THERMOPHYSICAL PROPERTIES

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MASTER

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THERMOPHYSICAL PROPERTIES

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ABSTRACT

Numerous fluids have been identified as promising alternative refrigerants, but much of the information needed to predict their behavior as pure fluids and as components in mixtures does not exist. In particular, reliable thermophysical properties data and models are needed to predict the performance of the new refrigerants in heating and cooling equipment, and to design and optimize equipment to be reliable and energy efficient. The objective of this project is to provide highly accurate, selected thermophysical properties data for Refrigerants 32, 123, 124, and 125, and to use these data to fit simple and complex equations of state and detailed transport property models. The new data will fill gaps in the existing data sets and resolve the problems and uncertainties that exist in and between the data sets. This report describes the progress made during the third quarter of this fifteen-month project, which was initiated in late January, 1992.

SCOPE

This project involves selected measurements of the thermodynamic properties of R-32, R-124, and R-125, and the development of high-accuracy modified Benedict-Webb-Rubin (MBWR) equations of state and improved Carnahan-Starling-DeSantis (CSD) equations of state for each fluid. It also includes selected measurements of the transport properties of R-32 (viscosity and thermal conductivity) and R-123 (thermal conductivity), and the development of detailed correlations for same. The experimental thermodynamic measurements will include, as appropriate, accurate determinations of the critical temperature, pressure, and density; vapor pressures and saturated liquid densities; ideal-gas heat capacity from measurements of the vapor-phase speed of sound; the pressure-volume-temperature (PVT) behavior in the superheated vapor region; the PVT behavior of the compressed liquid; and selected measurements of the liquid-phase heat capacity. The experimental transport measurements will cover the one-phase and saturated liquid and vapor states over the temperature range of interest. Efforts prior to this quarter were focused mostly on measurements of the PVT behavior, vapor pressure, isochoric heat capacity, and transport properties of R-32; the speed of sound of R-124; and the thermal conductivity of R-123. Efforts during this quarter were focused mostly on completing work on the vapor pressures and coexisting densities of R-32, R-124, and R-125; completing preliminary analyses of the vapor- and liquid-phase PVT, isochoric heat capacity, and thermal conductivity measurements for R-32; analyzing the speed of sound measurements for R-124; measuring and analyzing the isochoric heat capacity of R-125; and completing the experimental measurements and a preliminary analysis of the data for the thermal conductivity of R-123.

SIGNIFICANT RESULTS

R-32

Sufficient PVT data have been obtained for R-32 to develop a preliminary wide-range equation of state of the modified Benedict-Webb-Rubin type (MBWR). In previous reporting periods, the Burnett apparatus was used in the isochoric mode to determine the PVT relation for the vapor phase. Eleven isochores were completed spanning the ranges -5 to 100°C (23 to 212°F) and 0.018 to 1.3 times the critical density (7.5 to 550 kg/m^3; 0.47 to 34.3 lb/ft^3); the highest absolute pressure was 9.7 MPa (1400 psi). Two Burnett expansions were completed at 100°C (212°F) to establish the densities of the isochores. The locations of the 153 data points are indicated as a function of pressure and temperature by the filled circles on Figure 1, and as a function of density and pressure by the filled circles on Figure 2. In addition to the Burnett measurements, the vibrating tube densimeter was used to determine the PVT relation for the liquid phase. Twenty one isotherms were completed spanning the ranges -30 to 70°C (-22 to 158°F) and 2000 to 6500 kPa (290 to 940 psi). The data were extrapolated to the vapor pressure to determine the density of the liquid at the saturated vapor pressure. The locations of the 654 data points are indicated as a function of pressure and temperature by the open circles on Figure 1, and as a function of density and pressure by the open circles on Figure 2.

A preliminary MBWR equation of state has been fitted to the Burnett and vibrating tube data described above. The deviations of the MBWR equation from the data are plotted on two different scales in Figures 3 and 4, where the triangles represent the density of the saturated liquid. Almost all of the density data are represented within $\pm 0.1\%$ by the MBWR equation. Skeleton tables of the density of R-32 calculated from the preliminary MBWR equation of state are given in Table 1. The MBWR equation will be improved as additional data become available, including liquid-phase PVT and isochoric heat capacity data (see below).

Liquid PVT measurements have been initiated on R-32 at low temperatures. Approximately 10 liquid isochores will be obtained during the coming months.

As was mentioned in the last report, a manuscript entitled "Ebulliometric Measurement of the Vapor Pressure of Difluoromethane (R-32)", by L.A. Weber and A.R.H. Goodwin, has been submitted to the Journal of Chemical and Engineering Data. Low-temperature vapor pressure data were presented with a vapor pressure function suitable for use in the range 200 to 250 K (-100 to -10°F). An additional interim vapor pressure equation also was presented that extends from 191 K (-116°F) to the critical temperature of 351.36 K (173°F). The latter equation is consistent with both the NIST data and the data of Malbrunot, et al. (1967). A set of interim thermodynamic properties for R-32 on the vapor-liquid saturation boundary also was presented.

Additional measurements of the vapor pressure and coexisting densities of R-32 have been completed at temperatures from 300 K (80°F) to near its critical point. A manuscript entitled, "Coexisting Densities, Vapor Pressures, and Critical Densities of Refrigerants R-32 and R-152a at 300 to 385 K," has been prepared by V.G. Niesen, et al., and is Appendix A of this report. This paper will be submitted for publication in the archival journal Fluid Phase Equilibria.

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An adiabatic calorimeter is being used to measure molar heat capacity at constant volume $\{C_v\}$ for R-32. The samples are in the single-phase liquid and saturated-liquid states. Three isochores have been completed on a sample of 0.9994 mole fraction purity. The temperatures ranged from 138 K to 345 K (-211 to 161°F) with pressures to 35 MPa (5000 psi). The temperature and pressure range which has been covered thus far is indicated in Figure 5, and the measurements are presented in Tables 2 - 4. These values are preliminary and will change by as much as ±1 % when a comprehensive equation of state becomes available. To complete the liquid C_v surface, five additional isochores are planned.

The transient hot-wire study of the thermal conductivity of R-32 has been extended from 300 to 340 K (80 to 160°F) in both the liquid and vapor. The thermal conductivity surface now covers the region from 160 to 340 K (-167 to 160°F) at pressures to 70 MPa (10,000 psi). Measurements are continuing in the supercritical region from 340 to 400 K (160 to 260°F); these measurements will be completed by the end of the next quarter. Preliminary results from the analysis of the 926 transient hot-wire measurements performed thus far are presented in Table 5. The values in the table will change by as much as 5% for two reasons: the results do not include a thermal radiation correction (requires absorbing media correction), and the form used for the finite-wire-radius correction does not converge in the dilute-gas limit.

