	0.41352	0.41333	0.40692	1.55	D
50.302	58.41	54.34	0.41461	0.41460	0.40853	1.46	C

Table 36. Experimental Two-phase Heat Capacity Data for HFC-152a in PI Units (continued).

T	ρ_σ	P_σ	C_v[2]	C_σ	$C_{\sigma,calc}$	δC_σ, %	Run
°F	$lb \cdot ft^{-3}$	psia	$Btu \cdot lb^{-1} \cdot °F^{-1}$				
53.211	58.17	57.31	0.41566	0.41581	0.40988	1.43	D
56.746	57.88	61.09	0.41663	0.41699	0.41156	1.30	C
59.654	57.63	64.33	0.41889	0.41943	0.41296	1.54	D
66.074	57.09	71.95	0.42025	0.42126	0.41617	1.21	D
69.530	56.80	76.33	0.42293	0.42424	0.41797	1.48	C
72.457	56.54	80.19	0.42294	0.42450	0.41953	1.17	D
75.844	56.25	84.84	0.42529	0.42718	0.42137	1.36	C
78.796	55.99	89.06	0.42734	0.42953	0.42303	1.51	D
82.137	55.69	94.02	0.42959	0.43215	0.42496	1.67	C
85.121	55.42	98.63	0.43082	0.43374	0.42673	1.62	D
88.412	55.12	103.91	0.43277	0.43611	0.42874	1.69	C
91.407	54.85	108.89	0.43494	0.43868	0.43063	1.84	D
97.677	54.26	119.91	0.43837	0.44305	0.43478	1.87	D
100.893	53.96	125.88	0.43758	0.44280	0.43702	1.30	C
103.903	53.67	131.66	0.43890	0.44465	0.43919	1.23	D
107.112	53.36	138.04	0.44125	0.44759	0.44159	1.34	C

Table 37. Coefficients of the MBWR Equation of State for HFC-152a [Units are K, bar, L, mol, R = 8.3145 J/(mol · K)].

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

$$
\begin{aligned}
a_1 &= RT \\
a_2 &= b_1 T + b_2 T^{0.5} + b_3 + b_4/T + b_5/T^2 \\
a_3 &= b_6 T + b_7 + b_8/T + b_9/T^2 \\
a_4 &= b_{10} T + b_{11} + b_{12}/T \\
a_5 &= b_{13} \\
a_6 &= b_{14}/T + b_{15}/T^2 \\
a_7 &= b_{16}/T \\
a_8 &= b_{17}/T + b_{18}/T^2 \\
a_9 &= b_{19}/T^2 \\
a_{10} &= b_{20}/T^2 + b_{21}/T^3 \\
a_{11} &= b_{22}/T^2 + b_{23}/T^4 \\
a_{12} &= b_{24}/T^2 + b_{25}/T^3 \\
a_{13} &= b_{26}/T^2 + b_{27}/T^4 \\
a_{14} &= b_{28}/T^2 + b_{29}/T^3 \\
a_{15} &= b_{30}/T^2 + b_{31}/T^3 + b_{32}/T^4
\end{aligned}
$$

i	b_i	i	b_i
1	$-0.250029315106 \times 10^{-1}$	17	$-0.209337192155 \times 10^{-2}$
2	0.314406758955×10	18	0.758342353876
3	$-0.842501194121 \times 10^{2}$	19	$-0.185756493708 \times 10^{-1}$
4	$0.152109896841 \times 10^{5}$	20	$-0.437568865038 \times 10^{6}$
5	$-0.235150953572 \times 10^{7}$	21	$-0.386718918565 \times 10^{8}$
6	$-0.560606848017 \times 10^{-3}$	22	$-0.176762932975 \times 10^{5}$
7	-0.561725012842	23	$0.519483578337 \times 10^{9}$
8	$0.349883524824 \times 10^{3}$	24	$-0.160087962199 \times 10^{3}$
9	$0.671534833264 \times 10^{6}$	25	$0.773474059810 \times 10^{4}$
10	$-0.101677799337 \times 10^{-3}$	26	$-0.145595794648 \times 10$
11	0.503738839118	27	$-0.743051998138 \times 10^{5}$
12	$-0.205514094728 \times 10^{3}$	28	$-0.951744381887 \times 10^{-2}$
13	$-0.137760294518 \times 10^{-1}$	29	0.387877679400×10
14	-0.205012592095	30	$-0.195015377121 \times 10^{-4}$
15	$-0.220865713923 \times 10^{3}$	31	$-0.160761476257 \times 10^{-1}$
16	$0.691474699057 \times 10^{-1}$	32	-0.841063960548

Table 38. Critical Parameters for HFC-152a for Use with the MBWR Equation of State.

T_c	386.441 K
P_c	45.167 bar
ρ_c	5.57145 mol/L

Table 39. Ideal Gas Heat Capacity Auxiliary Equation and its Coefficients for HFC-152a [Units are K and J/(mol · K)].

$$C_p^o = c_0 + c_1T + c_2T^2 + c_3T^3$$

i	c_i
0	27.12550
1	9.220968×10^{-2}
2	2.189067×10^{-4}
3	-2.514364×10^{-7}

Table 40a. Properties of Saturated Liquid and Saturated Vapor HFC-152a (SI Units).

Temp* °C	Pressure MPa	Density kg/m³ liq	Volume m³/kg vap	Enthalpy kJ/kg liq	Enthalpy kJ/kg vap	Entropy kJ/(kg·K) liq	Entropy kJ/(kg·K) vap	Specific Heat, C_p kJ/(kg·K) liq	Specific Heat, C_p kJ/(kg·K) vap	C_p/C_v vap	Vel of Sound m/s liq	Vel of Sound m/s vap
-118.59a	0.00006	1192.6	303.60225	14.03	419.77	0.1130	2.7381	1.492	0.692	1.223	1382.	154.
-110.00	0.00019	1177.0	107.80940	26.90	425.76	0.1940	2.6388	1.504	0.711	1.216	1332.	158.
-100.00	0.00058	1158.6	37.62733	41.98	432.92	0.2837	2.5415	1.512	0.734	1.209	1277.	162.
-90.00	0.00153	1140.2	15.05225	57.14	440.23	0.3688	2.4605	1.520	0.758	1.203	1224.	166.
-80.00	0.00359	1121.5	6.74193	72.38	447.68	0.4498	2.3929	1.528	0.784	1.197	1172.	170.
-70.00	0.00765	1102.6	3.31803	87.72	455.22	0.5272	2.3362	1.539	0.812	1.194	1121.	173.
-60.00	0.01501	1083.4	1.76706	103.17	462.81	0.6014	2.2887	1.552	0.842	1.191	1070.	177.
-50.00	0.02744	1063.9	1.00569	118.77	470.41	0.6729	2.2487	1.567	0.875	1.190	1020.	180.
-40.00	0.04723	1044.0	0.60538	134.54	477.97	0.7420	2.2149	1.586	0.912	1.192	970.	182.
-30.00	0.07720	1023.7	0.38213	150.52	485.44	0.8089	2.1864	1.607	0.952	1.195	921.	184.
-24.03b	0.10132	1011.3	0.29606	160.17	489.84	0.8481	2.1714	1.622	0.977	1.198	891.	185.
-20.00	0.12070	1002.8	0.25112	166.73	492.78	0.8741	2.1620	1.632	0.996	1.200	872.	186.
-10.00	0.18154	981.3	0.17077	183.21	499.93	0.9377	2.1413	1.660	1.044	1.208	822.	187.
0.00	0.26399	959.1	0.11955	200.00	506.85	1.0000	2.1234	1.692	1.097	1.220	773.	187.
10.00	0.37274	936.0	0.08578	217.13	513.48	1.0612	2.1078	1.728	1.157	1.235	724.	187.
20.00	0.51285	911.9	0.06282	234.65	519.75	1.1215	2.0940	1.770	1.223	1.255	674.	186.
30.00	0.68972	886.5	0.04680	252.62	525.59	1.1811	2.0815	1.820	1.300	1.282	624.	185.
40.00	0.90912	859.6	0.03535	271.11	530.89	1.2403	2.0698	1.879	1.390	1.317	573.	182.
50.00	1.17719	830.7	0.02698	290.21	535.53	1.2993	2.0584	1.953	1.498	1.365	521.	179.
60.00	1.50048	799.3	0.02073	310.05	539.32	1.3585	2.0467	2.047	1.636	1.434	468.	175.
70.00	1.88615	764.6	0.01598	330.81	541.97	1.4185	2.0338	2.177	1.824	1.536	414.	169.
80.00	2.34214	725.2	0.01228	352.78	543.05	1.4798	2.0186	2.370	2.105	1.703	357.	162.
90.00	2.87776	678.6	0.00933	376.51	541.71	1.5439	1.9988	2.703	2.600	2.014	298.	154.
100.00	3.50495	618.9	0.00686	403.24	535.98	1.6139	1.9696	3.489	3.786	2.796	234.	143.
110.00	4.24323	518.6	0.00447	438.76	517.25	1.7043	1.9092	9.129	12.083	8.388	158.	129.
113.26c	4.51670	368.0	0.00272	477.33	477.33	1.7903	1.7903	.inf	.inf	.inf	0.	0.

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

Table 40b. Properties of Saturated Liquid and Saturated Vapor HFC-152a (PI Units).

Temp* °C	Pressure MPa	Density kg/m³ liq	Volume m³/kg vap	Enthalpy kJ/kg liq	Enthalpy kJ/kg vap	Entropy kJ/(kg·K) liq	Entropy kJ/(kg·K) vap	Specific Heat, C_p kJ/(kg·K) liq	Specific Heat, C_p kJ/(kg·K) vap	C_p/C_v vap	Vel of Sound m/s liq	Vel of Sound m/s vap
-181.46a	0.009	74.45	4863.2412	-51.846	122.707	-0.15033	0.47708	0.3566	0.1654	1.2227	4535.	506.
-180.00	0.010	74.36	4384.0821	-51.324	122.949	-0.14846	0.47467	0.3570	0.1658	1.2221	4519.	507.
-160.00	0.041	73.10	1195.5934	-44.150	126.304	-0.12369	0.44512	0.3601	0.1717	1.2134	4310.	523.
-140.00	0.131	71.82	395.0223	-36.926	129.755	-0.10035	0.42106	0.3622	0.1779	1.2058	4112.	538.
-120.00	0.361	70.53	152.3839	-29.660	133.285	-0.07831	0.40140	0.3643	0.1846	1.1995	3920.	552.
-100.00	0.871	69.23	66.6850	-22.349	136.874	-0.05740	0.38529	0.3669	0.1917	1.1947	3733.	565.
-80.00	1.886	67.90	32.3603	-14.979	140.498	-0.03747	0.37204	0.3701	0.1996	1.1916	3548.	577.
-60.00	3.733	66.55	17.1004	-7.535	144.132	-0.01837	0.36111	0.3741	0.2083	1.1904	3365.	588.
-40.00	6.850	65.18	9.6972	0.000	147.746	0.00000	0.35205	0.3790	0.2179	1.1916	3184.	597.
-20.00	11.792	63.76	5.8312	7.644	151.314	0.01776	0.34453	0.3847	0.2286	1.1952	3003.	605.
-11.25b	14.696	63.13	4.7424	11.027	152.854	0.02536	0.34164	0.3876	0.2336	1.1977	2925.	608.
0.00	19.229	62.31	3.6821	15.414	154.808	0.03499	0.33824	0.3914	0.2404	1.2018	2824.	611.
20.00	29.936	60.81	2.4217	23.332	158.198	0.05178	0.33295	0.3991	0.2536	1.2118	2644.	614.
40.00	44.786	59.24	1.6477	31.418	161.455	0.06820	0.32845	0.4081	0.2684	1.2259	2465.	615.
60.00	64.741	57.61	1.1530	39.697	164.542	0.08433	0.32456	0.4185	0.2851	1.2454	2284.	613.
80.00	90.842	55.88	0.8256	48.201	167.418	0.10022	0.32113	0.4308	0.3043	1.2718	2101.	608.
100.00	124.208	54.04	0.6020	56.966	170.030	0.11596	0.31798	0.4458	0.3270	1.3082	1916.	600.
120.00	166.039	52.07	0.4451	66.045	172.305	0.13164	0.31495	0.4646	0.3549	1.3593	1728.	588.
140.00	217.627	49.90	0.3321	75.506	174.139	0.14737	0.31185	0.4894	0.3911	1.4340	1535.	573.
160.00	280.385	47.48	0.2487	85.458	175.371	0.16330	0.30840	0.5245	0.4420	1.5509	1337.	552.
180.00	355.911	44.67	0.1854	96.081	175.725	0.17969	0.30419	0.5800	0.5233	1.7545	1130.	526.
200.00	446.126	41.24	0.1356	107.740	174.628	0.19703	0.29843	0.6887	0.6853	2.1881	911.	493.
220.00	553.689	36.44	0.0935	121.520	170.399	0.21683	0.28875	1.0494	1.2303	3.7097	666.	450.
235.87c	655.092	22.97	0.0435	147.471	147.471	0.24534	0.24534	.inf	.inf	.inf	0.	0.

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

Table 41. Thermal Conductivity Data For HFC-152 From Steady-State Hot-Wire Experiments.

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)
8002	227.175	0.010	0.00895	-50.755	1.47	0.01548
8003	227.175	0.010	0.00894	-50.755	1.46	0.01546
8005	226.671	0.010	0.00894	-51.662	1.44	0.01546
8006	226.670	0.010	0.00893	-51.664	1.43	0.01544
8008	226.258	0.010	0.00890	-52.406	1.44	0.01539
8009	226.255	0.010	0.00894	-52.411	1.43	0.01546
8011	225.933	0.010	0.00889	-52.991	1.44	0.01538
8012	225.933	0.010	0.00889	-52.991	1.41	0.01538
9002	252.850	0.075	0.01104	-4.540	10.86	0.01909
9003	252.855	0.075	0.01101	-4.531	10.83	0.01904
9005	252.177	0.074	0.01100	-5.751	10.77	0.01902
9006	252.182	0.074	0.01098	-5.742	10.80	0.01899
9008	251.616	0.075	0.01100	-6.761	10.84	0.01902
9009	251.615	0.075	0.01098	-6.763	10.83	0.01899
9011	251.173	0.075	0.01097	-7.559	10.81	0.01897
9012	251.172	0.074	0.01098	-7.560	10.78	0.01899
9014	252.866	0.049	0.01091	-4.511	7.07	0.01887
9015	252.867	0.049	0.01090	-4.509	7.06	0.01885
9017	252.177	0.048	0.01091	-5.751	7.03	0.01887
9018	252.165	0.048	0.01098	-5.773	7.02	0.01899
9020	251.620	0.048	0.01078	-6.754	6.99	0.01864
9021	251.620	0.048	0.01078	-6.754	6.97	0.01864
9023	251.174	0.048	0.01070	-7.557	6.95	0.01851
9024	251.169	0.048	0.01075	-7.566	6.94	0.01859
9026	252.905	0.025	0.01083	-4.441	3.65	0.01873
9027	252.910	0.025	0.01081	-4.432	3.64	0.01870
9029	252.220	0.025	0.01080	-5.674	3.63	0.01868
9030	252.216	0.025	0.01080	-5.681	3.63	0.01868
9032	251.640	0.025	0.01083	-6.718	3.61	0.01873
9033	251.642	0.025	0.01080	-6.714	3.60	0.01868
9035	251.185	0.025	0.01091	-7.537	3.57	0.01887
9036	251.186	0.025	0.01086	-7.535	3.57	0.01878
10014	277.611	0.194	0.01336	40.030	28.16	0.02311
10015	277.629	0.194	0.01323	40.062	28.17	0.02288
10017	277.102	0.194	0.01341	39.114	28.15	0.02319
10018	277.117	0.194	0.01324	39.141	28.13	0.02290
10020	276.666	0.194	0.01348	38.329	28.11	0.02331
10021	276.677	0.194	0.01331	38.349	28.12	0.02302
10023	276.310	0.194	0.01351	37.688	28.09	0.02337
10024	276.317	0.194	0.01336	37.701	28.08	0.02311
10026	277.664	0.132	0.01312	40.125	19.08	0.02269
10027	277.670	0.131	0.01305	40.136	19.06	0.02257
10029	277.149	0.131	0.01310	39.198	18.98	0.02266
10030	277.151	0.131	0.01306	39.202	18.96	0.02259
10032	276.696	0.130	0.01319	38.383	18.91	0.02281
10033	276.707	0.130	0.01310	38.403	18.91	0.02266
10035	276.332	0.130	0.01320	37.728	18.88	0.02283