A torsional quartz crystal viscometer is being used to measure the shear viscosity of R-32 in the liquid phase. Measurements for the saturated liquid were completed during the previous reporting period for temperatures in the range 150 to 320 K (-190 to 116°F). Measurements on the compressed liquid were started, but these measurements have been hampered by the excessive electrical conductance of the fluid in our apparatus. This conductance has resulted in errors as large as 15 percent in the apparent viscosity. This effect has been noticed to a lesser degree with other refrigerants (notably R-134a), but it has never been seen with a typical nonpolar fluid. It is suspected that refrigerants exhibit the effect because they are moderately good solvents for contaminants inside the apparatus. Two procedures have been beneficial in reducing the electrical conductance of refrigerants in the apparatus: (1) storing the refrigerant in contact with activated molecular sieves, and (2) cleaning the apparatus with a polar solvent such as acetone (a nonpolar solvent (toluene) has not been beneficial). The conductivity effect is now negligible compared to the conductance of the transducer at resonance, and measurements on R-32 are continuing. A new capillary flow viscometer is being used to measure the viscosity of saturated liquid R-32 over a limited temperature range as an independent check.

R-124

Additional measurements of the vapor pressure and coexisting densities of R-124 have been completed at temperatures from 300 K (80°F) to near its critical temperature at 395 K (251°F). A manuscript entitled, "Coexisting Densities and Vapor Pressures of Refrigerants R-22, R-134a, and R-124 at 300 to 395 K", has been prepared by V.G. Niesen, et al., for submission to Fluid Phase Equilibria. This paper is included as Appendix B of this report. The coexisting density measurements also have been analyzed to determine an internally consistent value of the critical density of R-124. The results are presented in "Critical Densities from Coexisting Density Data: Application to Refrigerants R-22, R-134a, and R-124", by L.J. Van Poolen, et al. This paper also will be submitted to Fluid Phase Equilibria. It is included as Appendix C of this report.

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In a previous reporting period, a cylindrical acoustic resonator was used to measure the speed of sound in R-124 along isotherms between 250 and 400 K (-9 and 261°F) at pressures between 20 and 900 kPa (3 and 130 psi). The data have now been analyzed, and the results are given in Table 6.

The ideal-gas heat capacity, C_p^o, of R-124 was obtained by analyzing the speed of sound measurements at low pressures. The results are given in Table 7. The following expressions for C_p^o were obtained by fitting the data in Table 7:

$$C_p^o \quad = \quad a_0 + a_1 t + a_2 t^2 \qquad (1)$$

where   SI UNITS

$t/°C$	=	$T/K - 273.15$
a_0/R	=	$11.2398 +/- .0035$
$a_1/(R/°C)$	=	$2.436 \times 10^{-2} +/- 1.3 \times 10^{-4}$
$a_2/(R/°C^2)$	=	$-2.13 \times 10^{-5} +/- 1.3 \times 10^{-6}$
R	=	8.314471 J/K-mol (gas constant)
M	=	0.136477 kg/mol (molar mass)

or   PI UNITS

$t/°F$	=	$(T/K - 273.15) \times 1.8 + 32$
a_0/R	=	$10.8000 +/- .0042$
$a_1/(R/°F)$	=	$1.395 \times 10^{-2} +/- 7.7 \times 10^{-5}$
$a_2/(R/°F^2)$	=	$-6.57 \times 10^{-6} +/- 4.0 \times 10^{-7}$
R	=	0.01419457 Btu/F-mol (gas constant)
M	=	0.0619049 lbm/mol (molar mass)

The second, third, and fourth acoustic virial coefficients - beta, gamma, and delta - have been obtained by analyzing the pressure dependence of the speed of sound. The results are given in Table 8. The following expressions were obtained by fitting the data in Table 8:

SI UNITS

beta	=	$b_1/T + b_2/T^2$	(2a)

with	$b_1/(m^3K/mol)$	=	$8.467 \times 10^{-2} +/- 0.105 \times 10^{-2}$
	$b_2/(m^3K^2/mol)$	=	$-1.146 \times 10^2 +/- 0.0037 \times 10^2$
	$sig/(m^3/mol)$	=	4.9×10^{-6}

gamma	=	$-c_1 \exp(c_2/T)$	(3a)

with	$c_1/(m^3/mol\text{-}Pa)$	=	$1.832 \times 10^{-14} +/- 0.20 \times 10^{-14}$
	c_2/K	=	$2837. +/- 37.$

$$\text{delta} \quad = \quad -d_1 \exp(d_2/T) \tag{4a}$$

with
$$d_1/(m^3/mol\text{-}Pa^2) \quad = \quad 5.529 \times 10^{-24}$$
$$d_2/K \quad = \quad 5328.0$$

PI UNITS

$$\text{beta} \quad = \quad b_1/T + b_2/T^2 \tag{2b}$$

with
$$T/(\deg R) \quad = \quad t/(\deg F) + 459.67$$
$$b_1/(btu\text{-}\deg R/psi\text{-}mol) \quad = \quad 0.99664 +/- 0.012$$
$$b_2/(btu(\deg R)^2/psi\text{-}mol) \quad = \quad -2428. \ +/- 7.8$$
$$sig/(btu/psi\text{-}mol) \quad = \quad 32. \times 10^{-6}$$

$$\text{gamma} \quad = \quad -c_1 \exp(c_2/T) \tag{3b}$$

with
$$T/(\deg R) \quad = \quad t/(\deg F) + 459.67$$
$$c_1/(btu/psi^2\text{-}mol) \quad = \quad 8.260 \times 10^{-10} +/- 0.90 \times 10^{-10}$$
$$c_2/(\deg R) \quad = \quad 5107. \ +/- 67.$$

$$\text{delta} \quad = \quad -d_1 \exp(d_2/T) \tag{4b}$$

with
$$T/(\deg R) \quad = \quad t/(\deg F) + 459.67$$
$$d_1/(btu/psi^3\text{-}mol) \quad = \quad 1.719 \times 10^{-15}$$
$$d_2/(\deg R) \quad = \quad 9590.4$$

The acoustic-virial representation of the speed of sound in R-124 also has been used to deduce the parameters in a model two-body intermolecular potential for R-124.

As mentioned in the last quarterly report and in NIST's proposal to ARTI, extensive research has been performed on the transport properties of R-124 for the Department of Energy. The measurements and analysis of the thermal conductivity have been completed, and a paper (which is available upon request) has been submitted to the International Journal of Thermophysics. The results span the range of temperatures from 180 to 383 K (-135 and 230°F) at pressures to 70 MPa (10,000 psi). Similarly, measurements of the viscosity of R-124 have been completed for temperatures between 120 and 420 K (-243 and 297°F) at pressures to 50 MPa (7300 psi). Because differences as large as 65% were found between the NIST data and previously published values, measurements of the viscosity of saturated liquid R-124 were conducted with a new high-pressure capillary flow viscometer. Good agreement was obtained with the earlier NIST measurements, and a paper has been prepared by D.E. Diller and S.M. Peterson entitled, "Measurements of the Viscosities of Saturated and Compressed Fluid 1-Chloro-1,2,2,2-Tetrafluoroethane (R-124)and Pentafluoroethane (R-125) at Temperatures Between 120 and 420 K". This paper has been accepted for publication in the International Journal of Thermophysics and is included as Appendix D of this report. A manuscript describing the results obtained with the capillary flow viscometer is in preparation.

R-125

An adiabatic calorimeter has been used to measure molar heat capacity at constant volume $\{C_v\}$ for R-125. In total, 120 C_v values were measured in the liquid state and 100 values were measured in the vapor + liquid two-phase region. The sample purity was 0.9973 mole fraction. The temperatures ranged from 176 to 342 K (-143 to 156°F) with pressures to 35 MPa (5000 psi). The measured values are given in Tables 9 - 15 for the liquid phase and in Tables 16 - 22 for the two-phase region. These values are preliminary and will change by as much as ±1% when a comprehensive equation of state becomes available. In addition to the temperature-density-pressure state conditions, the tables present some key measurements needed to obtain values of liquid heat capacity, C_v, and the heat capacity of the saturated liquid, C_σ. These measurements include the amount of sample, N; the calorimeter bomb volume, V_{bomb}; the observed temperature rise, ΔT; the energy absorbed, Q_{tare}, and the heat capacity, dQ_{tare}/dT, of the empty calorimeter bomb; gross heat capacity, $Q/\Delta T$; and the pressure-volume work done by the sample to expand the bomb during a heat capacity measurement, $W_{PV,m}$. The pressures and temperatures covered by this study are indicated in Figure 6, the liquid heat capacity as a function of temperature is presented in Figure 7, and the saturated liquid heat capacity derived from the two-phase measurements is given in Figure 8. It is estimated that the uncertainty of the heat capacity measurements will be ±0.5% when a comprehensive equation of state is used to reduce the data.

As in the case of R-124, extensive research has been performed on the transport properties of R-125 under the sponsorship of the Department of Energy. Measurements of the thermal conductivity of R-125 have been completed for temperatures from 190 to 390 K (-112 and 245°F) at pressures to 70 MPa (10,000 psi). A preliminary analysis of the 842 transient hot-wire measurements also has been completed; the data will be re-analyzed in the coming months to include appropriate thermal-radiation and finite-wire-radius corrections. Measurements of the viscosity of R-125 have been completed for temperatures between 120 and 420 K (-243 and 297°F) at pressures to 50 MPa (7300 psi). Differences as large as 80% were found between the NIST data obtained with two torsional crystal viscometers and previously published values. To investigate this, measurements of the viscosity of saturated liquid R-125 were conducted with a new high-pressure capillary flow viscometer; good agreement was obtained between the two NIST methods. A paper describing this work has been prepared and is included as Appendix D of this report.

R-123

During previous reporting periods, the low- and high-temperature transient hot-wire thermal conductivity instruments were used to measure the thermal conductivity of both liquid and vapor R-123. Liquid-phase data were obtained in the temperature range from 180 to 440 K (-136 to 332°F) at pressures from the saturated vapor pressure to 70 MPa (10000 psi). Vapor-phase data were obtained from 290 to 449 K (62 to 332°F). The polarization technique was used with both instruments to reduce measurements errors due to polarization of the fluid around the wire. During this reporting period, the data for both liquid and vapor were extended from 440 K (332°F) to 480 K (405°F), and a significant thermal conductivity critical enhancement was found in the saturated liquid, saturated vapor, and supercritical gas. The results of a preliminary

analysis of the 1618 transient hot-wire measurements are given in Table 23. The values in the table will change by as much as 5% for two reasons: the results do not include a thermal radiation correction, and the form used for the finite-wire-radius correction does not converge in the dilute-gas limit. A final correlation for the thermal conductivity of R-123 will be completed in the coming months.

COMPLIANCE WITH AGREEMENT

NIST has complied with all terms of the grant agreement during the third quarter of calendar year 1992 modulo small shifts in the estimated level of effort from one property and/or fluid to another.

PRINCIPAL INVESTIGATOR EFFORT

Dr. Richard F. Kayser is the NIST Principal Investigator for the MCLR program. During the third quarter of calendar year 1992, Dr. Kayser devoted approximately one week to monitoring and reviewing the research, and preparing the quarterly report. The project involves multiple researchers and capabilities in Gaithersburg, MD and Boulder, CO.