Table 41. Thermal Conductivity Data For HFC-152 From Steady-State Hot-Wire Experiments (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)
10036	276.334	0.130	0.01315	37.731	18.84	0.02274
10038	277.573	0.073	0.01283	39.961	10.52	0.02219
10039	277.575	0.072	0.01281	39.965	10.49	0.02215
10041	277.062	0.072	0.01281	39.042	10.43	0.02215
10042	277.061	0.072	0.01279	39.040	10.39	0.02212
10044	276.622	0.071	0.01277	38.250	10.33	0.02209
10045	276.623	0.071	0.01278	38.251	10.31	0.02210
10047	276.261	0.071	0.01281	37.600	10.25	0.02215
10048	276.260	0.071	0.01277	37.598	10.24	0.02209
10050	277.592	0.068	0.01275	39.996	9.88	0.02205
10051	277.596	0.068	0.01274	40.003	9.87	0.02203
10053	277.079	0.068	0.01271	39.072	9.89	0.02198
10054	277.083	0.068	0.01268	39.079	9.89	0.02193
10056	276.638	0.068	0.01271	38.278	9.91	0.02198
10057	276.636	0.068	0.01268	38.275	9.89	0.02193
10059	276.282	0.068	0.01257	37.638	9.91	0.02174
10060	276.281	0.068	0.01258	37.636	9.91	0.02176
10062	277.614	0.031	0.01261	40.035	4.52	0.02181
10063	277.617	0.031	0.01259	40.041	4.51	0.02177
10065	277.095	0.031	0.01257	39.101	4.50	0.02174
10066	277.092	0.031	0.01256	39.096	4.51	0.02172
10068	276.648	0.031	0.01255	38.296	4.49	0.02171
10069	276.644	0.031	0.01253	38.289	4.49	0.02167
10071	276.284	0.031	0.01249	37.641	4.47	0.02160
10072	276.281	0.031	0.01251	37.636	4.45	0.02164
3026	304.728	0.227	0.01559	88.840	32.91	0.02696
3027	304.749	0.227	0.01547	88.878	32.91	0.02676
3029	304.214	0.227	0.01557	87.915	32.91	0.02693
3030	304.228	0.227	0.01543	87.940	32.91	0.02669
3032	303.766	0.227	0.01557	87.109	32.87	0.02693
3033	303.780	0.226	0.01542	87.134	32.85	0.02667
3035	303.390	0.226	0.01553	86.432	32.83	0.02686
3036	303.393	0.226	0.01542	86.437	32.83	0.02667
3038	304.573	0.070	0.01515	88.561	10.15	0.02620
3039	304.579	0.070	0.01513	88.572	10.15	0.02617
3041	304.069	0.070	0.01511	87.654	10.14	0.02613
3042	304.069	0.070	0.01510	87.654	10.16	0.02612
3044	303.634	0.070	0.01510	86.871	10.16	0.02612
3045	303.637	0.070	0.01508	86.877	10.15	0.02608
3047	303.271	0.070	0.01508	86.218	10.17	0.02608
3048	303.268	0.070	0.01509	86.212	10.17	0.02610
4059	327.502	0.251	0.01800	129.834	36.36	0.03113
4060	327.512	0.251	0.01788	129.852	36.37	0.03092
4062	327.146	0.251	0.01801	129.193	36.39	0.03115
4063	327.145	0.251	0.01790	129.191	36.41	0.03096
4065	326.818	0.251	0.01803	128.602	36.45	0.03118

Table 41. Thermal Conductivity Data For HFC-152 From Steady-State Hot-Wire Experiments (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)
4066	326.820	0.252	0.01796	128.606	36.49	0.03106
4068	326.534	0.252	0.01813	128.091	36.54	0.03136
4069	326.536	0.252	0.01800	128.095	36.55	0.03113
4071	327.493	0.070	0.01722	129.817	10.13	0.02978
4072	327.494	0.070	0.01720	129.819	10.15	0.02975
4074	327.125	0.070	0.01718	129.155	10.18	0.02971
4075	327.126	0.070	0.01718	129.157	10.19	0.02971
4077	326.804	0.071	0.01708	128.577	10.25	0.02954
4078	326.803	0.071	0.01708	128.575	10.27	0.02954
4080	326.524	0.071	0.01702	128.073	10.31	0.02944
4081	326.527	0.071	0.01700	128.079	10.33	0.02940
11162	350.393	0.197	0.01887	171.037	28.56	0.03264
11164	350.537	0.197	0.01881	171.297	28.57	0.03253
11166	350.687	0.197	0.01873	171.567	28.58	0.03239
11168	350.870	0.197	0.01866	171.896	28.59	0.03227
11170	351.044	0.197	0.01867	172.209	28.58	0.03229
11172	351.240	0.197	0.01864	172.562	28.59	0.03224
11174	351.456	0.197	0.01860	172.951	28.61	0.03217
11176	351.687	0.197	0.01860	173.367	28.62	0.03217
11178	351.915	0.197	0.01859	173.777	28.62	0.03215
11180	352.164	0.197	0.01860	174.225	28.62	0.03217
11182	350.290	0.067	0.01838	170.852	9.69	0.03179
11184	350.401	0.067	0.01855	171.052	9.68	0.03208
11186	350.546	0.067	0.01849	171.313	9.71	0.03198
11188	350.685	0.067	0.01842	171.563	9.69	0.03186
11190	350.855	0.067	0.01832	171.869	9.69	0.03168
11192	351.017	0.067	0.01833	172.161	9.65	0.03170
11194	351.204	0.067	0.01829	172.497	9.71	0.03163
11196	351.391	0.067	0.01828	172.834	9.69	0.03162
11198	351.599	0.067	0.01829	173.208	9.70	0.03163
11200	351.824	0.067	0.01828	173.613	9.71	0.03162
16433	370.484	0.233	0.02149	207.201	33.76	0.03717
16436	370.591	0.233	0.02147	207.394	33.78	0.03713
16439	370.725	0.233	0.02146	207.635	33.79	0.03712
16442	370.835	0.233	0.02147	207.833	33.80	0.03713
16445	370.959	0.233	0.02148	208.056	33.84	0.03715
16448	371.104	0.233	0.02150	208.317	33.83	0.03718
16451	371.244	0.233	0.02153	208.569	33.86	0.03724
16454	371.402	0.234	0.02152	208.854	33.88	0.03722
16457	371.567	0.234	0.02151	209.151	33.90	0.03720
16460	371.726	0.234	0.02153	209.437	33.88	0.03724
16463	370.464	0.105	0.02132	207.165	15.19	0.03687
16466	370.579	0.105	0.02131	207.372	15.20	0.03686
16469	370.693	0.105	0.02133	207.577	15.21	0.03689
16472	370.827	0.105	0.02128	207.819	15.23	0.03680
16475	370.963	0.105	0.02128	208.063	15.22	0.03680
16478	371.104	0.105	0.02126	208.317	15.25	0.03677

Table 4l. Thermal Conductivity Data For HFC-152 From Steady-State Hot-Wire Experiments (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)
16481	371.244	0.105	0.02128	208.569	15.25	0.03680
16484	371.392	0.105	0.02128	208.836	15.25	0.03680
16487	371.559	0.105	0.02129	209.136	15.26	0.03682
16490	371.730	0.105	0.02128	209.444	15.27	0.03680
16493	370.429	0.060	0.02135	207.102	8.65	0.03692
16496	370.555	0.060	0.02133	207.329	8.65	0.03689
16499	370.742	0.060	0.01978	207.666	8.66	0.03421
16502	370.834	0.060	0.02070	207.831	8.66	0.03580
16505	370.961	0.060	0.02076	208.060	8.66	0.03590
16508	371.102	0.060	0.02078	208.314	8.68	0.03594
16511	371.245	0.060	0.02083	208.571	8.70	0.03603
16514	371.405	0.060	0.02083	208.859	8.68	0.03603
16517	371.565	0.060	0.02084	209.147	8.68	0.03604
16520	371.741	0.060	0.02088	209.464	8.69	0.03611
15717	409.506	0.201	0.02562	277.441	29.09	0.04431
15719	409.617	0.201	0.02557	277.641	29.10	0.04422
15721	409.756	0.201	0.02545	277.891	29.08	0.04402
15723	409.897	0.200	0.02547	278.145	29.02	0.04405
15725	410.052	0.200	0.02545	278.424	29.00	0.04402
15727	410.240	0.200	0.02539	278.762	29.00	0.04391
15729	410.419	0.200	0.02540	279.084	28.97	0.04393
15731	410.627	0.200	0.02538	279.459	28.96	0.04389
15733	410.855	0.200	0.02538	279.869	28.96	0.04389
15735	411.084	0.200	0.02535	280.281	28.96	0.04384
15737	409.490	0.134	0.02594	277.412	19.46	0.04486
15739	409.615	0.134	0.02564	277.637	19.47	0.04434
15741	409.748	0.134	0.02549	277.876	19.47	0.04408
15743	409.900	0.134	0.02550	278.150	19.48	0.04410
15745	410.057	0.135	0.02540	278.433	19.51	0.04393
15747	410.238	0.135	0.02531	278.758	19.52	0.04377
15749	410.426	0.135	0.02527	279.097	19.53	0.04370
15751	410.633	0.135	0.02523	279.469	19.52	0.04364
15753	410.853	0.135	0.02525	279.865	19.55	0.04367
15755	411.075	0.135	0.02522	280.265	19.56	0.04362
15757	409.495	0.071	0.02566	277.421	10.26	0.04438
15759	409.627	0.071	0.02543	277.659	10.26	0.04398
15761	409.742	0.071	0.02523	277.866	10.25	0.04364
15763	409.907	0.071	0.02515	278.163	10.27	0.04350
15765	410.059	0.071	0.02506	278.436	10.26	0.04334
15767	410.236	0.071	0.02502	278.755	10.28	0.04327
15769	410.444	0.071	0.02498	279.129	10.28	0.04320
15771	410.647	0.071	0.02495	279.495	10.28	0.04315
15773	410.871	0.071	0.02492	279.898	10.28	0.04310
15775	411.105	0.071	0.02491	280.319	10.28	0.04308

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments.

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)
5001	198.104	72.207	0.17225	-103.083	10472.77	0.29791
5002	197.702	72.209	0.17250	-103.806	10473.03	0.29834
5004	196.990	72.216	0.17301	-105.088	10474.04	0.29922
5006	196.390	72.216	0.17351	-106.168	10474.02	0.30009
5008	195.903	72.211	0.17363	-107.045	10473.36	0.30029
5010	197.738	64.404	0.17055	-103.742	9341.05	0.29497
5012	197.018	64.397	0.17096	-105.038	9340.00	0.29568
5014	196.403	64.393	0.17152	-106.145	9339.39	0.29664
5016	195.893	64.383	0.17168	-107.063	9338.06	0.29692
5018	197.731	49.698	0.16685	-103.754	7208.11	0.28857
5020	197.002	49.703	0.16714	-105.066	7208.83	0.28907
5022	196.379	49.703	0.16771	-106.188	7208.84	0.29005
5024	195.867	49.699	0.16800	-107.109	7208.25	0.29056
5029	197.843	29.989	0.16114	-103.553	4349.48	0.27869
5031	197.086	29.990	0.16143	-104.915	4349.74	0.27919
5033	196.446	29.999	0.16218	-106.067	4350.99	0.28049
5035	195.915	29.995	0.16239	-107.023	4350.43	0.28085
5038	197.977	8.002	0.15401	-103.311	1160.61	0.26636
5040	197.191	8.008	0.15443	-104.726	1161.51	0.26709
5042	196.528	8.009	0.15509	-105.920	1161.68	0.26823
5044	195.981	8.012	0.15582	-106.904	1162.07	0.26949
6001	233.019	71.079	0.16125	-40.236	10309.12	0.27888
6003	232.183	71.072	0.16153	-41.741	10308.19	0.27937
6005	231.485	71.070	0.16247	-42.997	10307.81	0.28099
6007	230.910	71.087	0.16349	-44.032	10310.38	0.28276
6010	232.925	54.924	0.15628	-40.405	7966.12	0.27029
6012	232.116	54.920	0.15677	-41.861	7965.44	0.27113
6014	231.424	54.912	0.15751	-43.107	7964.30	0.27241
6016	230.901	54.903	0.15864	-44.048	7962.99	0.27437
6019	233.054	36.964	0.15006	-40.173	5361.19	0.25953
6021	232.212	36.953	0.15056	-41.688	5359.53	0.26039
6023	231.500	36.939	0.15130	-42.970	5357.50	0.26167
6025	230.933	36.942	0.15283	-43.991	5358.07	0.26432
6028	233.008	19.025	0.14313	-40.256	2759.40	0.24754
6030	232.183	19.025	0.14369	-41.741	2759.32	0.24851
6032	231.486	19.021	0.14431	-42.995	2758.80	0.24958
6034	230.925	19.018	0.14534	-44.005	2758.33	0.25137
6036	233.031	3.714	0.13651	-40.214	538.64	0.23609
6038	232.224	3.709	0.13718	-41.667	537.95	0.23725
6040	231.537	3.700	0.13773	-42.903	536.60	0.23820
6042	230.977	3.700	0.13816	-43.911	536.70	0.23895
7001	267.807	72.182	0.14975	22.383	10469.20	0.25899
7003	266.987	72.180	0.14977	20.907	10468.89	0.25903
7005	266.300	72.173	0.14976	19.670	10467.80	0.25901
7007	265.738	72.166	0.15281	18.658	10466.83	0.26428
7010	267.889	55.943	0.14298	22.530	8113.87	0.24728
7012	267.038	55.942	0.14432	20.998	8113.79	0.24960

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
7013	267.911	55.582	0.14360	22.570	8061.51	0.24836
7015	267.063	55.582	0.14365	21.043	8061.48	0.24844
7017	266.350	55.583	0.14464	19.760	8061.68	0.25015
7019	265.769	55.582	0.14663	18.714	8061.45	0.25360
7021	268.043	40.879	0.13744	22.807	5928.97	0.23770
7023	267.165	40.880	0.13705	21.227	5929.18	0.23703
7025	266.425	40.880	0.13816	19.895	5929.11	0.23895
7027	265.825	40.877	0.14025	18.815	5928.77	0.24256
7029	267.998	26.453	0.13113	22.726	3836.67	0.22679
7031	267.136	26.464	0.13103	21.175	3838.22	0.22662
7033	266.417	26.476	0.13207	19.881	3839.96	0.22842
7035	265.831	26.481	0.13406	18.826	3840.69	0.23186
7037	268.163	14.379	0.12502	23.023	2085.54	0.21622
7039	267.275	14.374	0.12531	21.425	2084.81	0.21672
7041	266.520	14.372	0.12523	20.066	2084.43	0.21659
7043	265.912	14.366	0.12759	18.972	2083.65	0.22067
7045	267.942	3.580	0.11912	22.626	519.17	0.20602
7047	267.057	3.579	0.11895	21.033	519.04	0.20572
7049	266.308	3.575	0.11989	19.684	518.57	0.20735
7051	265.734	3.575	0.12232	18.651	518.50	0.21155
9001	254.075	0.085	0.00956	-2.335	12.28	0.01653
9004	252.840	0.084	0.00939	-4.558	12.21	0.01624
9007	251.804	0.084	0.00925	-6.423	12.24	0.01600
9010	250.978	0.084	0.00928	-7.910	12.23	0.01605
9013	254.255	0.057	0.00991	-2.011	8.33	0.01714
9016	252.965	0.057	0.00982	-4.333	8.27	0.01698
9019	251.889	0.057	0.00965	-6.270	8.22	0.01669
9022	251.003	0.056	0.00976	-7.865	8.17	0.01688
9025	254.516	0.032	0.00925	-1.541	4.71	0.01600
9028	253.150	0.032	0.00920	-4.000	4.70	0.01591
9031	252.015	0.032	0.00906	-6.043	4.68	0.01567
9034	251.086	0.032	0.00913	-7.715	4.65	0.01579
10001	278.595	0.267	0.01161	41.801	38.79	0.02008
10004	277.523	0.267	0.01129	39.871	38.75	0.01953
10007	276.619	0.267	0.01127	38.244	38.70	0.01949
10010	275.885	0.266	0.01107	36.923	38.61	0.01915
10013	278.360	0.210	0.01212	41.378	30.44	0.02096
10016	277.467	0.210	0.01165	39.771	30.41	0.02015
10019	276.692	0.209	0.01204	38.376	30.38	0.02082
10022	276.050	0.209	0.01183	37.220	30.37	0.02046
10025	278.548	0.144	0.01208	41.716	20.92	0.02089
10028	277.609	0.144	0.01198	40.026	20.82	0.02072
10031	276.792	0.143	0.01189	38.556	20.74	0.02056
10034	276.119	0.143	0.01204	37.344	20.69	0.02082
10037	278.553	0.082	0.01207	41.725	11.96	0.02088
10040	277.579	0.082	0.01202	39.972	11.86	0.02079
10043	276.745	0.081	0.01186	38.471	11.75	0.02051

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
10046	276.043	0.080	0.01184	37.207	11.66	0.02048
10049	278.591	0.078	0.01208	41.794	11.25	0.02089
10052	277.621	0.078	0.01191	40.048	11.25	0.02060
10055	276.776	0.078	0.01206	38.527	11.26	0.02086
10058	276.082	0.078	0.01202	37.278	11.28	0.02079
10061	278.835	0.039	0.01172	42.233	5.64	0.02027
10064	277.797	0.039	0.01159	40.365	5.60	0.02004
10067	276.899	0.039	0.01153	38.748	5.59	0.01994
10070	276.146	0.038	0.01157	37.393	5.57	0.02001
1001	303.586	71.257	0.14093	86.785	10335.03	0.24374
1003	302.594	71.171	0.13976	84.999	10322.46	0.24171
1005	301.772	71.077	0.13941	83.520	10308.84	0.24111
1007	301.114	70.985	0.14211	82.335	10295.55	0.24578
1009	303.275	57.483	0.13493	86.225	8337.19	0.23336
1011	302.340	57.415	0.13405	84.542	8327.39	0.23184
1013	301.568	57.357	0.13412	83.152	8318.96	0.23196
1015	300.977	57.289	0.13737	82.089	8309.04	0.23758
1017	303.182	45.169	0.12782	86.058	6551.18	0.22106
1019	302.210	45.179	0.12799	84.308	6552.73	0.22136
1021	301.414	45.172	0.12826	82.875	6551.74	0.22183
1023	300.786	45.178	0.13162	81.745	6552.61	0.22764
1025	303.232	32.914	0.12239	86.148	4773.74	0.21167
1027	302.215	32.917	0.12206	84.317	4774.21	0.21110
1029	301.373	32.892	0.12224	82.801	4770.64	0.21141
1031	300.735	32.859	0.12476	81.653	4765.79	0.21577
1033	303.243	23.219	0.11675	86.167	3367.65	0.20192
1035	302.212	23.208	0.11640	84.312	3366.06	0.20131
1037	301.380	23.206	0.11718	82.814	3365.77	0.20266
1039	300.728	23.201	0.11939	81.640	3365.03	0.20649
1041	303.287	14.399	0.11132	86.247	2088.39	0.19253
1043	302.283	14.417	0.11116	84.439	2091.09	0.19225
1045	301.464	14.427	0.11154	82.965	2092.41	0.19291
1047	300.828	14.441	0.11352	81.820	2094.57	0.19633
1049	303.275	7.033	0.10638	86.225	1020.01	0.18398
1051	302.257	7.052	0.10602	84.393	1022.76	0.18336
1053	301.426	7.073	0.10645	82.897	1025.84	0.18411
1055	300.743	7.072	0.10845	81.667	1025.67	0.18756
3001	305.800	0.599	0.01486	90.770	86.92	0.02570
3004	304.694	0.600	0.01477	88.779	87.06	0.02554
3007	303.728	0.600	0.01480	87.040	86.99	0.02560
3010	302.967	0.601	0.01467	85.671	87.20	0.02537
3013	305.818	0.455	0.01488	90.802	65.93	0.02573
3016	304.748	0.455	0.01478	88.876	65.94	0.02556
3019	303.822	0.455	0.01469	87.210	65.94	0.02541
3022	303.051	0.455	0.01476	85.822	65.95	0.02553
3025	305.599	0.244	0.01469	90.408	35.41	0.02541
3028	304.683	0.244	0.01458	88.759	35.40	0.02522

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
3031	303.884	0.244	0.01447	87.321	35.38	0.02503
3034	303.200	0.244	0.01452	86.090	35.32	0.02511
3037	305.630	0.080	0.01497	90.464	11.54	0.02589
3040	304.655	0.080	0.01479	88.709	11.54	0.02558
3043	303.805	0.079	0.01463	87.179	11.53	0.02530
3046	303.095	0.080	0.01489	85.901	11.54	0.02575
4001	328.434	1.181	0.01804	131.511	171.29	0.03120
4003	327.535	1.179	0.01791	129.893	171.07	0.03098
4005	326.764	1.179	0.01785	128.505	170.94	0.03087
4007	326.114	1.177	0.01824	127.335	170.76	0.03155
4011	328.390	1.086	0.01796	131.432	157.45	0.03106
4013	327.498	1.084	0.01785	129.826	157.26	0.03087
4015	326.726	1.081	0.01775	128.437	156.85	0.03070
4017	326.075	1.079	0.01777	127.265	156.45	0.03073
4020	328.387	0.937	0.01774	131.427	135.84	0.03068
4022	327.478	0.937	0.01761	129.790	135.95	0.03046
4024	326.687	0.938	0.01758	128.367	136.00	0.03040
4026	326.030	0.938	0.01769	127.184	136.09	0.03059
4029	328.158	0.938	0.01773	131.014	136.11	0.03066
4031	327.241	0.939	0.01763	129.364	136.17	0.03049
4033	326.460	0.939	0.01753	127.958	136.20	0.03032
4035	325.800	0.939	0.01759	126.770	136.24	0.03042
4037	328.573	0.711	0.01747	131.761	103.11	0.03021
4039	327.598	0.710	0.01725	130.006	102.99	0.02983
4041	326.764	0.709	0.01729	128.505	102.87	0.02990
4043	326.064	0.709	0.01736	127.245	102.77	0.03002
4046	328.276	0.488	0.01720	131.227	70.82	0.02975
4049	327.474	0.488	0.01714	129.783	70.82	0.02964
4052	326.751	0.489	0.01712	128.482	70.86	0.02961
4055	326.139	0.489	0.01720	127.380	70.90	0.02975
4058	328.011	0.269	0.01717	130.750	39.00	0.02970
4061	327.354	0.269	0.01699	129.567	39.05	0.02938
4064	326.767	0.270	0.01714	128.511	39.12	0.02964
4067	326.243	0.270	0.01717	127.567	39.17	0.02970
4070	328.246	0.079	0.01793	131.173	11.50	0.03101
4073	327.532	0.080	0.01785	129.888	11.55	0.03087
4076	326.893	0.080	0.01804	128.737	11.61	0.03120
4079	326.333	0.081	0.01814	127.729	11.69	0.03137
13001	337.155	67.693	0.12563	147.209	9818.13	0.21728
13002	337.153	67.695	0.12470	147.205	9818.39	0.21567
13005	336.938	67.694	0.12729	146.818	9818.26	0.22015
13006	336.961	67.694	0.12659	146.860	9818.18	0.21894
13009	336.744	67.696	0.12788	146.469	9818.53	0.22117
13010	336.749	67.696	0.12714	146.478	9818.57	0.21989
13013	336.553	67.699	0.12824	146.125	9818.90	0.22179
13014	336.562	67.699	0.12800	146.142	9818.91	0.22138
13017	336.377	67.699	0.12888	145.809	9818.95	0.22290

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
13018	336.385	67.701	0.12808	145.823	9819.23	0.22151
13021	336.195	67.701	0.12946	145.481	9819.28	0.22390
13022	336.198	67.701	0.12913	145.486	9819.28	0.22333
13025	336.026	67.700	0.13176	145.177	9819.14	0.22788
13026	336.035	67.702	0.13093	145.193	9819.40	0.22644
13029	335.870	67.703	0.13077	144.896	9819.55	0.22617
13030	335.865	67.702	0.13170	144.887	9819.43	0.22778
13033	335.710	67.706	0.13142	144.608	9819.93	0.22729
13034	335.708	67.707	0.13163	144.604	9820.10	0.22765
13037	335.563	67.696	0.13272	144.343	9818.54	0.22954
13038	335.567	67.687	0.13344	144.351	9817.15	0.23078
13041	335.544	58.207	0.12810	144.309	8442.22	0.22155
13043	335.702	58.208	0.12727	144.594	8442.36	0.22011
13045	335.866	58.213	0.12755	144.889	8443.06	0.22060
13047	336.026	58.218	0.12528	145.177	8443.77	0.21667
13049	336.199	58.221	0.12495	145.488	8444.27	0.21610
13051	336.388	58.223	0.12353	145.828	8444.55	0.21365
13053	336.575	58.227	0.12368	146.165	8445.16	0.21390
13055	336.771	58.227	0.12269	146.518	8445.17	0.21219
13057	336.972	58.232	0.12270	146.880	8445.80	0.21221
13059	337.176	58.236	0.12223	147.247	8446.45	0.21140
13061	335.635	47.012	0.12319	144.473	6818.49	0.21306
13063	335.826	47.014	0.12227	144.817	6818.88	0.21147
13065	336.002	47.016	0.12107	145.134	6819.12	0.20939
13067	336.173	47.020	0.12064	145.441	6819.68	0.20865
13069	336.352	47.023	0.11963	145.764	6820.11	0.20690
13071	336.543	47.027	0.11976	146.107	6820.71	0.20712
13073	336.740	47.029	0.11670	146.462	6820.95	0.20183
13075	336.934	47.030	0.11675	146.811	6821.08	0.20192
13077	337.149	47.032	0.11594	147.198	6821.48	0.20052
13079	337.377	47.035	0.11637	147.609	6821.85	0.20126
13081	335.553	38.115	0.11963	144.325	5528.14	0.20690
13083	335.726	38.118	0.11812	144.637	5528.51	0.20429
13085	335.889	38.123	0.11765	144.930	5529.36	0.20348
13087	336.060	38.125	0.11618	145.238	5529.53	0.20093
13089	336.255	38.128	0.11506	145.589	5529.98	0.19900
13091	336.434	38.131	0.11421	145.911	5530.49	0.19753
13093	336.641	38.133	0.11415	146.284	5530.80	0.19742
13095	336.840	38.134	0.11257	146.642	5530.93	0.19469
13097	337.046	38.138	0.11276	147.013	5531.51	0.19502
13099	337.264	38.140	0.11429	147.405	5531.77	0.19766
13101	335.614	30.340	0.11356	144.435	4400.50	0.19640
13103	335.786	30.342	0.11174	144.745	4400.78	0.19325
13105	335.961	30.343	0.11346	145.060	4400.92	0.19623
13107	336.146	30.345	0.11103	145.393	4401.23	0.19203
13109	336.335	30.347	0.10925	145.733	4401.46	0.18895
13111	336.521	30.349	0.10988	146.068	4401.70	0.19004

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
13113	336.728	30.348	0.10872	146.440	4401.66	0.18803
13115	336.932	30.351	0.10849	146.808	4402.11	0.18763
13117	337.159	30.354	0.10776	147.216	4402.50	0.18637
13119	337.379	30.354	0.10719	147.612	4402.55	0.18539
13121	335.674	22.709	0.10787	144.543	3293.69	0.18656
13123	335.855	22.712	0.10800	144.869	3294.15	0.18679
13125	336.033	22.714	0.10533	145.189	3294.43	0.18217
13127	336.222	22.715	0.10502	145.530	3294.56	0.18163
13129	336.411	22.718	0.10526	145.870	3294.96	0.18205
13131	336.619	22.723	0.10415	146.244	3295.69	0.18013
13133	336.834	22.726	0.10355	146.631	3296.08	0.17909
13135	337.040	22.728	0.10185	147.002	3296.47	0.17615
13137	337.275	22.731	0.10198	147.425	3296.86	0.17637
13139	337.513	22.731	0.10115	147.853	3296.89	0.17494
13141	335.554	16.092	0.10274	144.327	2333.97	0.17769
13143	335.740	16.094	0.10237	144.662	2334.22	0.17705
13145	335.910	16.099	0.10155	144.968	2334.93	0.17563
13147	336.083	16.102	0.09948	145.279	2335.42	0.17205
13149	336.288	16.105	0.09979	145.648	2335.88	0.17259
13151	336.490	16.107	0.10028	146.012	2336.19	0.17343
13153	336.703	16.112	0.09943	146.395	2336.79	0.17196
13155	336.927	16.115	0.09825	146.799	2337.23	0.16992
13157	337.155	16.117	0.09745	147.209	2337.65	0.16854
13159	337.367	16.121	0.09883	147.591	2338.18	0.17093
13161	335.602	11.287	0.09859	144.414	1637.05	0.17051
13162	335.608	11.284	0.09932	144.424	1636.66	0.17177
13165	335.788	11.284	0.09776	144.748	1636.67	0.16908
13166	335.791	11.284	0.09708	144.754	1636.67	0.16790
13169	335.980	11.284	0.09731	145.094	1636.65	0.16830
13170	335.978	11.284	0.09650	145.090	1636.66	0.16690
13173	336.165	11.286	0.09653	145.427	1636.93	0.16695
13174	336.160	11.285	0.09646	145.418	1636.70	0.16683
13177	336.363	11.284	0.09614	145.783	1636.56	0.16627
13178	336.363	11.284	0.09571	145.783	1636.66	0.16553
13181	336.572	11.282	0.09621	146.160	1636.39	0.16640
13182	336.567	11.282	0.09538	146.151	1636.29	0.16496
13185	336.780	11.280	0.09462	146.534	1636.09	0.16365
13186	336.785	11.280	0.09488	146.543	1636.06	0.16409
13189	337.004	11.280	0.09375	146.937	1636.09	0.16214
13190	336.994	11.278	0.09464	146.919	1635.78	0.16368
13193	337.234	11.278	0.09365	147.351	1635.67	0.16197
13194	337.242	11.276	0.09373	147.366	1635.50	0.16211
13197	337.482	11.275	0.09378	147.798	1635.33	0.16219
13198	337.483	11.277	0.09485	147.799	1635.55	0.16404
13201	335.392	7.250	0.09409	144.036	1051.53	0.16273
13203	335.583	7.253	0.09349	144.379	1052.01	0.16169
13205	335.835	7.253	0.09213	144.833	1051.95	0.15934

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
13207	336.012	7.256	0.09215	145.152	1052.34	0.15937
13209	336.205	7.254	0.09149	145.499	1052.12	0.15823
13211	336.409	7.257	0.09150	145.866	1052.61	0.15825
13213	336.629	7.261	0.09057	146.262	1053.09	0.15664
13215	336.843	7.261	0.09053	146.647	1053.15	0.15657
13217	337.077	7.264	0.09025	147.069	1053.49	0.15609
13219	337.321	7.265	0.08985	147.508	1053.71	0.15540
13221	335.503	3.932	0.09069	144.235	570.35	0.15685
13223	335.677	3.933	0.09011	144.549	570.46	0.15585
13225	335.872	3.936	0.08853	144.900	570.80	0.15311
13227	336.056	3.934	0.08825	145.231	570.65	0.15263
13229	336.254	3.935	0.08793	145.587	570.70	0.15207
13231	336.465	3.935	0.08738	145.967	570.76	0.15112
13233	336.688	3.936	0.08744	146.368	570.87	0.15123
13235	336.908	3.937	0.08693	146.764	571.08	0.15035
13237	337.149	3.937	0.08707	147.198	571.05	0.15059
13239	337.402	3.937	0.08632	147.654	571.01	0.14929
13241	334.930	2.596	0.09344	143.204	376.53	0.16160
13243	335.076	2.598	0.09036	143.467	376.81	0.15628
13245	335.226	2.599	0.09004	143.737	376.94	0.15572
13247	335.370	2.600	0.08969	143.996	377.05	0.15512
13249	335.534	2.600	0.08880	144.291	377.17	0.15358
13251	335.705	2.602	0.08798	144.599	377.42	0.15216
13253	335.892	2.603	0.08639	144.936	377.60	0.14941
13255	336.080	2.604	0.08720	145.274	377.70	0.15081
13257	336.274	2.606	0.08646	145.623	378.01	0.14953
13259	336.492	2.608	0.08601	146.016	378.22	0.14875
14001	370.333	67.692	0.11739	206.929	9817.95	0.20303
14003	370.487	67.689	0.11690	207.207	9817.53	0.20218
14005	370.714	67.686	0.11626	207.615	9817.02	0.20107
14007	370.872	67.683	0.11467	207.900	9816.65	0.19832
14009	371.089	67.679	0.11428	208.290	9816.02	0.19765
14011	371.249	67.678	0.11382	208.578	9815.85	0.19685
14013	371.447	67.675	0.11367	208.935	9815.52	0.19659
14015	371.643	67.674	0.11313	209.287	9815.32	0.19566
14017	371.859	67.671	0.11211	209.676	9814.87	0.19389
14019	372.068	67.669	0.11153	210.052	9814.60	0.19289
14021	370.367	59.363	0.11416	206.991	8609.92	0.19744
14023	370.546	59.364	0.11278	207.313	8610.02	0.19505
14025	370.698	59.364	0.11191	207.586	8610.11	0.19355
14027	370.879	59.367	0.11044	207.912	8610.44	0.19101
14029	371.072	59.369	0.11004	208.260	8610.76	0.19031
14031	371.259	59.369	0.10981	208.596	8610.76	0.18992
14033	371.456	59.370	0.10954	208.951	8610.91	0.18945
14035	371.671	59.373	0.10800	209.338	8611.32	0.18679
14037	371.892	59.374	0.10903	209.736	8611.54	0.18857
14039	372.120	59.377	0.10791	210.146	8611.95	0.18663