Figure 1. The locations as a function of pressure and temperature of the 153 vapor-phase densities obtained using the Burnett apparatus (filled circles) and the 654 liquid-phase densities obtained using the vibrating-tube densimeter (open circles); the triangles represent the density of the saturated liquid.
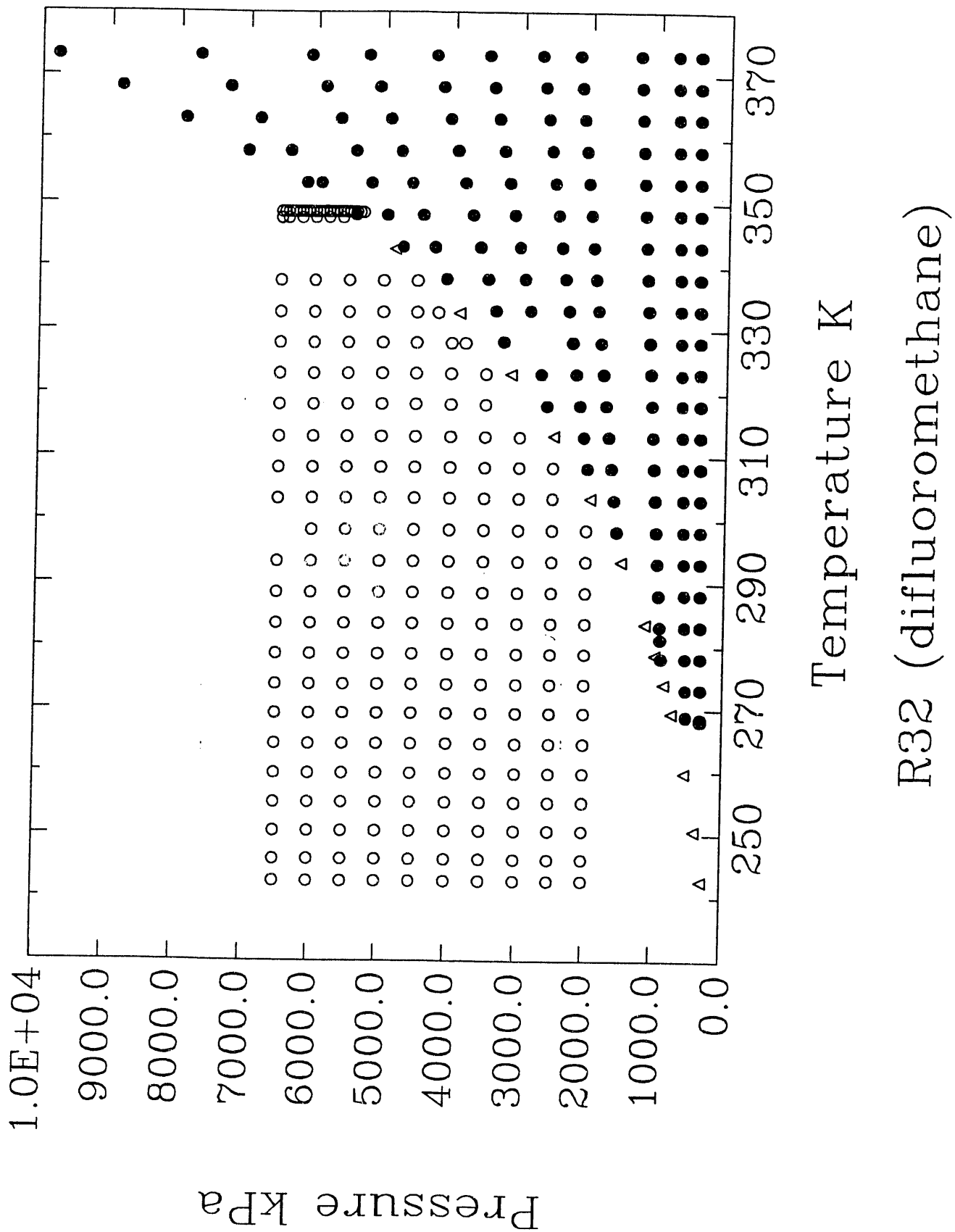
Figure 2. The locations as a function of density and pressure of the 153 vapor-phase densities obtained using the Burnett apparatus (filled circles) and the 654 liquid-phase densities obtained using the vibrating-tube densimeter (open circles); the triangles represent the density of the saturated liquid.
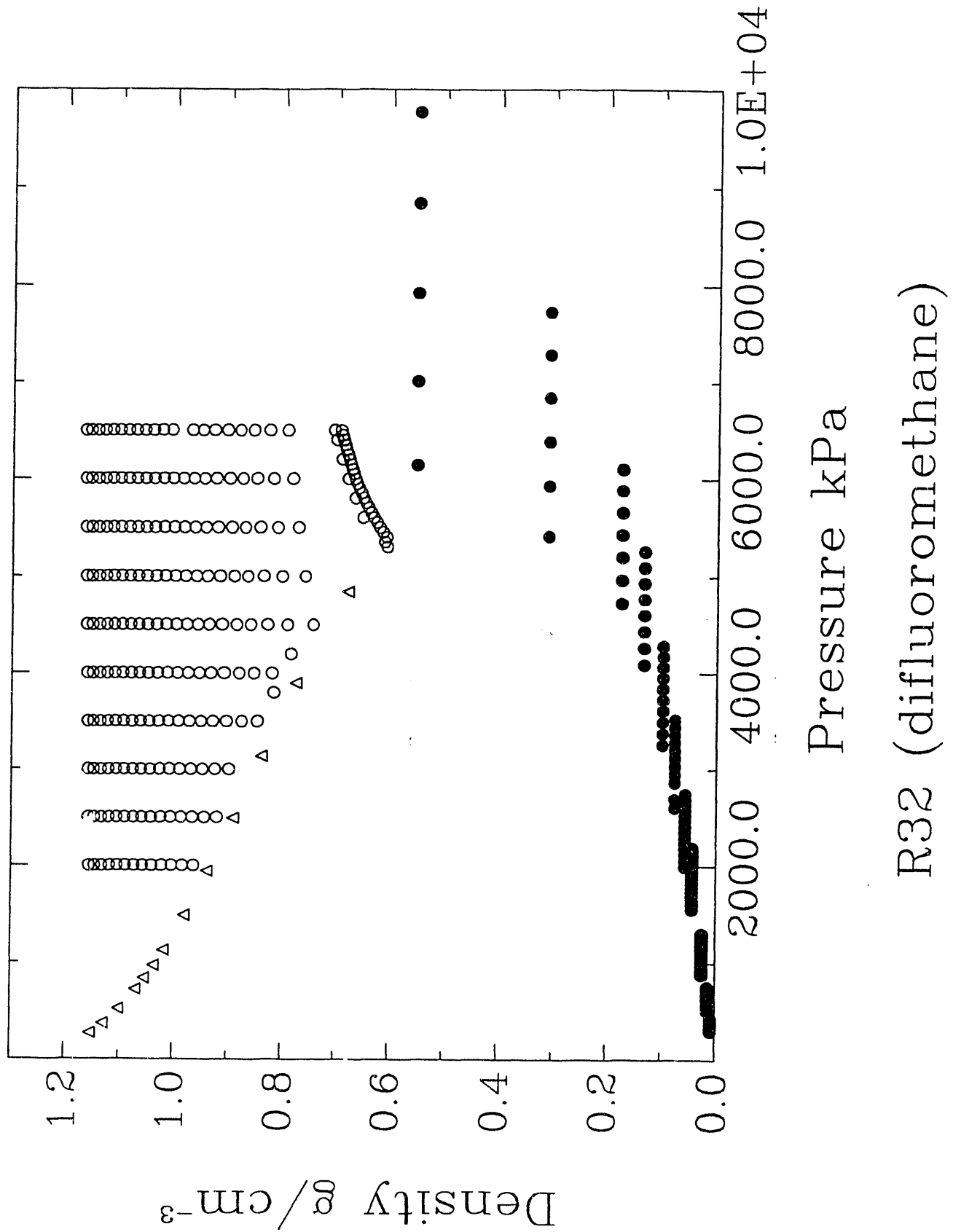