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
14041	370.275	49.454	0.10785	206.825	7172.68	0.18653
14043	370.439	49.456	0.10851	207.120	7173.01	0.18767
14045	370.614	49.457	0.10740	207.435	7173.11	0.18575
14047	370.783	49.461	0.10669	207.739	7173.76	0.18452
14049	370.965	49.464	0.10561	208.067	7174.13	0.18265
14051	371.157	49.465	0.10565	208.413	7174.31	0.18272
14053	371.361	49.468	0.10449	208.780	7174.80	0.18072
14055	371.554	49.469	0.10435	209.127	7174.91	0.18047
14057	371.776	49.470	0.10413	209.527	7175.04	0.18009
14059	372.014	49.473	0.10307	209.955	7175.42	0.17826
14061	370.305	41.241	0.10406	206.879	5981.59	0.17997
14063	370.480	41.249	0.10322	207.194	5982.63	0.17852
14065	370.658	41.251	0.10243	207.514	5982.94	0.17715
14067	370.837	41.254	0.10150	207.837	5983.40	0.17554
14069	371.022	41.257	0.10071	208.170	5983.81	0.17418
14071	371.213	41.258	0.10070	208.513	5984.05	0.17416
14073	371.427	41.259	0.10004	208.899	5984.07	0.17302
14075	371.638	41.258	0.10015	209.278	5984.02	0.17321
14077	371.869	41.256	0.09916	209.694	5983.75	0.17150
14079	372.101	41.254	0.09900	210.112	5983.45	0.17122
14081	370.176	34.568	0.10172	206.647	5013.73	0.17592
14083	370.349	34.567	0.09909	206.958	5013.53	0.17138
14085	370.520	34.567	0.09912	207.266	5013.56	0.17143
14087	370.691	34.566	0.09819	207.574	5013.37	0.16982
14089	370.876	34.565	0.09816	207.907	5013.21	0.16977
14091	371.070	34.563	0.09752	208.256	5012.96	0.16866
14093	371.272	34.562	0.09615	208.620	5012.83	0.16629
14095	371.488	34.560	0.09594	209.008	5012.54	0.16593
14097	371.702	34.549	0.09618	209.394	5010.91	0.16634
14099	371.935	34.543	0.09507	209.813	5010.09	0.16442
14101	370.242	28.459	0.09539	206.766	4127.67	0.16498
14103	370.425	28.461	0.09431	207.095	4128.00	0.16311
14105	370.591	28.463	0.09373	207.394	4128.26	0.16211
14107	370.776	28.466	0.09354	207.727	4128.59	0.16178
14109	370.972	28.467	0.09265	208.080	4128.76	0.16024
14111	371.167	28.468	0.09248	208.431	4128.89	0.15994
14113	371.384	28.470	0.09193	208.821	4129.22	0.15899
14115	371.605	28.471	0.09166	209.219	4129.42	0.15853
14117	371.831	28.473	0.09113	209.626	4129.65	0.15761
14119	372.076	28.474	0.09096	210.067	4129.77	0.15732
14121	370.128	23.471	0.09222	206.560	3404.23	0.15949
14123	370.308	23.471	0.09177	206.884	3404.22	0.15872
14125	370.463	23.475	0.09121	207.163	3404.75	0.15775
14127	370.640	23.477	0.08978	207.482	3405.12	0.15527
14129	370.825	23.479	0.08965	207.815	3405.36	0.15505
14131	371.027	23.480	0.08845	208.179	3405.51	0.15297
14133	371.232	23.481	0.08868	208.548	3405.58	0.15337

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Expe riments (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
14135	371.447	23.482	0.08820	208.935	3405.81	0.15254
14137	371.678	23.482	0.08832	209.350	3405.82	0.15275
14139	371.912	23.485	0.08860	209.772	3406.20	0.15323
14141	370.143	19.091	0.08837	206.587	2768.86	0.15284
14143	370.326	19.091	0.08832	206.917	2768.99	0.15275
14145	370.494	19.092	0.08651	207.219	2769.11	0.14962
14147	370.699	19.093	0.08663	207.588	2769.26	0.14983
14149	370.877	19.094	0.08658	207.909	2769.32	0.14974
14151	371.078	19.094	0.08499	208.270	2769.31	0.14699
14153	371.289	19.096	0.08500	208.650	2769.61	0.14701
14155	371.522	19.096	0.08502	209.070	2769.64	0.14704
14157	371.761	19.095	0.08455	209.500	2769.53	0.14623
14159	371.994	19.097	0.08443	209.919	2769.81	0.14602
14161	370.194	15.251	0.08429	206.679	2212.05	0.14578
14163	370.365	15.252	0.08335	206.987	2212.09	0.14415
14165	370.535	15.251	0.08305	207.293	2212.01	0.14363
14167	370.727	15.252	0.08375	207.639	2212.09	0.14485
14169	370.927	15.253	0.08238	207.999	2212.29	0.14248
14171	371.139	15.254	0.08138	208.380	2212.42	0.14075
14173	371.357	15.255	0.08219	208.773	2212.50	0.14215
14175	371.586	15.255	0.08236	209.185	2212.49	0.14244
14177	371.826	15.253	0.08242	209.617	2212.34	0.14255
14179	372.078	15.255	0.08213	210.070	2212.52	0.14204
14181	370.073	12.178	0.08130	206.461	1766.25	0.14061
14183	370.227	12.178	0.08146	206.739	1766.35	0.14089
14185	370.408	12.178	0.07919	207.064	1766.35	0.13696
14187	370.597	12.179	0.07975	207.405	1766.47	0.13793
14189	370.784	12.180	0.07941	207.741	1766.51	0.13734
14191	370.987	12.179	0.07845	208.107	1766.49	0.13568
14193	371.196	12.180	0.07884	208.483	1766.53	0.13635
14195	371.419	12.180	0.07859	208.884	1766.59	0.13592
14197	371.663	12.181	0.07838	209.323	1766.69	0.13556
14199	371.913	12.181	0.07829	209.773	1766.73	0.13540
14201	370.091	9.510	0.07724	206.494	1379.28	0.13359
14203	370.274	9.511	0.07795	206.823	1379.45	0.13481
14205	370.441	9.511	0.07601	207.124	1379.50	0.13146
14207	370.637	9.511	0.07717	207.477	1379.53	0.13347
14209	370.821	9.512	0.07628	207.808	1379.66	0.13193
14211	371.038	9.513	0.07637	208.198	1379.74	0.13208
14213	371.253	9.515	0.07548	208.585	1380.00	0.13054
14215	371.483	9.515	0.07701	208.999	1380.10	0.13319
14217	371.728	9.517	0.07569	209.440	1380.28	0.13091
14219	371.975	9.517	0.07659	209.885	1380.28	0.13246
14221	370.110	7.574	0.07484	206.528	1098.52	0.12944
14223	370.277	7.574	0.07463	206.829	1098.53	0.12907
14225	370.466	7.574	0.07388	207.169	1098.48	0.12778
14227	370.657	7.574	0.07342	207.513	1098.55	0.12698

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
14229	370.856	7.574	0.07385	207.871	1098.48	0.12772
14231	371.069	7.574	0.07316	208.254	1098.48	0.12653
14233	371.298	7.573	0.07326	208.666	1098.40	0.12670
14235	371.534	7.574	0.07343	209.091	1098.48	0.12700
14237	371.781	7.574	0.07402	209.536	1098.55	0.12802
14239	372.041	7.575	0.07403	210.004	1098.65	0.12803
14241	369.807	6.057	0.07439	205.983	878.52	0.12866
14242	369.779	6.057	0.07389	205.932	878.46	0.12779
14243	369.973	6.057	0.07230	206.281	878.43	0.12504
14244	369.951	6.057	0.07173	206.242	878.43	0.12406
14245	370.114	6.057	0.07148	206.535	878.48	0.12362
14246	370.098	6.052	0.07259	206.506	877.76	0.12554
14247	370.283	6.055	0.07204	206.839	878.21	0.12459
14248	370.293	6.055	0.07211	206.857	878.17	0.12471
14249	370.457	6.055	0.07108	207.153	878.18	0.12293
14250	370.459	6.055	0.07161	207.156	878.16	0.12385
14251	370.657	6.055	0.07165	207.513	878.15	0.12392
14252	370.641	6.054	0.07133	207.484	878.09	0.12337
14253	370.856	6.054	0.07125	207.871	878.07	0.12323
14254	370.844	6.053	0.07088	207.849	877.96	0.12259
14255	371.074	6.054	0.07081	208.263	878.02	0.12247
14256	371.058	6.053	0.07108	208.234	877.98	0.12293
14257	371.296	6.053	0.07128	208.663	877.97	0.12328
14258	371.300	6.054	0.07118	208.670	878.04	0.12311
14259	371.529	6.053	0.07182	209.082	877.88	0.12421
14260	371.532	6.053	0.07140	209.088	877.89	0.12349
14261	369.883	5.089	0.06935	206.119	738.03	0.11994
14262	369.840	5.088	0.06943	206.042	738.02	0.12008
14263	370.037	5.088	0.06878	206.397	737.94	0.11896
14264	370.003	5.088	0.06870	206.335	737.91	0.11882
14265	370.191	5.088	0.06881	206.674	737.94	0.11901
14266	370.196	5.088	0.06880	206.683	737.95	0.11899
14267	370.354	5.088	0.06977	206.967	737.97	0.12067
14268	370.348	5.088	0.06870	206.956	738.02	0.11882
14269	370.539	5.089	0.06832	207.300	738.03	0.11816
14270	370.545	5.088	0.06818	207.311	738.00	0.11792
14271	370.733	5.089	0.06867	207.649	738.07	0.11876
14272	370.732	5.089	0.06890	207.648	738.13	0.11916
14273	370.934	5.090	0.06890	208.011	738.17	0.11916
14274	370.939	5.090	0.06865	208.020	738.19	0.11873
14275	371.155	5.090	0.06824	208.409	738.28	0.11802
14276	371.158	5.091	0.06804	208.414	738.38	0.11768
14277	371.395	5.091	0.06848	208.841	738.35	0.11844
14278	371.388	5.092	0.06854	208.828	738.49	0.11854
14279	371.635	5.093	0.06869	209.273	738.61	0.11880
14280	371.639	5.092	0.06890	209.280	738.59	0.11916
14281	369.624	4.039	0.06704	205.653	585.87	0.11595

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
14282	369.538	4.039	0.06794	205.498	585.86	0.11750
14283	369.789	4.039	0.06735	205.950	585.86	0.11648
14284	369.730	4.040	0.06818	205.844	585.91	0.11792
14285	369.912	4.040	0.06736	206.172	586.00	0.11650
14286	369.926	4.041	0.06684	206.197	586.06	0.11560
14287	370.055	4.041	0.06721	206.429	586.08	0.11624
14288	370.065	4.041	0.06729	206.447	586.12	0.11638
14289	370.223	4.041	0.06687	206.731	586.09	0.11565
14290	370.208	4.041	0.06690	206.704	586.08	0.11570
14291	370.381	4.041	0.06722	207.016	586.12	0.11626
14292	370.379	4.041	0.06717	207.012	586.13	0.11617
14293	370.563	4.041	0.06687	207.343	586.14	0.11565
14294	370.551	4.041	0.06644	207.322	586.13	0.11491
14295	370.755	4.041	0.06670	207.689	586.13	0.11536
14296	370.757	4.042	0.06695	207.693	586.20	0.11579
14297	370.966	4.041	0.06695	208.069	586.17	0.11579
14298	370.965	4.041	0.06687	208.067	586.17	0.11565
14299	371.184	4.042	0.06667	208.461	586.21	0.11531
14300	371.197	4.042	0.06674	208.485	586.22	0.11543
15001	411.994	67.347	0.10117	281.919	9767.92	0.17497
15002	412.226	67.348	0.10078	282.337	9768.08	0.17430
15003	412.442	67.348	0.10036	282.726	9767.97	0.17357
15004	412.676	67.349	0.09960	283.147	9768.20	0.17226
15005	412.920	67.349	0.09938	283.586	9768.23	0.17188
15006	413.181	67.349	0.09928	284.056	9768.25	0.17170
15007	413.437	67.350	0.09829	284.517	9768.27	0.16999
15008	413.718	67.348	0.09815	285.022	9768.04	0.16975
15009	413.998	67.349	0.09881	285.526	9768.13	0.17089
15010	414.282	67.348	0.09824	286.038	9767.99	0.16991
15011	411.835	60.927	0.09896	281.633	8836.73	0.17115
15012	412.046	60.927	0.09792	282.013	8836.68	0.16935
15013	412.268	60.927	0.09804	282.412	8836.73	0.16956
15014	412.494	60.926	0.09638	282.819	8836.54	0.16669
15015	412.741	60.925	0.09785	283.264	8836.41	0.16923
15016	412.983	60.926	0.09658	283.699	8836.64	0.16704
15017	413.251	60.926	0.09569	284.182	8836.57	0.16550
15018	413.517	60.925	0.09493	284.661	8836.45	0.16418
15019	413.798	60.928	0.09536	285.166	8836.96	0.16493
15020	414.092	60.928	0.09459	285.696	8836.93	0.16359
15021	411.907	52.664	0.09468	281.763	7638.31	0.16375
15022	412.123	52.666	0.09320	282.151	7638.52	0.16119
15023	412.357	52.666	0.09369	282.573	7638.55	0.16204
15024	412.593	52.667	0.09307	282.997	7638.70	0.16096
15025	412.836	52.666	0.09258	283.435	7638.58	0.16012
15026	413.105	52.667	0.09228	283.919	7638.71	0.15960
15027	413.374	52.666	0.09164	284.403	7638.55	0.15849
15028	413.656	52.666	0.09084	284.911	7638.55	0.15711

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15029	413.937	52.667	0.09169	285.417	7638.69	0.15858
15030	414.252	52.669	0.09123	285.984	7639.02	0.15778
15031	411.978	45.524	0.09152	281.890	6602.67	0.15828
15032	412.206	45.524	0.08985	282.301	6602.76	0.15540
15033	412.446	45.525	0.08961	282.733	6602.86	0.15498
15034	412.701	45.525	0.08928	283.192	6602.89	0.15441
15035	412.948	45.523	0.08874	283.636	6602.61	0.15348
15036	413.219	45.525	0.08777	284.124	6602.82	0.15180
15037	413.492	45.525	0.08795	284.616	6602.92	0.15211
15038	413.792	45.527	0.08751	285.156	6603.09	0.15135
15039	414.081	45.526	0.08750	285.676	6602.96	0.15133
15040	414.395	45.526	0.08668	286.241	6603.01	0.14991
15041	411.993	39.894	0.08773	281.917	5786.12	0.15173
15042	412.226	39.894	0.08729	282.337	5786.09	0.15097
15043	412.472	39.894	0.08612	282.780	5786.14	0.14894
15044	412.717	39.896	0.08604	283.221	5786.43	0.14881
15045	412.996	39.896	0.08546	283.723	5786.38	0.14780
15046	413.263	39.896	0.08482	284.203	5786.47	0.14670
15047	413.546	39.897	0.08468	284.713	5786.64	0.14645
15048	413.851	39.898	0.08416	285.262	5786.70	0.14555
15049	414.163	39.899	0.08411	285.823	5786.89	0.14547
15050	414.478	39.901	0.08445	286.390	5787.15	0.14606
15051	411.842	34.339	0.08479	281.646	4980.43	0.14664
15052	412.071	34.341	0.08412	282.058	4980.72	0.14549
15053	412.317	34.342	0.08301	282.501	4980.85	0.14357
15054	412.561	34.342	0.08302	282.940	4980.96	0.14358
15055	412.823	34.344	0.08291	283.411	4981.26	0.14339
15056	413.090	34.347	0.08114	283.892	4981.57	0.14033
15057	413.384	34.348	0.08119	284.421	4981.78	0.14042
15058	413.687	34.349	0.08208	284.967	4981.96	0.14196
15059	413.984	34.350	0.08129	285.501	4982.09	0.14059
15060	414.310	34.352	0.08040	286.088	4982.38	0.13905
15061	411.911	29.384	0.08260	281.770	4261.81	0.14286
15062	412.157	29.386	0.07951	282.213	4262.07	0.13751
15063	412.394	29.388	0.07918	282.639	4262.37	0.13694
15064	412.658	29.390	0.07933	283.114	4262.62	0.13720
15065	412.928	29.391	0.07784	283.600	4262.80	0.13462
15066	413.211	29.393	0.07782	284.110	4263.06	0.13459
15067	413.497	29.393	0.07815	284.625	4263.18	0.13516
15068	413.803	29.396	0.07781	285.175	4263.59	0.13457
15069	414.127	29.397	0.07809	285.759	4263.70	0.13506
15070	414.450	29.399	0.07934	286.340	4263.98	0.13722
15071	411.946	25.354	0.07708	281.833	3677.24	0.13331
15072	412.197	25.352	0.07625	282.285	3676.96	0.13187
15073	412.451	25.351	0.07662	282.742	3676.92	0.13251
15074	412.714	25.351	0.07546	283.215	3676.82	0.13051
15075	412.993	25.350	0.07554	283.717	3676.76	0.13065