Figure 3. The deviations of the single-phase liquid and vapor densities (open and closed circles, respectively) from the preliminary MBWR equation described in the text; the triangles represent the density of the saturated liquid.
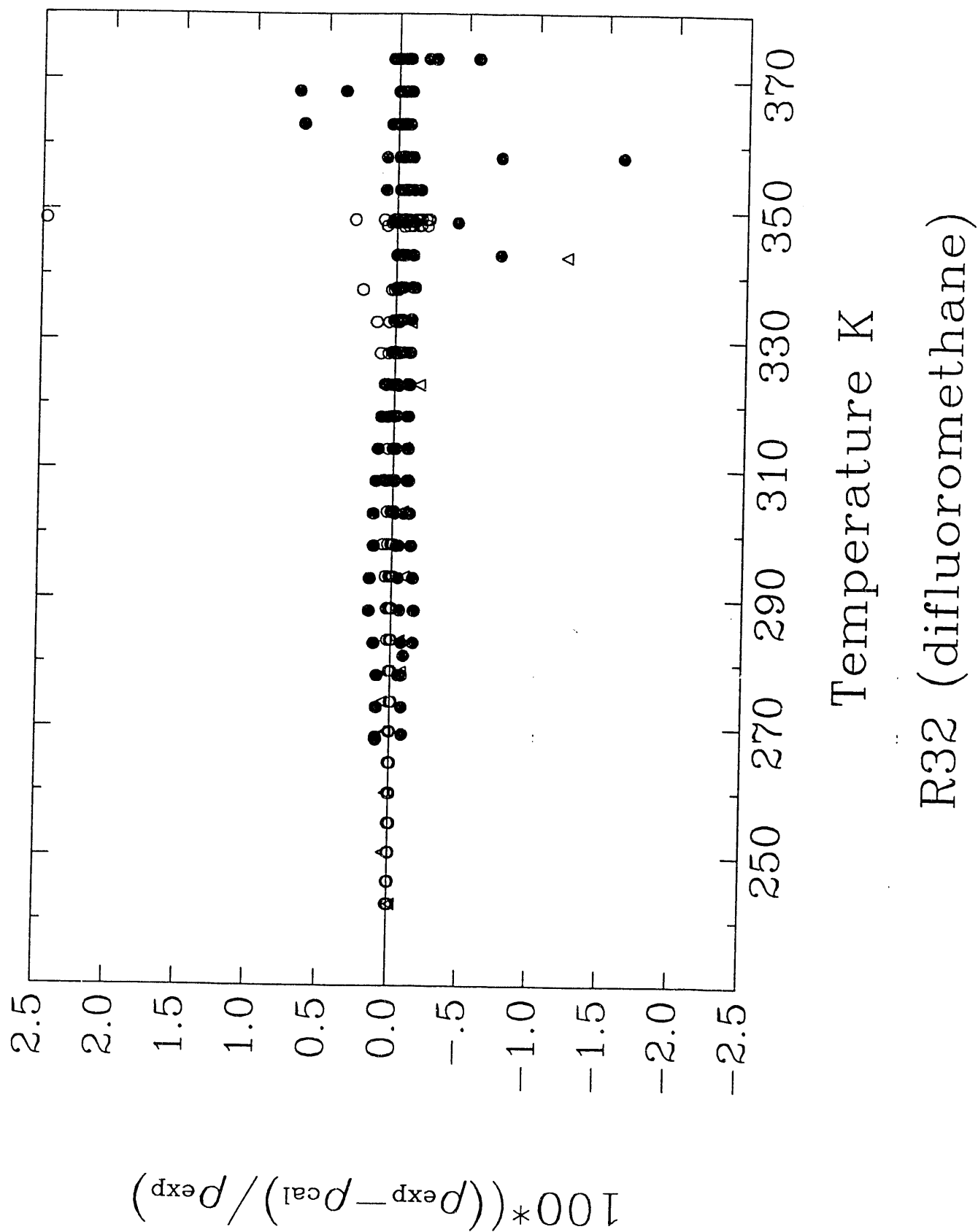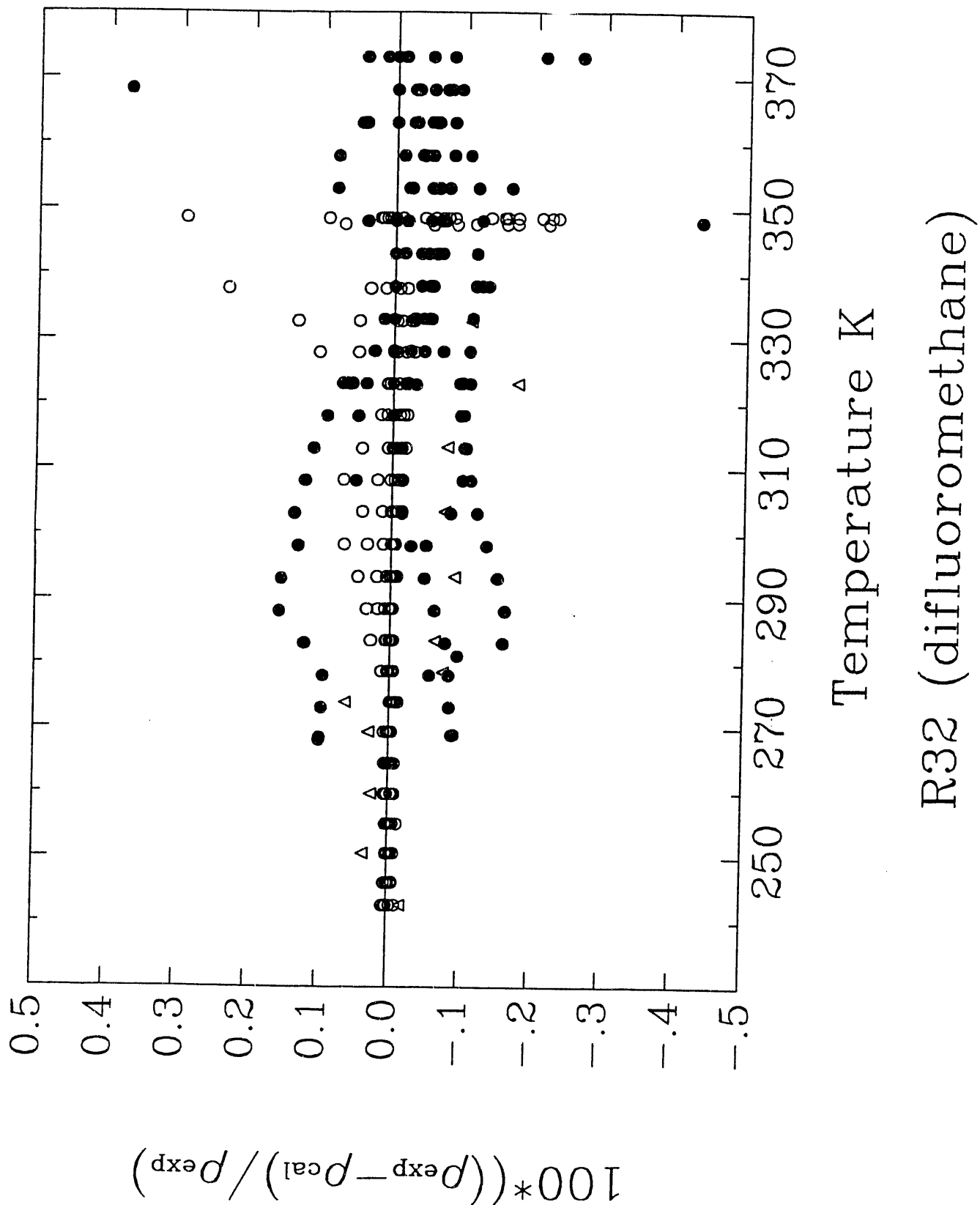
Figure 4. The deviations of the single-phase liquid and vapor densities (open and closed circles, respectively) from the preliminary MBWR equation described in the text (finer scale than in Figure 3); the triangles represent the density of the saturated liquid.
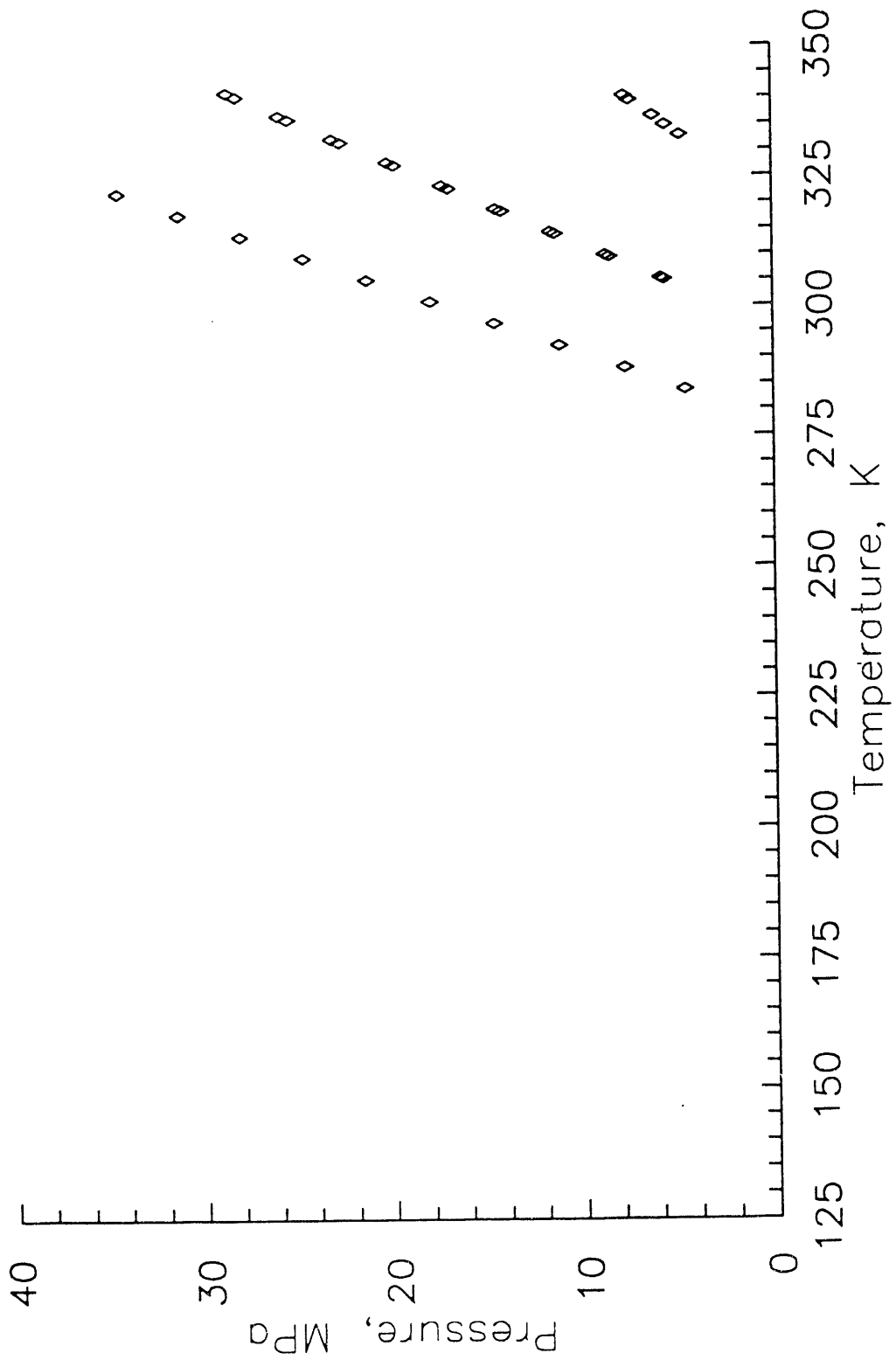
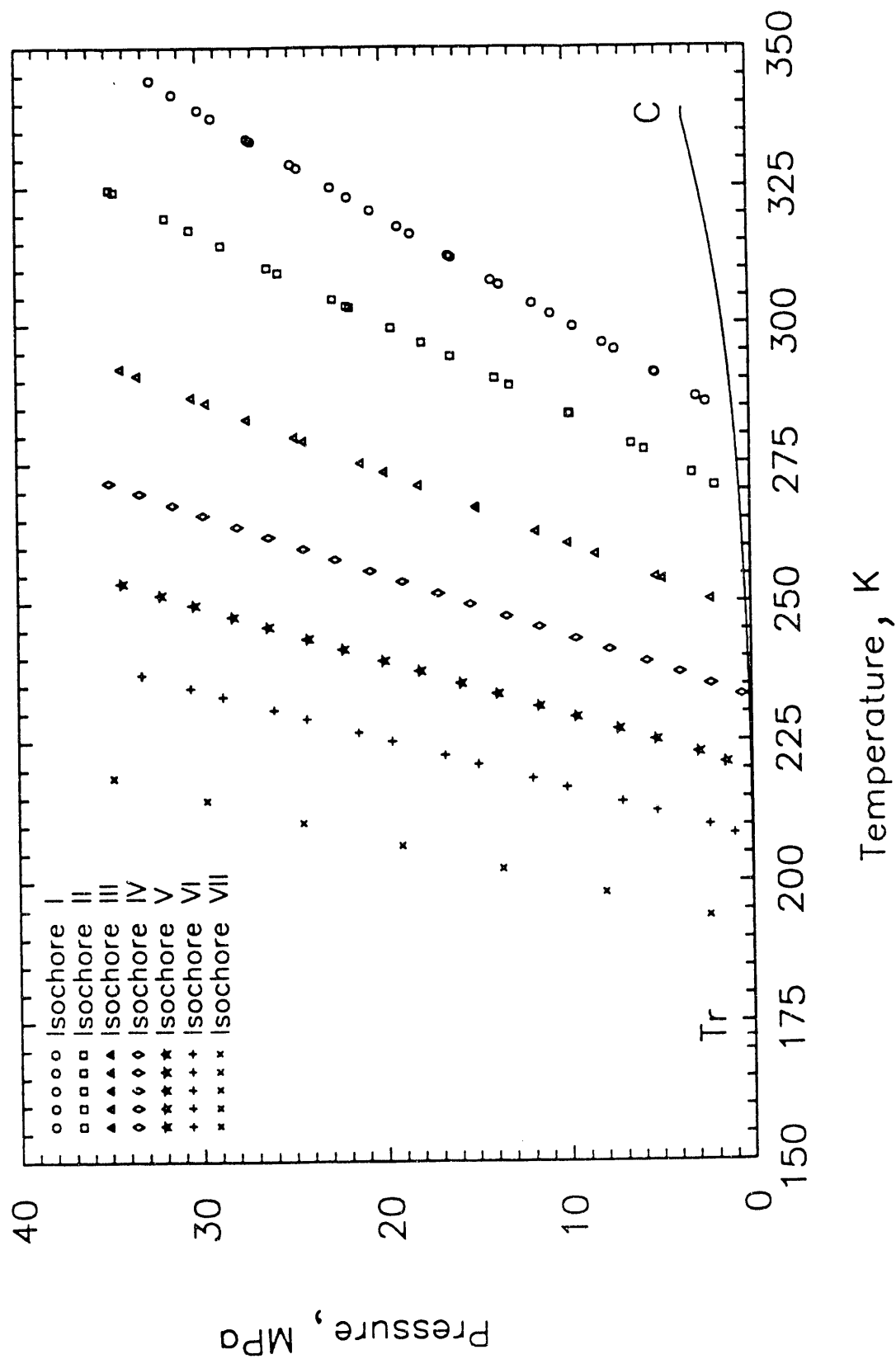Figure 5. Investigated range of pressure-temperature states for R32 heat capacity study.