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15076	413.290	25.349	0.07523	284.252	3676.56	0.13011
15077	413.590	25.348	0.07496	284.792	3676.45	0.12964
15078	413.913	25.347	0.07523	285.373	3676.24	0.13011
15079	414.229	25.346	0.07385	285.942	3676.07	0.12772
15080	414.581	25.345	0.07524	286.576	3676.06	0.13013
15081	411.814	22.463	0.07535	281.595	3257.99	0.13032
15082	412.047	22.463	0.07477	282.015	3258.06	0.12931
15083	412.309	22.465	0.07349	282.486	3258.22	0.12710
15084	412.559	22.465	0.07332	282.936	3258.34	0.12681
15085	412.827	22.467	0.07362	283.419	3258.60	0.12733
15086	413.110	22.468	0.07230	283.928	3258.69	0.12504
15087	413.413	22.466	0.07273	284.473	3258.44	0.12579
15088	413.723	22.467	0.07319	285.031	3258.60	0.12658
15089	414.041	22.467	0.07269	285.604	3258.54	0.12572
15090	414.384	22.467	0.07368	286.221	3258.52	0.12743
15091	411.634	19.924	0.07293	281.271	2889.78	0.12613
15092	411.874	19.924	0.07217	281.703	2889.81	0.12482
15093	412.107	19.924	0.07143	282.123	2889.73	0.12354
15094	412.357	19.923	0.07201	282.573	2889.63	0.12454
15095	412.623	19.923	0.07132	283.051	2889.65	0.12335
15096	412.893	19.923	0.07071	283.537	2889.66	0.12229
15097	413.181	19.923	0.07099	284.056	2889.66	0.12278
15098	413.482	19.923	0.07081	284.598	2889.60	0.12247
15099	413.804	19.923	0.07149	285.177	2889.60	0.12364
15100	414.137	19.923	0.07168	285.777	2889.64	0.12397
15101	411.667	17.491	0.07095	281.331	2536.91	0.12271
15102	411.853	17.491	0.07078	281.665	2536.94	0.12241
15103	412.055	17.492	0.06953	282.029	2536.95	0.12025
15104	412.249	17.491	0.06897	282.378	2536.86	0.11928
15105	412.461	17.491	0.06909	282.760	2536.84	0.11949
15106	412.685	17.491	0.06871	283.163	2536.88	0.11883
15107	412.909	17.491	0.06773	283.566	2536.90	0.11714
15108	413.143	17.492	0.06880	283.987	2536.96	0.11899
15109	413.381	17.493	0.06979	284.416	2537.16	0.12070
15110	413.631	17.493	0.06834	284.866	2537.09	0.11819
15111	411.700	15.425	0.06763	281.390	2237.18	0.11697
15112	411.896	15.425	0.06626	281.743	2237.21	0.11460
15113	412.087	15.425	0.06695	282.087	2237.16	0.11579
15114	412.305	15.425	0.06623	282.479	2237.28	0.11454
15115	412.515	15.426	0.06656	282.857	2237.39	0.11512
15116	412.739	15.426	0.06676	283.260	2237.36	0.11546
15117	412.965	15.426	0.06637	283.667	2237.33	0.11479
15118	413.209	15.426	0.06690	284.106	2237.34	0.11570
15119	413.462	15.426	0.06628	284.562	2237.36	0.11463
15120	413.719	15.426	0.06571	285.024	2237.38	0.11365
15121	411.397	13.687	0.06556	280.845	1985.07	0.11339
15122	411.569	13.681	0.06469	281.154	1984.34	0.11188

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15123	411.751	13.684	0.06552	281.482	1984.69	0.11332
15124	411.938	13.684	0.06442	281.818	1984.72	0.11141
15125	412.138	13.684	0.06468	282.178	1984.73	0.11186
15126	411.580	13.686	0.06461	281.174	1985.06	0.11174
15127	411.737	13.687	0.06384	281.457	1985.09	0.11041
15128	411.916	13.687	0.06487	281.779	1985.16	0.11219
15129	412.111	13.687	0.06418	282.130	1985.15	0.11100
15130	412.307	13.687	0.06398	282.483	1985.15	0.11065
15131	412.506	13.688	0.06401	282.841	1985.29	0.11071
15132	412.732	13.688	0.06427	283.248	1985.26	0.11115
15133	412.964	13.688	0.06403	283.665	1985.33	0.11074
15134	413.198	13.689	0.06369	284.086	1985.36	0.11015
15135	413.442	13.689	0.06462	284.526	1985.36	0.11176
15136	411.561	12.535	0.06360	281.140	1818.12	0.11000
15137	411.697	12.535	0.06256	281.385	1818.05	0.10820
15138	411.830	12.535	0.06330	281.624	1818.12	0.10948
15139	411.971	12.536	0.06349	281.878	1818.15	0.10981
15140	412.110	12.536	0.06265	282.128	1818.21	0.10835
15141	412.268	12.536	0.06242	282.412	1818.22	0.10796
15142	412.417	12.536	0.06249	282.681	1818.19	0.10808
15143	412.573	12.536	0.06241	282.961	1818.20	0.10794
15144	412.754	12.536	0.06278	283.287	1818.20	0.10858
15145	412.922	12.536	0.06346	283.590	1818.26	0.10975
15146	411.567	11.339	0.06156	281.151	1644.58	0.10647
15147	411.700	11.339	0.06071	281.390	1644.58	0.10500
15148	411.846	11.339	0.06165	281.653	1644.53	0.10662
15149	411.983	11.339	0.06105	281.899	1644.54	0.10559
15150	412.133	11.339	0.06049	282.169	1644.56	0.10462
15151	412.289	11.339	0.06095	282.450	1644.54	0.10541
15152	412.442	11.339	0.06068	282.726	1644.58	0.10495
15153	412.607	11.339	0.06056	283.023	1644.63	0.10474
15154	412.768	11.339	0.06193	283.312	1644.59	0.10711
15155	412.951	11.339	0.06157	283.642	1644.61	0.10649
15156	411.547	10.473	0.05985	281.115	1518.92	0.10351
15157	411.689	10.473	0.05916	281.370	1518.97	0.10232
15158	411.818	10.473	0.05953	281.602	1518.94	0.10296
15159	411.956	10.472	0.05944	281.851	1518.87	0.10280
15160	412.104	10.473	0.05948	282.117	1518.96	0.10287
15161	412.263	10.473	0.05978	282.403	1518.92	0.10339
15162	412.412	10.472	0.05936	282.672	1518.91	0.10266
15163	412.579	10.473	0.05932	282.972	1518.96	0.10259
15164	412.751	10.473	0.06051	283.282	1518.96	0.10465
15165	412.914	10.473	0.05983	283.575	1518.93	0.10348
15166	411.557	9.493	0.05737	281.133	1376.85	0.09922
15167	411.675	9.493	0.05723	281.345	1376.85	0.09898
15168	411.823	9.493	0.05744	281.611	1376.85	0.09934
15169	411.977	9.493	0.05758	281.889	1376.89	0.09958

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15170	412.115	9.493	0.05795	282.137	1376.82	0.10022
15171	412.266	9.493	0.05781	282.409	1376.85	0.09998
15172	412.434	9.493	0.05759	282.711	1376.85	0.09960
15173	412.599	9.493	0.05795	283.008	1376.90	0.10022
15174	412.768	9.493	0.05905	283.312	1376.85	0.10213
15175	412.951	9.493	0.05893	283.642	1376.85	0.10192
15176	411.428	8.934	0.05612	280.900	1295.80	0.09706
15177	411.562	8.934	0.05650	281.142	1295.76	0.09772
15178	411.700	8.934	0.05625	281.390	1295.73	0.09728
15179	411.844	8.934	0.05590	281.649	1295.81	0.09668
15180	411.980	8.934	0.05701	281.894	1295.77	0.09860
15181	412.131	8.934	0.05580	282.166	1295.82	0.09651
15182	412.289	8.934	0.05684	282.450	1295.78	0.09830
15183	412.448	8.935	0.05646	282.736	1295.85	0.09765
15184	412.621	8.935	0.05766	283.048	1295.85	0.09972
15185	412.781	8.935	0.05846	283.336	1295.86	0.10111
15186	411.416	8.580	0.05538	280.879	1244.37	0.09578
15187	411.556	8.580	0.05562	281.131	1244.40	0.09619
15188	411.681	8.580	0.05465	281.356	1244.40	0.09452
15189	411.833	8.580	0.05574	281.629	1244.39	0.09640
15190	411.966	8.580	0.05553	281.869	1244.40	0.09604
15191	412.130	8.580	0.05518	282.164	1244.44	0.09543
15192	412.282	8.580	0.05648	282.438	1244.46	0.09768
15193	412.444	8.580	0.05594	282.729	1244.48	0.09675
15194	412.606	8.580	0.05711	283.021	1244.48	0.09877
15195	412.779	8.580	0.05797	283.332	1244.48	0.10026
15196	411.304	8.192	0.05511	280.677	1188.22	0.09531
15197	411.392	8.193	0.05425	280.836	1188.26	0.09383
15198	411.480	8.193	0.05429	280.994	1188.25	0.09389
15199	411.558	8.193	0.05452	281.134	1188.24	0.09429
15200	411.650	8.192	0.05418	281.300	1188.16	0.09370
15201	411.751	8.191	0.05410	281.482	1188.08	0.09357
15202	411.841	8.192	0.05501	281.644	1188.16	0.09514
15203	411.939	8.192	0.05450	281.820	1188.17	0.09426
15204	412.036	8.192	0.05470	281.995	1188.18	0.09460
15205	412.138	8.192	0.05466	282.178	1188.19	0.09453
15206	411.325	7.845	0.05334	280.715	1137.89	0.09225
15207	411.408	7.846	0.05250	280.864	1137.91	0.09080
15208	411.498	7.846	0.05440	281.026	1137.90	0.09408
15209	411.590	7.845	0.05339	281.192	1137.87	0.09234
15210	411.675	7.846	0.05388	281.345	1137.90	0.09319
15211	411.770	7.846	0.05261	281.516	1137.91	0.09099
15212	411.863	7.846	0.05389	281.683	1137.93	0.09320
15213	411.960	7.846	0.05398	281.858	1137.92	0.09336
15214	412.062	7.846	0.05471	282.042	1137.95	0.09462
15215	412.169	7.846	0.05411	282.234	1137.92	0.09358
15216	411.247	7.553	0.05204	280.575	1095.40	0.09000

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15217	411.340	7.553	0.05244	280.742	1095.42	0.09069
15218	411.419	7.553	0.05300	280.884	1095.40	0.09166
15219	411.509	7.553	0.05255	281.046	1095.42	0.09089
15220	411.597	7.552	0.05347	281.205	1095.39	0.09248
15221	411.679	7.553	0.05266	281.352	1095.40	0.09108
15222	411.763	7.553	0.05316	281.503	1095.42	0.09194
15223	411.868	7.553	0.05329	281.692	1095.40	0.09217
15224	411.959	7.553	0.05245	281.856	1095.40	0.09071
15225	412.068	7.553	0.05349	282.052	1095.42	0.09251
15226	411.164	7.371	0.05236	280.425	1069.09	0.09056
15227	411.254	7.371	0.05076	280.587	1069.05	0.08779
15228	411.335	7.371	0.05180	280.733	1069.04	0.08959
15229	411.426	7.371	0.05255	280.897	1069.04	0.09089
15230	411.511	7.371	0.05202	281.050	1069.03	0,08997
15231	411.593	7.371	0.05237	281.197	1069.02	0.09057
15232	411.689	7.371	0.05356	281.370	1069.05	0.09263
15233	411.769	7.371	0.05213	281.514	1069.07	0.09016
15234	411.870	7.371	0.05310	281.696	1069.06	0.09184
15235	411.961	7.371	0.05362	281.860	1069.11	0.09274
15236	411.139	7.179	0.05138	280.380	1041.19	0.08886
15237	411.220	7.179	0.05057	280.526	1041.21	0.08746
15238	411.305	7.179	0.05071	280.679	1041.21	0.08770
15239	411.395	7.179	0.05079	280.841	1041.19	0.08784
15240	411.477	7.179	0.05126	280.989	1041.21	0.08865
15241	411.556	7.179	0.05174	281.131	1041.18	0.08948
15242	411.647	7.179	0.05205	281.295	1041.21	0.09002
15243	411.737	7.179	0.05130	281.457	1041.21	0.08872
15244	411.820	7.179	0.05218	281.606	1041.22	0.09025
15245	411.921	7.179	0.05235	281.788	1041.21	0.09054
15246	411.057	6.995	0.04992	280.233	1014.54	0.08634
15247	411.150	6.995	0.05052	280.400	1014.53	0.08737
15248	411.234	6.995	0.04968	280.551	1014.54	0.08592
15249	411.295	6.995	0.05029	280.661	1014.54	0.08698
15250	411.380	6.995	0.05018	280.814	1014.51	0.08679
15251	411.473	6.995	0.05017	280.981	1014.51	0.08677
15252	411.548	6.995	0.05093	281.116	1014.53	0.08808
15253	411.637	6.995	0.05119	281.277	1014.54	0.08853
15254	411.728	6.995	0.05080	281.440	1014.53	0.08786
15255	411.826	6.995	0.05156	281.617	1014.53	0.08917
15256	410.997	6.843	0.04931	280.125	992.50	0.08528
15257	411.076	6.843	0.04907	280.267	992.49	0.08487
15258	411.144	6.843	0.04974	280.389	992.49	0.08603
15259	411.222	6.843	0.04854	280.530	992.46	0.08395
15260	411.312	6.843	0.04934	280.692	992.46	0.08533
15261	411.392	6.843	0.04996	280.836	992.45	0.08641
15262	411.464	6.843	0.04986	280.965	992.44	0.08623
15263	411.554	6.843	0.05032	281.127	992.44	0.08703

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15264	411.641	6.843	0.05040	281.284	992.45	0.08717
15265	411.735	6.842	0.04989	281.453	992.42	0.08628
15266	410.918	6.714	0.04859	279.982	973.85	0.08404
15267	410.997	6.714	0.04846	280.125	973.82	0.08381
15268	411.094	6.714	0.04812	280.299	973.84	0.08322
15269	411.153	6.714	0.04870	280.405	973.82	0.08423
15270	411.239	6.714	0.04771	280.560	973.84	0.08251
15271	411.309	6.714	0.04852	280.686	973.84	0.08392
15272	411.409	6.714	0.04886	280.866	973.85	0.08450
15273	411.488	6.714	0.04893	281.008	973.85	0.08462
15274	411.578	6.714	0.04942	281.170	973.85	0.08547
15275	411.666	6.715	0.04991	281.329	973.87	0.08632
15276	410.887	6.576	0.04612	279.927	953.80	0.07976
15277	410.968	6.576	0.04713	280.072	953.81	0.08151
15278	411.050	6.576	0.04669	280.220	953.80	0.08075
15279	411.131	6.576	0.04751	280.366	953.80	0.08217
15280	411.193	6.576	0.04695	280.477	953.81	0.08120
15281	411.277	6.576	0.04684	280.629	953.80	0.08101
15282	411.377	6.576	0.04771	280.809	953.80	0.08251
15283	411.448	6.576	0.04759	280.936	953.82	0.08231
15284	411.549	6.576	0.04745	281.118	953.81	0.08206
15285	411.641	6.576	0.04846	281.284	953.83	0.08381
15286	410.873	6.464	0.04624	279.901	937.48	0.07997
15287	410.946	6.464	0.04488	280.033	937.48	0.07762
15288	411.007	6.464	0.04587	280.143	937.48	0.07933
15289	411.092	6.464	0.04583	280.296	937.47	0.07926
15290	411.169	6.464	0.04589	280.434	937.48	0.07937
15291	411.257	6.464	0.04540	280.593	937.47	0.07852
15292	411.328	6.464	0.04586	280.720	937.48	0.07931
15293	411.416	6.464	0.04638	280.879	937.48	0.08021
15294	411.502	6.464	0.04657	281.034	937.48	0.08054
15295	411.587	6.464	0.04669	281.187	937.49	0.08075
15296	410.841	6.347	0.04439	279.844	920.55	0.07677
15297	410.921	6.347	0.04454	279.988	920.53	0.07703
15298	410.971	6.347	0.04412	280.078	920.56	0.07631
15299	411.057	6.347	0.04474	280.233	920.57	0.07738
15300	411.133	6.347	0.04422	280.369	920.56	0.07648
15301	411.216	6.347	0.04497	280.519	920.55	0.07778
15302	411.302	6.347	0.04381	280.674	920.58	0.07577
15303	411.392	6.347	0.04501	280.836	920.56	0.07784
15304	411.478	6.347	0.04492	280.990	920.56	0.07769
15305	411.579	6.347	0.04496	281.172	920.56	0.07776
15306	410.823	6.241	0.04272	279.811	905.14	0.07388
15307	410.918	6.241	0.04314	279.982	905.14	0.07461
15308	410.974	6.241	0.04335	280.083	905.13	0.07497
15309	411.064	6.241	0.04319	280.245	905.15	0.07470
15310	411.135	6.241	0.04312	280.373	905.16	0.07458

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15311	411.203	6.241	0.04337	280.495	905.15	0.07501
15312	411.287	6.241	0.04251	280.647	905.16	0.07352
15313	411.391	6.241	0.04370	280.834	905.16	0.07558
15314	411.471	6.241	0.04411	280.978	905.17	0.07629
15315	411.570	6.241	0.04365	281.156	905.17	0.07549
15316	410.765	6.141	0.04283	279.707	890.68	0.07407
15317	410.860	6.141	0.04193	279.878	890.68	0.07252
15318	410.925	6.141	0.04115	279.995	890.66	0.07117
15319	411.014	6.141	0.04256	280.155	890.66	0.07361
15320	411.082	6.141	0.04257	280.278	890.67	0.07362
15321	411.172	6.141	0.04228	280.440	890.68	0.07312
15322	411.252	6.141	0.04270	280.584	890.68	0.07385
15323	411.332	6.141	0.04177	280.728	890.70	0.07224
15324	411.424	6.141	0.04252	280.893	890.69	0.07354
15325	411.525	6.141	0.04270	281.075	890.69	0.07385
15326	410.717	6.041	0.04044	279.621	876.24	0.06994
15327	410.801	6.042	0.04165	279.772	876.25	0.07203
15328	410.892	6.041	0.04147	279.936	876.24	0.07172
15329	410.972	6.042	0.04023	280.080	876.26	0.06958
15330	411.026	6.042	0.04138	280.177	876.25	0.07157
15331	411.111	6.041	0.04117	280.330	876.24	0.07120
15332	411.194	6.042	0.04099	280.479	876.25	0.07089
15333	411.274	6.041	0.04136	280.623	876.23	0.07153
15334	411.360	6.041	0.04071	280.778	876.24	0.07041
15335	411.469	6.041	0.04141	280.974	876.24	0.07162
15336	410.770	5.939	0.04032	279.716	861.40	0.06973
15337	410.810	5.939	0.04028	279.788	861.40	0.06966
15338	410.908	5.939	0.04044	279.964	861.39	0.06994
15339	410.982	5.939	0.03981	280.098	861.41	0.06885
15340	411.078	5.939	0.03995	280.270	861.43	0.06909
15341	411.140	5.939	0.04005	280.382	861.39	0.06927
15342	411.232	5.939	0.04027	280.548	861.41	0.06965
15343	411.325	5.939	0.03976	280.715	861.41	0.06876
15344	411.417	5.939	0.04018	280.881	861.40	0.06949
15345	411.517	5.939	0.04058	281.061	861.41	0.07018
15346	410.723	5.820	0.03869	279.631	844.19	0.06691
15347	410.834	5.820	0.03920	279.831	844.19	0.06780
15348	410.905	5.820	0.03952	279.959	844.18	0.06835
15349	410.980	5.820	0.03841	280.094	844.18	0.06643
15350	411.067	5.820	0.03930	280.251	844.19	0.06797
15351	411.157	5.820	0.03890	280.413	844.19	0.06728
15352	411.257	5.820	0.03929	280.593	844.18	0.06795
15353	411.353	5.820	0.03828	280.765	844.19	0.06621
15354	411.449	5.820	0.03926	280.938	844.19	0.06790
15355	411.545	5.820	0.03933	281.111	844.18	0.06802
15356	410.755	5.706	0.03761	279.689	827.56	0.06505
15357	410.831	5.706	0.03801	279.826	827.56	0.06574

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15358	410.937	5.706	0.03843	280.017	827.55	0.06646
15359	411.033	5.706	0.03757	280.189	827.56	0.06498
15360	411.091	5.706	0.03800	280.294	827.55	0.06572
15361	411.197	5.706	0.03831	280.485	827.54	0.06626
15362	411.274	5.706	0.03836	280.623	827.53	0.06634
15363	411.383	5.706	0.03756	280.819	827.52	0.06496
15364	411.489	5.705	0.03813	281.010	827.50	0.06595
15365	411.604	5.705	0.03826	281.217	827.51	0.06617
15366	410.795	5.598	0.03649	279.761	811.87	0.06311
15367	410.895	5.598	0.03679	279.941	811.87	0.06363
15368	410.982	5.598	0.03697	280.098	811.90	0.06394
15369	411.071	5.598	0.03812	280.258	811.90	0.06593
15370	411.155	5.598	0.03728	280.409	811.90	0.06448
15371	411.267	5.598	0.03699	280.611	811.92	0.06397
15372	411.354	5.598	0.03641	280.767	811.93	0.06297
15373	411.471	5.597	0.03722	280.978	811.82	0.06437
15374	411.573	5.598	0.03696	281.161	811.90	0.06392
15375	411.692	5.598	0.03743	281.376	811.89	0.06474
15376	410.816	5.464	0.03581	279.799	792.53	0.06193
15377	410.919	5.464	0.03520	279.984	792.52	0.06088
15378	410.997	5.464	0.03521	280.125	792.52	0.06090
15379	411.079	5.464	0.03657	280.272	792.52	0.06325
15380	411.200	5.464	0.03642	280.490	792.52	0.06299
15381	411.287	5.464	0.03639	280.647	792.51	0.06294
15382	411.399	5.464	0.03550	280.848	792.52	0.06140
15383	411.505	5.464	0.03627	281.039	792.55	0.06273
15384	411.622	5.464	0.03625	281.250	792.54	0.06269
15385	411.737	5.464	0.03655	281.457	792.53	0.06321
15386	410.891	5.341	0.03382	279.934	774.60	0.05849
15387	410.967	5.341	0.03562	280.071	774.60	0.06160
15388	411.054	5.341	0.03528	280.227	774.62	0.06102
15389	411.149	5.341	0.03479	280.398	774.61	0.06017
15390	411.256	5.341	0.03527	280.591	774.62	0.06100
15391	411.365	5.341	0.03495	280.787	774.63	0.06045
15392	411.475	5.341	0.03494	280.985	774.62	0.06043
15393	411.582	5.341	0.03494	281.178	774.59	0.06043
15394	411.699	5.341	0.03547	281.388	774.62	0.06135
15395	411.819	5.341	0.03541	281.604	774.61	0.06124
15396	410.876	5.078	0.03364	279.907	736.50	0.05818
15397	411.001	5.078	0.03320	280.132	736.54	0.05742
15398	411.081	5.078	0.03367	280.276	736.53	0.05823
15399	411.207	5.078	0.03376	280.503	736.54	0.05839
15400	411.316	5.078	0.03347	280.699	736.52	0.05789
15401	411.413	5.078	0.03285	280.873	736.52	0.05681
15402	411.538	5.078	0.03392	281.098	736.53	0.05866
15403	411.662	5.078	0.03376	281.322	736.52	0.05839
15404	411.782	5.078	0.03348	281.538	736.53	0.05790

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15405	411.926	5.078	0.03370	281.797	736.53	0.05828
15406	410.911	4.841	0.03234	279.970	702.09	0.05593
15407	411.027	4.841	0.03162	280.179	702.08	0.05469
15408	411.155	4.841	0.03251	280.409	702.08	0.05623
15409	411.241	4.841	0.03225	280.564	702.11	0.05578
15410	411.353	4.841	0.03218	280.765	702.11	0.05566
15411	411.482	4.841	0.03162	280.998	702.13	0.05469
15412	411.614	4.841	0.03193	281.235	702.12	0.05522
15413	411.737	4.841	0.03254	281.457	702.15	0.05628
15414	411.878	4.841	0.03221	281.710	702.15	0.05571
15415	412.015	4.841	0.03226	281.957	702.15	0.05579
15416	410.989	4.596	0.03134	280.110	666.65	0.05420
15417	411.103	4.597	0.02996	280.315	666.68	0.05182
15418	411.223	4.596	0.03116	280.531	666.67	0.05389
15419	411.319	4.596	0.03075	280.704	666.67	0.05318
15420	411.445	4.596	0.03091	280.931	666.67	0.05346
15421	411.573	4.597	0.03100	281.161	666.71	0.05361
15422	411.704	4.597	0.03092	281.397	666.70	0.05348
15423	411.837	4.597	0.03091	281.637	666.71	0.05346
15424	411.983	4.597	0.03119	281.899	666.73	0.05394
15425	412.137	4.597	0.03091	282.177	666.73	0.05346
15426	411.017	4.338	0.03048	280.161	629.17	0.05272
15427	411.156	4.338	0.03031	280.411	629.14	0.05242
15428	411.251	4.338	0.03037	280.582	629.16	0.05252
15429	411.375	4.338	0.03005	280.805	629.14	0.05197
15430	411.504	4.338	0.02941	281.037	629.15	0.05086
15431	411.647	4.338	0.03019	281.295	629.14	0.05221
15432	411.792	4.338	0.03010	281.556	629.15	0.05206
15433	411.930	4.338	0.02991	281.804	629.15	0.05173
15434	412.081	4.338	0.03013	282.076	629.19	0.05211
15435	412.239	4.338	0.02981	282.360	629.21	0.05156
15436	411.043	4.075	0.02940	280.207	591.00	0.05085
15437	411.176	4.074	0.02962	280.447	590.96	0.05123
15438	411.281	4.075	0.02919	280.636	590.97	0.05048
15439	411.400	4.074	0.02886	280.850	590.92	0.04991
15440	411.536	4.074	0.02848	281.095	590.90	0.04926
15441	411.677	4.074	0.02910	281.349	590.91	0.05033
15442	411.808	4.074	0.02934	281.584	590.90	0.05074
15443	411.958	4.074	0.02928	281.854	590.88	0.05064
15444	412.101	4.074	0.02940	282.112	590.87	0.05085
15445	412.263	4.074	0.02900	282.403	590.88	0.05016
15446	410.948	3.725	0.02807	280.036	540.27	0.04855
15447	411.103	3.724	0.02782	280.315	540.19	0.04811
15448	411.200	3.724	0.02815	280.490	540.11	0.04869
15449	411.341	3.724	0.02796	280.744	540.08	0.04836
15450	411.481	3.723	0.02771	280.996	540.00	0.04792
15451	411.622	3.723	0.02821	281.250	539.98	0.04879

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15452	411.785	3.723	0.02831	281.543	539.97	0.04896
15453	411.942	3.723	0.02809	281.826	539.91	0.04858
15454	412.113	3.722	0.02825	282.133	539.88	0.04886
15455	412.293	3.722	0.02795	282.457	539.82	0.04834
15456	410.969	3.403	0.02738	280.074	493.63	0.04735
15457	411.079	3.403	0.02712	280.272	493.50	0.04690
15458	411.224	3.402	0.02740	280.533	493.41	0.04739
15459	411.367	3.401	0.02744	280.791	493.33	0.04746
15460	411.500	3.401	0.02686	281.030	493.26	0.04645
15461	411.670	3.401	0.02724	281.336	493.24	0.04711
15462	411.831	3.400	0.02721	281.626	493.17	0.04706
15463	411.999	3.400	0.02740	281.928	493.12	0.04739
15464	412.174	3.399	0.02701	282.243	493.05	0.04671
15465	412.369	3.399	0.02733	282.594	493.03	0.04727
15466	411.120	2.983	0.02654	280.346	432.60	0.04590
15467	411.266	2.983	0.02691	280.609	432.59	0.04654
15468	411.386	2.983	0.02615	280.825	432.58	0.04523
15469	411.542	2.983	0.02604	281.106	432.58	0.04504
15470	411.700	2.983	0.02637	281.390	432.60	0.04561
15471	411.869	2.983	0.02642	281.694	432.59	0.04569
15472	412.044	2.983	0.02654	282.009	432.59	0.04590
15473	412.224	2.982	0.02629	282.333	432.54	0.04547
15474	412.419	2.982	0.02650	282.684	432.56	0.04583
15475	412.615	2.983	0.02653	283.037	432.61	0.04588
15476	411.192	2.658	0.02572	280.476	385.48	0.04448
15478	411.430	2.657	0.02572	280.904	385.35	0.04448
15480	411.653	2.656	0.02600	281.305	385.27	0.04497
15482	411.903	2.656	0.02582	281.755	385.25	0.04466
15484	412.152	2.656	0.02606	282.204	385.26	0.04507
15486	412.456	2.656	0.02600	282.751	385.26	0.04497
15488	412.756	2.656	0.02603	283.291	385.27	0.04502
15490	413.080	2.657	0.02613	283.874	385.30	0.04519
15492	413.429	2.657	0.02571	284.502	385.31	0.04447
15494	413.797	2.657	0.02580	285.165	385.39	0.04462
15496	411.219	2.314	0.02556	280.524	335.67	0.04421
15498	411.460	2.314	0.02539	280.958	335.55	0.04391
15500	411.694	2.313	0.02566	281.379	335.50	0.04438
15502	411.957	2.313	0.02525	281.853	335.53	0.04367
15504	412.227	2.314	0.02550	282.339	335.55	0.04410
15506	412.541	2.314	0.02563	282.904	335.61	0.04433
15508	412.848	2.315	0.02566	283.456	335.70	0.04438
15510	413.193	2.315	0.02558	284.077	335.77	0.04424
15512	413.552	2.316	0.02534	284.724	335.87	0.04383
15514	413.949	2.316	0.02568	285.438	335.95	0.04441
15516	411.328	1.981	0.02451	280.720	287.33	0.04239
15518	411.560	1.980	0.02439	281.138	287.24	0.04218
15520	411.819	1.980	0.02514	281.604	287.19	0.04348

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15522	412.094	1.980	0.02535	282.099	287.13	0.04384
15524	412.311	1.980	0.02484	282.490	287.15	0.04296
15526	412.626	1.980	0.02510	283.057	287.16	0.04341
15528	412.958	1.980	0.02517	283.654	287.19	0.04353
15530	413.318	1.981	0.02517	284.302	287.27	0.04353
15532	413.699	1.981	0.02504	284.988	287.30	0.04331
15534	414.099	1.981	0.02525	285.708	287.35	0.04367
15536	411.291	1.663	0.02524	280.654	241.25	0.04365
15538	411.527	1.663	0.02527	281.079	241.15	0.04370
15540	411.793	1.662	0.02487	281.557	241.08	0.04301
15542	412.070	1.662	0.02492	282.056	241.08	0.04310
15544	412.380	1.662	0.02459	282.614	241.10	0.04253
15546	412.704	1.662	0.02486	283.197	241.10	0.04300
15548	413.051	1.663	0.02487	283.822	241.16	0.04301
15550	413.415	1.663	0.02504	284.477	241.23	0.04331
15552	413.809	1.664	0.02500	285.186	241.30	0.04324
15554	414.229	1.664	0.02502	285.942	241.37	0.04327
15556	411.283	1.295	0.02493	280.639	187.82	0.04312
15558	411.541	1.294	0.02489	281.104	187.67	0.04305
15560	411.799	1.293	0.02473	281.568	187.54	0.04277
15562	412.095	1.292	0.02490	282.101	187.44	0.04306
15564	412.416	1.291	0.02456	282.679	187.31	0.04248
15566	412.753	1.291	0.02478	283.285	187.20	0.04286
15568	413.121	1.290	0.02476	283.948	187.08	0.04282
15570	413.502	1.289	0.02494	284.634	186.95	0.04313
15572	413.925	1.288	0.02492	285.395	186.86	0.04310
15574	414.354	1.288	0.02487	286.167	186.76	0.04301
15586	410.801	1.107	0.02472	279.772	160.50	0.04275
15589	411.025	1.111	0.02502	280.175	161.14	0.04327
15592	411.252	1.116	0.02513	280.584	161.85	0.04346
15595	411.488	1.120	0.02488	281.008	162.45	0.04303
15598	411.747	1.124	0.02501	281.475	163.06	0.04325
15601	412.019	1.128	0.02468	281.964	163.58	0.04268
15604	412.333	1.132	0.02480	282.529	164.12	0.04289
15607	412.665	1.134	0.02489	283.127	164.52	0.04305
15610	413.016	1.137	0.02484	283.759	164.97	0.04296
15613	413.398	1.140	0.02484	284.446	165.38	0.04296
15616	410.818	0.895	0.02382	279.802	129.80	0.04120
15619	411.025	0.895	0.02511	280.175	129.82	0.04343
15622	411.257	0.895	0.02494	280.593	129.84	0.04313
15625	411.498	0.896	0.02495	281.026	129.96	0.04315
15628	411.760	0.897	0.02484	281.498	130.06	0.04296
15631	412.065	0.897	0.02465	282.047	130.16	0.04263
15634	412.371	0.898	0.02494	282.598	130.25	0.04313
15637	412.718	0.899	0.02495	283.222	130.35	0.04315
15640	413.150	0.900	0.02486	284.000	130.48	0.04300
15643	413.540	0.900	0.02494	284.702	130.54	0.04313

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
15646	410.871	0.692	0.02492	279.898	100.39	0.04310
15649	411.080	0.691	0.02456	280.274	100.27	0.04248
15652	411.319	0.691	0.02533	280.704	100.20	0.04381
15655	411.564	0.691	0.02509	281.145	100.17	0.04339
15658	411.838	0.691	0.02477	281.638	100.16	0.04284
15661	412.148	0.691	0.02488	282.196	100.19	0.04303
15664	412.484	0.691	0.02450	282.801	100.19	0.04237
15667	412.834	0.691	0.02500	283.431	100.20	0.04324
15670	413.209	0.691	0.02493	284.106	100.24	0.04312
15673	413.625	0.691	0.02508	284.855	100.29	0.04338
15676	410.862	0.468	0.02504	279.882	67.89	0.04331
15678	411.101	0.470	0.02518	280.312	68.15	0.04355
15680	411.322	0.470	0.02565	280.710	68.17	0.04436
15682	411.595	0.470	0.02526	281.201	68.19	0.04369
15684	411.884	0.470	0.02500	281.721	68.19	0.04324
15686	412.194	0.470	0.02555	282.279	68.20	0.04419
15688	412.548	0.470	0.02516	282.916	68.22	0.04351
15690	412.928	0.470	0.02534	283.600	68.23	0.04383
15692	413.325	0.470	0.02538	284.315	68.23	0.04389
15694	413.764	0.470	0.02501	285.105	68.21	0.04325
15696	410.860	0.269	0.02665	279.878	38.98	0.04609
15698	411.132	0.269	0.02443	280.368	39.00	0.04225
15700	411.388	0.269	0.02605	280.828	39.00	0.04505
15702	411.654	0.269	0.02494	281.307	39.02	0.04313
15704	411.974	0.269	0.02590	281.883	39.04	0.04479
15706	412.318	0.269	0.02551	282.502	39.05	0.04412
15708	412.692	0.269	0.02577	283.176	39.04	0.04457
15710	413.079	0.269	0.02578	283.872	39.04	0.04459
15712	413.513	0.269	0.02573	284.653	39.03	0.04450
15714	413.974	0.269	0.02560	285.483	39.07	0.04428
11001	351.077	2.153	0.02371	172.269	312.33	0.04101
11002	351.215	2.154	0.02392	172.517	312.36	0.04137
11003	351.352	2.154	0.02383	172.764	312.37	0.04121
11004	351.504	2.154	0.02379	173.037	312.38	0.04114
11005	351.665	2.154	0.02363	173.327	312.41	0.04087
11006	351.824	2.154	0.02370	173.613	312.41	0.04099
11007	352.001	2.154	0.02348	173.932	312.44	0.04061
11008	352.179	2.154	0.02371	174.252	312.46	0.04101
11009	352.361	2.154	0.02391	174.580	312.47	0.04135
11010	352.555	2.154	0.02356	174.929	312.48	0.04075
11011	351.059	2.106	0.02347	172.236	305.47	0.04059
11012	351.213	2.106	0.02378	172.513	305.50	0.04113
11013	351.349	2.106	0.02325	172.758	305.48	0.04021
11014	351.512	2.106	0.02353	173.052	305.51	0.04070
11015	351.671	2.107	0.02329	173.338	305.52	0.04028
11016	351.838	2.106	0.02355	173.638	305.51	0.04073
11017	352.005	2.107	0.02308	173.939	305.55	0.03992