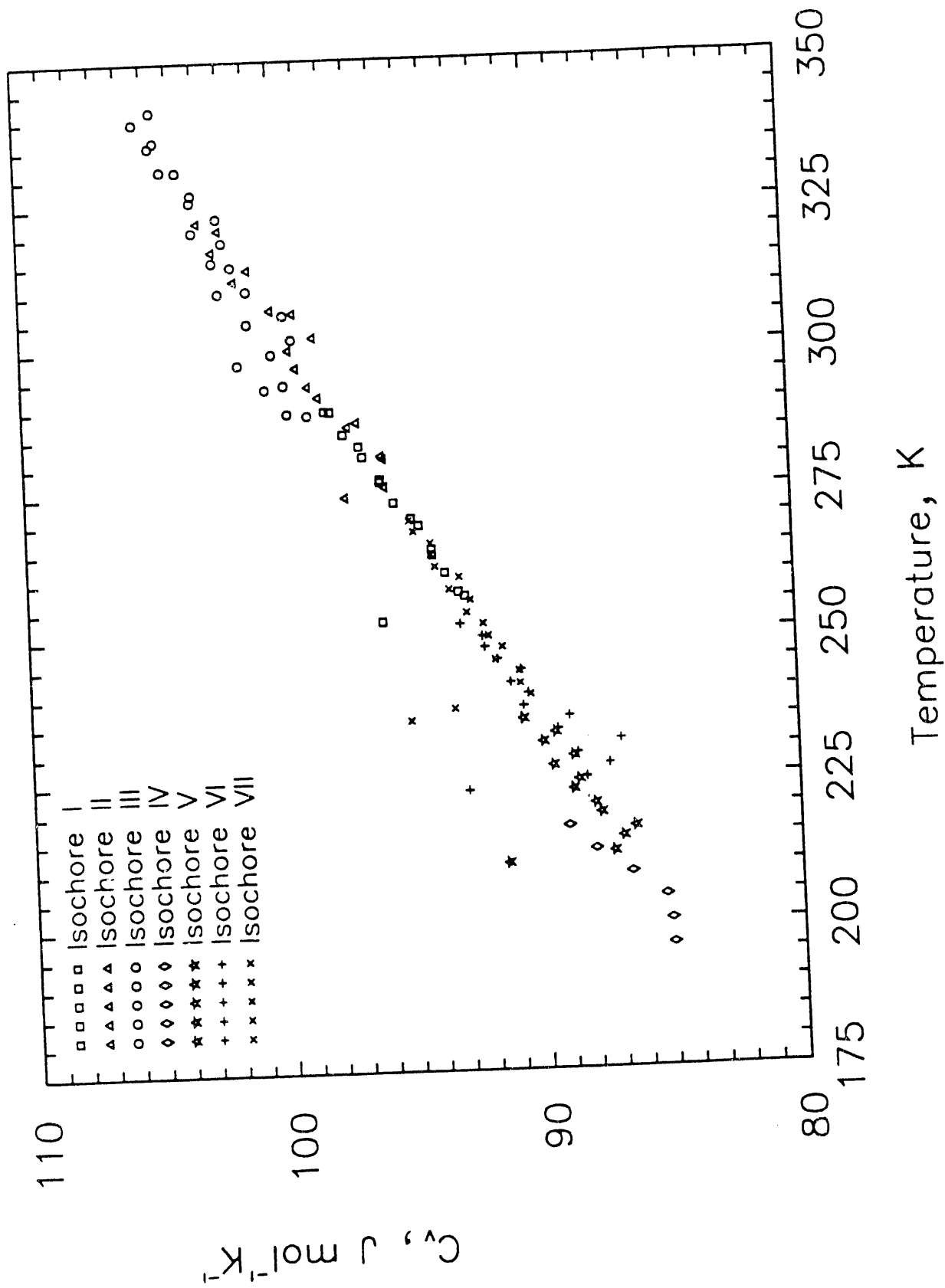Figure 6. Investigated range of pressure-temperature states for R125 heat capacity study.