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
11018	352.186	2.107	0.02364	174.265	305.52	0.04089
11019	352.372	2.107	0.02349	174.600	305.52	0.04063
11020	352.571	2.107	0.02351	174.958	305.52	0.04066
11021	351.096	2.020	0.02264	172.303	293.00	0.03916
11022	351.250	2.020	0.02279	172.580	293.00	0.03942
11023	351.406	2.020	0.02313	172.861	293.03	0.04000
11024	351.546	2.020	0.02288	173.113	293.03	0.03957
11025	351.717	2.020	0.02289	173.421	293.04	0.03959
11026	351.899	2.020	0.02297	173.748	293.04	0.03973
11027	352.069	2.021	0.02287	174.054	293.05	0.03955
11028	352.259	2.021	0.02284	174.396	293.08	0.03950
11029	352.466	2.021	0.02289	174.769	293.08	0.03959
11030	352.666	2.021	0.02290	175.129	293.11	0.03961
11031	351.221	1.932	0.02278	172.528	280.24	0.03940
11032	351.446	1.932	0.02246	172.933	280.24	0.03884
11033	351.691	1.932	0.02243	173.374	280.26	0.03879
11034	351.957	1.932	0.02252	173.853	280.26	0.03895
11035	352.239	1.932	0.02251	174.360	280.27	0.03893
11036	352.544	1.932	0.02244	174.909	280.29	0.03881
11037	352.860	1.932	0.02245	175.478	280.29	0.03883
11038	353.198	1.933	0.02234	176.086	280.30	0.03864
11039	353.562	1.933	0.02262	176.742	280.32	0.03912
11040	353.935	1.933	0.02273	177.413	280.33	0.03931
11041	351.270	1.797	0.02188	172.616	260.57	0.03784
11042	351.513	1.796	0.02184	173.053	260.56	0.03777
11043	351.774	1.796	0.02185	173.523	260.54	0.03779
11044	352.042	1.796	0.02150	174.006	260.53	0.03718
11045	352.334	1.796	0.02189	174.531	260.52	0.03786
11046	352.643	1.796	0.02187	175.087	260.54	0.03782
11047	352.977	1.796	0.02200	175.689	260.54	0.03805
11048	353.326	1.797	0.02194	176.317	260.57	0.03795
11049	353.705	1.797	0.02200	176.999	260.59	0.03805
11050	354.093	1.797	0.02200	177.697	260.61	0.03805
11051	351.297	1.636	0.02076	172.665	237.24	0.03590
11052	351.556	1.636	0.02130	173.131	237.26	0.03684
11053	351.818	1.636	0.02148	173.602	237.27	0.03715
11054	352.109	1.636	0.02117	174.126	237.27	0.03661
11055	352.414	1.636	0.02135	174.675	237.29	0.03692
11056	352.740	1.636	0.02132	175.262	237.31	0.03687
11057	353.090	1.636	0.02142	175.892	237.32	0.03705
11058	353.453	1.636	0.02141	176.545	237.30	0.03703
11059	353.846	1.636	0.02145	177.253	237.33	0.03710
11060	354.262	1.636	0.02143	178.002	237.34	0.03706
11061	351.125	1.461	0.02060	172.355	211.95	0.03563
11062	351.364	1.461	0.02033	172.785	211.94	0.03516
11063	351.612	1.461	0.02075	173.232	211.93	0.03589
11064	351.885	1.461	0.02096	173.723	211.91	0.03625

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
11065	352.189	1.461	0.02074	174.270	211.90	0.03587
11066	352.506	1.461	0.02083	174.841	211.90	0.03603
11067	352.851	1.461	0.02087	175.462	211.92	0.03609
11068	353.213	1.461	0.02076	176.113	211.93	0.03590
11069	353.599	1.461	0.02103	176.808	211.93	0.03637
11070	353.998	1.461	0.02096	177.526	211.90	0.03625
11071	351.137	1.252	0.02032	172.377	181.52	0.03514
11072	351.392	1.252	0.02017	172.836	181.56	0.03488
11073	351.671	1.252	0.02061	173.338	181.57	0.03564
11074	351.948	1.252	0.02049	173.836	181.58	0.03544
11075	352.274	1.252	0.02049	174.423	181.61	0.03544
11076	352.605	1.252	0.02054	175.019	181.65	0.03552
11077	352.963	1.253	0.02045	175.663	181.69	0.03537
11078	353.336	1.253	0.02036	176.335	181.72	0.03521
11079	353.743	1.253	0.02055	177.067	181.74	0.03554
11080	354.173	1.253	0.02056	177.841	181.79	0.03556
11081	350.970	1.104	0.01999	172.076	160.08	0.03457
11083	351.207	1.107	0.02014	172.503	160.53	0.03483
11085	351.460	1.110	0.02021	172.958	160.94	0.03495
11087	351.737	1.112	0.01997	173.457	161.35	0.03454
11089	352.032	1.115	0.02007	173.988	161.71	0.03471
11091	352.344	1.118	0.02025	174.549	162.09	0.03502
11093	352.692	1.120	0.02016	175.176	162.47	0.03487
11095	353.056	1.122	0.02026	175.831	162.77	0.03504
11097	353.453	1.124	0.02024	176.545	163.07	0.03501
11099	353.860	1.126	0.02031	177.278	163.37	0.03513
11101	351.030	0.899	0.01971	172.184	130.42	0.03409
11103	351.268	0.902	0.01998	172.612	130.80	0.03456
11105	351.537	0.903	0.01998	173.097	130.91	0.03456
11107	351.831	0.903	0.01985	173.626	130.95	0.03433
11109	352.143	0.903	0.01953	174.187	130.97	0.03378
11111	352.481	0.903	0.01990	174.796	130.97	0.03442
11113	352.838	0.903	0.01995	175.438	130.98	0.03450
11115	353.221	0.903	0.02002	176.128	130.96	0.03462
11117	353.633	0.903	0.01998	176.869	131.01	0.03456
11119	354.076	0.903	0.01999	177.667	131.01	0.03457
11121	351.048	0.575	0.01953	172.216	83.33	0.03378
11123	351.292	0.575	0.01962	172.656	83.34	0.03393
11125	351.533	0.575	0.01969	173.089	83.38	0.03405
11127	351.807	0.575	0.01951	173.583	83.41	0.03374
11129	352.098	0.575	0.01987	174.106	83.46	0.03437
11131	352.412	0.576	0.01975	174.672	83.48	0.03416
11133	352.749	0.576	0.01980	175.278	83.51	0.03424
11135	353.099	0.576	0.01969	175.908	83.55	0.03405
11137	353.479	0.576	0.01956	176.592	83.60	0.03383
11139	353.887	0.577	0.01972	177.327	83.62	0.03411
11141	351.056	0.343	0.01971	172.231	49.74	0.03409

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
11143	351.298	0.343	0.01983	172.666	49.76	0.03430
11145	351.564	0.343	0.01964	173.145	49.74	0.03397
11147	351.849	0.343	0.01942	173.658	49.75	0.03359
11149	352.167	0.343	0.01954	174.231	49.74	0.03379
11151	352.506	0.343	0.01973	174.841	49.75	0.03412
11153	352.856	0.343	0.01966	175.471	49.73	0.03400
11155	353.231	0.343	0.01977	176.146	49.75	0.03419
11157	353.641	0.343	0.01971	176.884	49.75	0.03409
11159	354.064	0.343	0.01984	177.645	49.74	0.03431
16001	375.779	3.553	0.03194	216.732	515.37	0.05524
16002	375.831	3.554	0.03285	216.826	515.41	0.05681
16003	375.923	3.554	0.03207	216.991	515.42	0.05547
16004	376.048	3.554	0.03234	217.216	515.45	0.05593
16005	376.157	3.554	0.03213	217.413	515.44	0.05557
16006	376.248	3.554	0.03181	217.576	515.46	0.05502
16007	376.370	3.554	0.03216	217.796	515.45	0.05562
16008	376.486	3.554	0.03211	218.005	515.46	0.05553
16009	376.608	3.554	0.03195	218.224	515.46	0.05526
16010	376.724	3.554	0.03239	218.433	515.46	0.05602
16011	375.758	3.453	0.03007	216.694	500.88	0.05201
16012	375.840	3.453	0.03017	216.842	500.85	0.05218
16013	375.935	3.453	0.03073	217.013	500.84	0.05315
16014	376.052	3.453	0.03041	217.224	500.80	0.05259
16015	376.195	3.453	0.03071	217.481	500.80	0.05311
16016	376.306	3.453	0.03002	217.681	500.78	0.05192
16017	376.432	3.453	0.03052	217.908	500.75	0.05278
16018	376.552	3.452	0.03031	218.124	500.73	0.05242
16019	376.677	3.453	0.03054	218.349	500.75	0.05282
16020	376.812	3.452	0.03081	218.592	500.72	0.05329
16021	375.738	3.350	0.02931	216.658	485.92	0.05069
16022	375.841	3.350	0.02868	216.844	485.92	0.04960
16023	375.954	3.350	0.02946	217.047	485.89	0.05095
16024	376.046	3.350	0.02889	217.213	485.87	0.04997
16025	376.169	3.350	0.02958	217.434	485.86	0.05116
16026	376.281	3.350	0.02905	217.636	485.86	0.05024
16027	376.411	3.350	0.02940	217.870	485.85	0.05085
16028	376.551	3.350	0.02912	218.122	485.85	0.05036
16029	376.675	3.350	0.02945	218.345	485.83	0.05093
16030	376.825	3.350	0.02919	218.615	485.84	0.05048
16031	375.685	3.248	0.02839	216.563	471.09	0.04910
16032	375.795	3.248	0.02774	216.761	471.08	0.04798
16033	375.922	3.248	0.02860	216.990	471.07	0.04946
16034	376.040	3.248	0.02849	217.202	471.05	0.04927
16035	376.269	3.248	0.02818	217.614	471.06	0.04874
16036	376.341	3.248	0.02845	217.744	471.05	0.04920
16037	376.481	3.248	0.02862	217.996	471.05	0.04950
16038	376.620	3.248	0.02845	218.246	471.07	0.04920

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
16039	376.758	3.248	0.02846	218.494	471.04	0.04922
16040	376.914	3.248	0.02836	218.775	471.04	0.04905
16041	375.745	3.146	0.02716	216.671	456.36	0.04697
16042	375.858	3.146	0.02728	216.874	456.36	0.04718
16043	375.984	3.146	0.02723	217.101	456.35	0.04709
16044	376.097	3.146	0.02746	217.305	456.33	0.04749
16045	376.230	3.146	0.02715	217.544	456.35	0.04696
16046	376.369	3.146	0.02725	217.794	456.34	0.04713
16047	376.506	3.146	0.02747	218.041	456.34	0.04751
16048	376.654	3.146	0.02781	218.307	456.34	0.04810
16049	376.806	3.146	0.02751	218.581	456.33	0.04758
16050	376.962	3.146	0.02758	218.862	456.34	0.04770
16051	375.749	3.025	0.02625	216.678	438.73	0.04540
16053	375.884	3.025	0.02654	216.921	438.70	0.04590
16055	376.013	3.025	0.02644	217.153	438.70	0.04573
16057	376.131	3.025	0.02670	217.366	438.70	0.04618
16059	376.272	3.025	0.02643	217.620	438.70	0.04571
16061	376.410	3.025	0.02683	217.868	438.71	0.04640
16063	376.547	3.025	0.02658	218.115	438.69	0.04597
16065	376.703	3.025	0.02684	218.395	438.70	0.04642
16067	376.863	3.024	0.02667	218.683	438.67	0.04613
16069	377.031	3.024	0.02697	218.986	438.65	0.04664
16071	375.805	2.905	0.02624	216.779	421.32	0.04538
16073	375.941	2.905	0.02616	217.024	421.30	0.04524
16075	376.069	2.905	0.02615	217.254	421.28	0.04523
16077	376.204	2.905	0.02531	217.497	421.27	0.04377
16079	376.328	2.904	0.02615	217.720	421.25	0.04523
16081	376.480	2.904	0.02650	217.994	421.25	0.04583
16083	376.645	2.904	0.02600	218.291	421.19	0.04497
16085	376.791	2.904	0.02608	218.554	421.18	0.04511
16087	376.953	2.904	0.02606	218.845	421.17	0.04507
16089	377.137	2.904	0.02611	219.177	421.19	0.04516
16091	375.816	2.784	0.02601	216.799	403.79	0.04498
16093	375.956	2.784	0.02568	217.051	403.76	0.04441
16095	376.097	2.784	0.02591	217.305	403.76	0.04481
16097	376.240	2.784	0.02478	217.562	403.76	0.04286
16099	376.380	2.784	0.02551	217.814	403.78	0.04412
16101	376.527	2.784	0.02569	218.079	403.80	0.04443
16103	376.690	2.784	0.02551	218.372	403.81	0.04412
16105	376.851	2.784	0.02573	218.662	403.73	0.04450
16107	377.020	2.784	0.02546	218.966	403.76	0.04403
16109	377.199	2.784	0.02558	219.288	403.76	0.04424
16111	375.860	2.653	0.02529	216.878	384.83	0.04374
16113	375.994	2.653	0.02496	217.119	384.76	0.04317
16115	376.122	2.653	0.02523	217.350	384.74	0.04364
16117	376.275	2.652	0.02454	217.625	384.71	0.04244
16119	376.414	2.652	0.02502	217.875	384.67	0.04327

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
16121	376.569	2.652	0.02482	218.154	384.67	0.04293
16123	376.743	2.652	0.02507	218.467	384.62	0.04336
16125	376.909	2.652	0.02464	218.766	384.57	0.04261
16127	377.094	2.651	0.02506	219.099	384.56	0.04334
16129	377.277	2.651	0.02496	219.429	384.55	0.04317
16131	375.962	2.486	0.02437	217.062	360.53	0.04215
16133	376.101	2.486	0.02405	217.312	360.53	0.04159
16135	376.235	2.486	0.02391	217.553	360.51	0.04135
16137	376.385	2.486	0.02441	217.823	360.54	0.04222
16139	376.536	2.486	0.02451	218.095	360.56	0.04239
16141	376.690	2.486	0.02416	218.372	360.56	0.04178
16143	376.863	2.486	0.02440	218.683	360.60	0.04220
16145	377.041	2.486	0.02407	219.004	360.61	0.04163
16147	377.240	2.486	0.02450	219.362	360.63	0.04237
16149	377.430	2.486	0.02439	219.704	360.62	0.04218
16151	376.012	2.351	0.02405	217.152	341.05	0.04159
16153	376.144	2.351	0.02416	217.389	340.99	0.04178
16155	376.291	2.351	0.02311	217.654	341.03	0.03997
16157	376.439	2.351	0.02411	217.920	341.03	0.04170
16159	376.599	2.351	0.02400	218.208	341.04	0.04151
16161	376.776	2.352	0.02414	218.527	341.07	0.04175
16163	376.946	2.352	0.02409	218.833	341.11	0.04166
16165	377.132	2.352	0.02383	219.168	341.13	0.04121
16167	377.316	2.352	0.02396	219.499	341.18	0.04144
16169	377.521	2.352	0.02403	219.868	341.20	0.04156
16171	376.035	2.134	0.02389	217.193	309.47	0.04132
16173	376.188	2.134	0.02328	217.468	309.45	0.04026
16175	376.333	2.134	0.02269	217.729	309.46	0.03924
16177	376.497	2.134	0.02331	218.025	309.45	0.04031
16179	376.654	2.134	0.02331	218.307	309.49	0.04031
16181	376.830	2.134	0.02332	218.624	309.51	0.04033
16183	377.013	2.134	0.02310	218.953	309.53	0.03995
16185	377.200	2.134	0.02340	219.290	309.56	0.04047
16187	377.404	2.135	0.02336	219.657	309.61	0.04040
16189	377.609	2.135	0.02340	220.026	309.64	0.04047
16191	376.039	1.945	0.02286	217.200	282.08	0.03954
16193	376.204	1.944	0.02305	217.497	282.00	0.03986
16195	376.366	1.944	0.02263	217.789	281.96	0.03914
16197	376.533	1.944	0.02298	218.089	281.93	0.03974
16199	376.706	1.944	0.02280	218.401	281.93	0.03943
16201	376.888	1.944	0.02309	218.728	281.96	0.03993
16203	377.077	1.944	0.02255	219.069	281.94	0.03900
16205	377.271	1.944	0.02293	219.418	281.94	0.03966
16207	377.477	1.944	0.02297	219.789	281.94	0.03973
16209	377.696	1.944	0.02295	220.183	281.93	0.03969
16211	376.107	1.749	0.02237	217.323	253.72	0.03869
16213	376.284	1.749	0.02235	217.641	253.69	0.03865

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
16215	376.438	1.749	0.02268	217.918	253.67	0.03923
16217	376.611	1.749	0.02249	218.230	253.67	0.03890
16219	376.785	1.749	0.02268	218.543	253.67	0.03923
16221	376.970	1.749	0.02251	218.876	253.70	0.03893
16223	377.172	1.749	0.02257	219.240	253.72	0.03903
16225	377.375	1.750	0.02276	219.605	253.76	0.03936
16227	377.594	1.750	0.02269	219.999	253.79	0.03924
16229	377.812	1.750	0.02264	220.392	253.88	0.03916
16231	376.136	1.544	0.02199	217.375	223.88	0.03803
16233	376.297	1.543	0.02173	217.665	223.84	0.03758
16235	376.482	1.543	0.02242	217.998	223.82	0.03878
16237	376.653	1.543	0.02225	218.305	223.80	0.03848
16239	376.838	1.543	0.02223	218.638	223.80	0.03845
16241	377.030	1.544	0.02245	218.984	223.87	0.03883
16243	377.231	1.544	0.02246	219.346	223.88	0.03884
16245	377.444	1.544	0.02240	219.729	223.91	0.03874
16247	377.659	1.544	0.02237	220.116	223.91	0.03869
16249	377.893	1.544	0.02238	220.537	223.96	0.03871
16251	376.212	1.226	0.02219	217.512	177.77	0.03838
16254	376.410	1.223	0.02175	217.868	177.41	0.03762
16257	376.568	1.222	0.02190	218.152	177.20	0.03788
16260	376.758	1.221	0.02183	218.494	177.03	0.03775
16263	376.951	1.220	0.02205	218.842	176.93	0.03814
16266	377.155	1.219	0.02170	219.209	176.78	0.03753
16269	377.371	1.218	0.02200	219.598	176.67	0.03805
16272	377.589	1.217	0.02208	219.990	176.55	0.03819
16275	377.827	1.217	0.02199	220.419	176.47	0.03803
16278	378.076	1.216	0.02201	220.867	176.37	0.03807
16281	376.265	0.970	0.02177	217.607	140.73	0.03765
16284	376.440	0.969	0.02165	217.922	140.54	0.03744
16287	376.627	0.969	0.02180	218.259	140.50	0.03770
16290	376.821	0.969	0.02168	218.608	140.50	0.03750
16293	377.018	0.969	0.02189	218.962	140.49	0.03786
16296	377.240	0.968	0.02148	219.362	140.45	0.03715
16299	377.463	0.968	0.02188	219.763	140.44	0.03784
16302	377.704	0.969	0.02183	220.197	140.50	0.03775
16305	377.945	0.969	0.02178	220.631	140.58	0.03767
16308	378.169	1.014	0.02194	221.034	147.02	0.03795
16311	376.253	0.902	0.02201	217.585	130.86	0.03807
16314	376.454	0.914	0.02143	217.947	132.59	0.03706
16317	376.628	0.923	0.02157	218.260	133.92	0.03731
16320	376.786	0.935	0.02165	218.545	135.59	0.03744
16323	377.012	0.936	0.02177	218.952	135.83	0.03765
16326	377.226	0.937	0.02157	219.337	135.96	0.03731
16329	377.448	0.938	0.02191	219.736	136.01	0.03789
16332	377.687	0.938	0.02189	220.167	136.11	0.03786
16335	377.933	0.939	0.02180	220.609	136.14	0.03770

Table 42. Thermal Conductivity Data for HFC-152a From Transient Hot-Wire Experiments (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
16338	378.191	0.939	0.02172	221.074	136.18	0.03756
16341	376.287	0.688	0.02108	217.647	99.83	0.03646
16344	376.473	0.688	0.02158	217.981	99.83	0.03732
16347	376.671	0.689	0.02161	218.338	99.92	0.03737
16350	376.876	0.689	0.02163	218.707	99.97	0.03741
16353	377.085	0.690	0.02184	219.083	100.03	0.03777
16356	377.312	0.690	0.02168	219.492	100.08	0.03750
16359	377.547	0.691	0.02175	219.915	100.15	0.03762
16362	377.793	0.691	0.02186	220.357	100.21	0.03781
16365	378.057	0.691	0.02183	220.833	100.27	0.03775
16368	378.327	0.692	0.02179	221.319	100.33	0.03769
16371	376.282	0.568	0.02150	217.638	82.33	0.03718
16374	376.488	0.572	0.02189	218.008	82.98	0.03786
16377	376.740	0.574	0.02195	218.462	83.23	0.03796
16380	376.944	0.576	0.02190	218.829	83.48	0.03788
16383	377.168	0.577	0.02156	219.232	83.64	0.03729
16386	377.407	0.578	0.02173	219.663	83.83	0.03758
16389	377.641	0.579	0.02175	220.084	83.97	0.03762
16392	377.892	0.579	0.02183	220.536	84.04	0.03775
16395	378.154	0.580	0.02188	221.007	84.13	0.03784
16398	378.424	0.581	0.02166	221.493	84.30	0.03746
16401	376.296	0.593	0.02161	217.663	85.94	0.03737
16404	376.477	0.592	0.02181	217.989	85.89	0.03772
16407	376.686	0.592	0.02166	218.365	85.83	0.03746
16410	376.885	0.593	0.02181	218.723	85.94	0.03772
16413	377.094	0.592	0.02191	219.099	85.84	0.03789
16416	377.334	0.592	0.02180	219.531	85.86	0.03770
16419	377.570	0.592	0.02163	219.956	85.84	0.03741
16422	377.819	0.592	0.02175	220.404	85.90	0.03762
16425	378.093	0.593	0.02191	220.897	85.95	0.03789
16428	378.374	0.593	0.02192	221.403	85.97	0.03791
16431	376.481	0.236	0.02178	217.996	34.21	0.03767
16434	376.703	0.236	0.02222	218.395	34.21	0.03843
16437	376.938	0.236	0.02195	218.818	34.24	0.03796
16440	377.166	0.236	0.02214	219.229	34.26	0.03829
16443	377.418	0.236	0.02198	219.682	34.28	0.03801
16446	377.676	0.236	0.02210	220.147	34.28	0.03822
16449	377.951	0.236	0.02219	220.642	34.29	0.03838
16452	378.225	0.236	0.02230	221.135	34.30	0.03857
16455	378.525	0.237	0.02230	221.675	34.32	0.03857
16458	378.839	0.237	0.02225	222.240	34.32	0.03848

Table 43. Thermal Conductivity Correlation Parameters for HFC-152a with Thermal Conductivity in W/m·K), Temperature in K, and Density in mol/L. The parameters are explained in Appendix B.

Refrigerant	**HFC-152a**
Dilute Gas Terms	
a_1	-1.87981×10^{-3}
a_2	2.57173×10^{-5}
a_3	9.82592×10^{-8}
Excess Function Terms	
b_1	1.01455×10^{-3}
b_2	-1.78047×10^{-4}
b_3	5.91566×10^{-5}
b_4	-1.26279×10^{-6}
Critical Enhancement Parameters	
T_c	386.41 K
P_c	45.167 bar
ρ_c	5.572 mol/L
q_D	4.0×10^{9} m^{-1}

Table 44a. **Experimental Viscosity Data for Saturated Liquid HFC-152a in SI Units. Correlated Data Calculated From the Fit of the Experimental Data, Eq. (3).**

T / K	ρ_{exp} / kg·m^{-3}	η_{exp} / mPa·s	η_{corr} / mPa·s	Δ / %
254.71	999.9	0.2629	0.2627	0.092
258.04	992.8	0.2530	0.2522	0.312
263.27	981.4	0.2366	0.2368	-0.087
272.24	961.4	0.2124	0.2132	-0.381
282.94	936.7	0.1892	0.1889	0.178
289.46	921.0	0.1749	0.1756	-0.376
300.98	892.1	0.1541	0.1545	-0.274
313.13	859.6	0.1348	0.1350	-0.169
313.20	859.4	0.1359	0.1349	0.726
322.27	833.3	0.1214	0.1217	-0.267
323.00	831.2	0.1211	0.1207	0.296

Table 44b. **Experimental Viscosity Data for Saturated Liquid HFC-152a in PI Units.**

T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-3} lb·s^{-1}·ft^{-1}
-1.19	62.42	0.1767
4.80	61.98	0.1700
14.22	61.27	0.1590
30.36	60.02	0.1427
49.62	58.48	0.1271
61.36	57.50	0.1175
82.09	55.69	0.1036
103.96	53.66	0.0906
104.09	53.65	0.0913
120.42	52.02	0.0816
121.73	51.89	0.0814

Table 45a. Experimental Viscosity Data for HFC-152a Vapor in SI Units. (h_{Krauss}, viscosity calculated from the correlation of Krauss (1994); D, percent difference between experimental values and results correlation of Krauss)

p / MPa	T / K	ρ / kg·m^{-3}	η_{Krauss} / μPa·s	η_{exp} / μPa·s	Δ / %
0.122933	300.150	3.3317	10.37	10.77	3.86
0.122933	300.134	3.3319	10.37	10.88	4.92
0.122933	300.133	3.3319	10.37	10.91	5.21
0.123071	300.125	3.3358	10.37	10.91	5.19
0.208359	300.137	5.7464	10.38	10.75	3.62
0.208428	300.129	5.7486	10.37	10.80	4.10
0.208359	300.129	5.7466	10.37	10.81	4.21
0.208497	300.127	5.7506	10.37	10.83	4.36
0.301231	300.137	8.4754	10.38	10.76	3.64
0.301300	300.146	8.4771	10.38	10.80	4.04
0.301162	300.147	8.4730	10.38	10.82	4.27
0.301094	300.149	8.4709	10.38	10.85	4.48
0.440298	300.150	12.7929	10.39	10.38	-0.10
0.440436	300.138	12.7981	10.39	10.41	0.20
0.440298	300.144	12.7933	10.39	10.41	0.14
0.440505	300.145	12.7999	10.39	10.40	0.09
0.518278	300.146	15.3551	10.40	10.20	-1.98
0.518416	300.148	15.3596	10.40	10.23	-1.71
0.518347	300.146	15.3574	10.40	10.24	-1.60
0.518278	300.117	15.3573	10.40	10.25	-1.46
0.625353	300.209	19.0609	10.43	10.31	-1.13
0.625353	300.161	19.0659	10.42	10.34	-0.83
0.625353	300.148	19.0672	10.42	10.35	-0.75
0.625353	300.148	19.0672	10.42	10.36	-0.60

Table 45b. Experimental Viscosity Data for HFC-152a Vapor in PI Units.

p / psia	T / °F	ρ / lb·ft^{-3}	η_{exp} / 10^{-6} lb·s^{-1}·ft^{-1}
17.830	80.600	0.2080	7.237
17.830	80.571	0.2080	7.311
17.830	80.569	0.2080	7.331
17.850	80.555	0.2082	7.331
30.220	80.577	0.3587	7.224
30.230	80.562	0.3589	7.257
30.220	80.562	0.3587	7.264
30.240	80.559	0.3590	7.277
43.690	80.577	0.5291	7.230
43.700	80.593	0.5292	7.257
43.680	80.595	0.5290	7.271
43.670	80.598	0.5288	7.291
63.860	80.600	0.7986	6.975
63.880	80.578	0.7990	6.995
63.860	80.589	0.7987	6.995
63.890	80.591	0.7991	6.988
75.170	80.593	0.9586	6.854
75.190	80.596	0.9589	6.874
75.180	80.593	0.9587	6.881
75.170	80.541	0.9587	6.888
90.700	80.706	1.1899	6.928
90.700	80.620	1.1902	6.948
90.700	80.596	1.1903	6.955
90.700	80.596	1.1903	6.962

Table 46a.Viscosity of Saturated Liquid HFC-152a From Eq. (3) in SI Units.

T / K	p_s / MPa	ρ / kg·m^{-3}	η / mPa·s
240	0.0664	1031.22	0.3721
245	0.0841	1020.83	0.3307
250	0.1053	1010.30	0.2999
255	0.1305	999.61	0.2755
260	0.1602	988.75	0.2555
265	0.1950	977.72	0.2384
270	0.2355	966.48	0.2236
275	0.2821	955.04	0.2104
280	0.3355	943.37	0.1984
285	0.3964	931.46	0.1875
290	0.4654	919.28	0.1774
295	0.5431	906.81	0.1680
300	0.6303	894.02	0.1591
305	0.7276	880.89	0.1508
310	0.8359	867.36	0.1428
315	0.9559	853.41	0.1353
320	1.0883	838.97	0.1280
325	1.2340	823.98	0.1210
330	1.3938	808.36	0.1143
335	1.5686	792.02	0.1077
340	1.7593	774.84	0.1014
345	1.9670	756.65	0.0951
350	2.1926	737.25	0.0890
355	2.4374	716.34	0.0830
360	2.7025	693.50	0.0769
365	2.9894	668.08	0.0708
370	3.2998	638.99	0.0646
375	3.6357	604.12	0.0580
380	4.0000	558.34	0.0505
385	4.3975	477.63	0.0400
386.44	4.52	368.00	0.0296

Table 46b. Viscosity of Saturated Liquid HFC-152a From Eq. (3) in PI Units.

T / °F	p_s / psia	ρ / lb·ft^{-3}	η / 10^{-3} lb·s^{-1}·ft^{-1}
-25	10.34	64.19	0.2408
-15	13.38	63.46	0.2131
-5	17.09	62.73	0.1926
5	21.56	61.98	0.1764
15	26.91	61.22	0.1630
25	33.23	60.44	0.1516
35	40.65	59.65	0.1417
45	49.28	58.84	0.1328
55	59.26	58.01	0.1247
65	70.70	57.16	0.1173
75	83.75	56.29	0.1104
85	98.55	55.39	0.1040
95	115.24	54.46	0.0979
105	133.97	53.50	0.0922
115	154.89	52.51	0.0867
125	178.16	51.47	0.0815
135	203.96	50.39	0.0765
145	232.46	49.25	0.0716
155	263.84	48.04	0.0669
165	298.31	46.75	0.0622
175	336.08	45.36	0.0577
185	377.38	43.84	0.0532
195	422.49	42.14	0.0487
205	471.72	40.18	0.0440
215	525.46	37.80	0.0391
225	584.27	34.60	0.0335
235	649.17	27.67	0.0244
235.92	655.57	22.97	0.0199

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 and uses bare 12 μm platinum hot wires. The high-temperature instrument operates from 300 to 500 K at pressures to 70 MPa and uses anodized 25 μm tantalum hot wires. Both instruments are absolute, with dual 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]. In liquid phase thermal conductivity measurements there may be additional measurement uncertainty due to the polarization of ionic impurities around the bare platinum hot-wires [3]. This polarization problems appears to be insignificant in the present measurements on R152a and R143a since we get excellent agreement between measurements made with bare platinum hot wires and with electrically insulated (anodized) tantalum hot wires.

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

$$\Delta T_{id}(r_0,T) = \frac{q}{4\pi\lambda} \ln\left(\frac{4at}{r_0^2 C}\right) = \frac{q}{4\pi\lambda} \ln\left(\frac{4a}{r_0^2 C}\right) + \frac{q}{4\pi\lambda} \ln(t) \ . \qquad (1)$$

In Eq. (1), 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. Using Eq. (1), 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

$$\Delta T_{id} = \Delta T_w + \sum_i \delta T_i \ . \qquad (2)$$

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 [5]. All of the other corrections have been found to be negligible for these measurements [1-5].

In the dilute gas limit both the finite wire heat capacity and the finite outer boundary corrections become quite large. This is because the gas thermal diffusivity is divergent in the limit of zero density. As a result, thermal conductivity values obtained from absolute steady-state measurements are also reported using the same two hot-wire cells. This allows measurement of the dilute gas thermal conductivity at very low reduced temperatures (vapor pressures less than 1 bar). The steady-state thermal conductivity values are given by

$$\lambda = \frac{q \ln\left(\frac{r_2}{r_1}\right)}{2\pi(T_1 - T_2)} , \tag{3}$$

where λ is the thermal conductivity of the fluid, q is the applied power per unit length, r_1 is the external radius of the inner cylinder (hot wire), and r_2 the internal radius of the outer cylinder, $\Delta T = (T_1 - T_2)$ is the measured temperature difference between the hot wire and its surrounding cavity (initial temperature). The value of the thermal conductivity determined corresponds to that at the average temperature

$$\bar{T} = (T_1 + T_2) / 2 . \tag{4}$$

These steady-state thermal conductivity values have an uncertainty of ±2%.

THERMAL CONDUCTIVITY SURFACES

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

$$\lambda(T,\rho) = \lambda_0(T) + \lambda_{ex}(\rho) + \Delta\lambda_{cr}(T,\rho) . \tag{5}$$

The thermal conductivity of the dilute gas λ_0 is a function of the fluid temperature only. The thermal conductivity excess function λ_{ex} is assumed to be only a function of the fluid density. The thermal conductivity critical enhancement λ_{cr} is also a function of the temperature and the density of the fluid.

The thermal conductivity surface is developed by fitting the low density steady-state 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 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 trial values for the critical enhancement parameter and regression of the excess function polynomial until the deviations are minimized.