Figure 7. Molar heat capacity measurements at constant volume (C_v) for liquid R125.
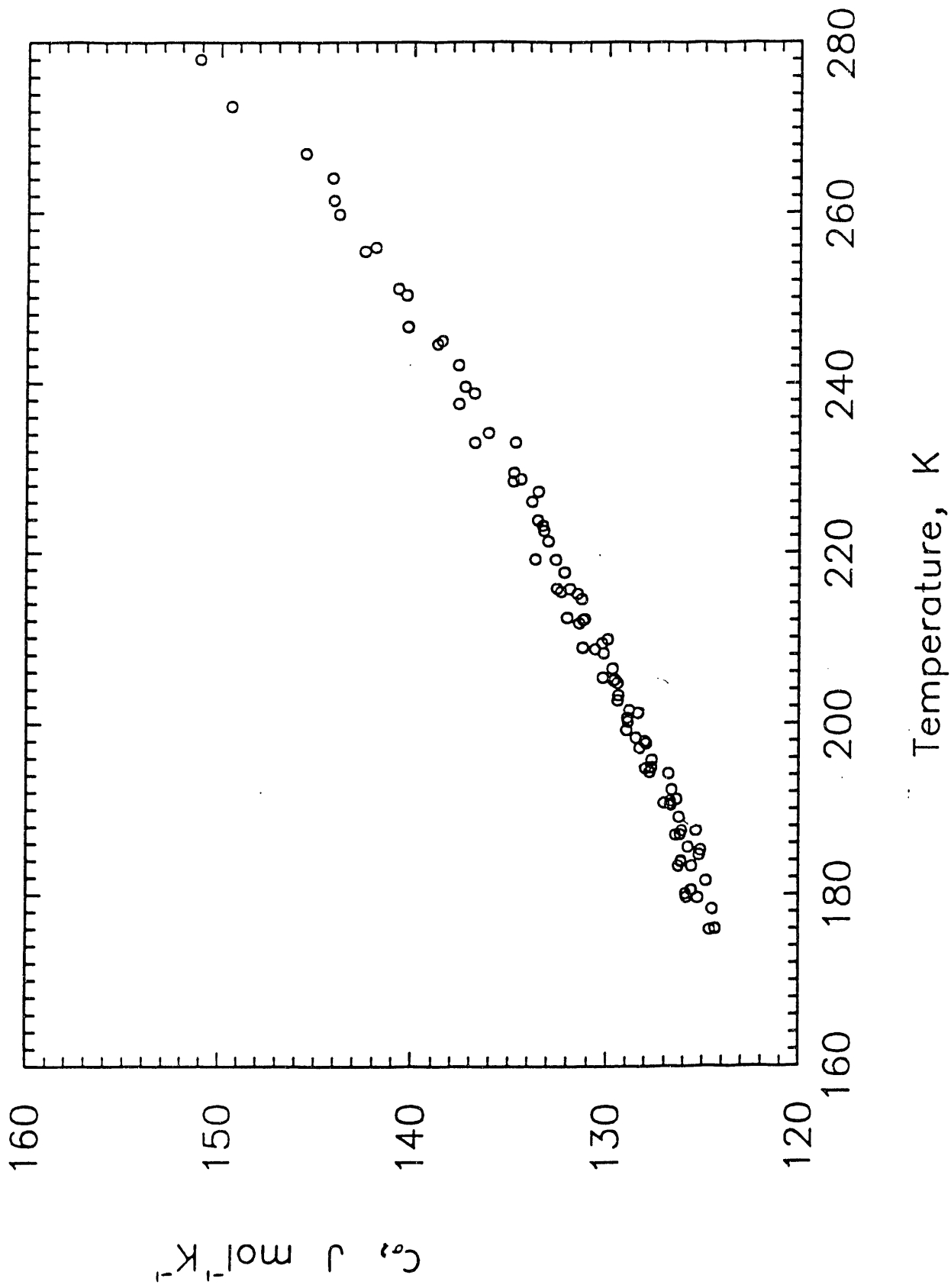
Figure 8 . Molar saturated liquid heat capacity {C_σ} values derived for R125.

T/K	P/kPa 100.0	200.0	300.0	400.0	500.0	
210.0	1.2563	1.2565	1.2567	1.2569	1.2572	RHO g/cc
220.0	1.2216	1.2217	1.2218	1.2220	1.2222	
230.0	0.0029	1.1908	1.1911	1.1913	1.1915	
240.0	0.0027	0.0057	1.1613	1.1614	1.1617	
250.0	0.0026	0.0053	0.0082	1.1308	1.1311	
260.0	0.0025	0.0050	0.0078	0.0106	0.0137	
270.0	0.0024	0.0048	0.0074	0.0100	0.0128	
280.0	0.0023	0.0046	0.0070	0.0096	0.0122	
290.0	0.0022	0.0044	0.0068	0.0091	0.0116	
300.0	0.0021	0.0043	0.0065	0.0088	0.0111	
310.0	0.0020	0.0041	0.0063	0.0084	0.0107	
320.0	0.0020	0.0040	0.0060	0.0081	0.0103	
330.0	0.0019	0.0039	0.0058	0.0079	0.0099	
340.0	0.0019	0.0037	0.0057	0.0076	0.0096	

T/K	P/kPa 750.0	1000.0	1500.0	2000.0	2500.0	
210.0	1.2574	1.2579	1.2586	1.2591	1.2618	RHO g\cc
220.0	1.2225	1.2229	1.2238	1.2245	1.2254	
230.0	1.1919	1.1925	1.1933	1.1944	1.1952	
240.0	1.1623	1.1628	1.1639	1.1649	1.1659	
250.0	1.1319	1.1325	1.1337	1.1349	1.1360	
260.0	1.1000	1.1008	1.1023	1.1037	1.1052	
270.0	1.0663	1.0673	1.0691	1.0708	1.0724	
280.0	0.0192	0.0273	1.0334	1.0355	1.0375	
290.0	0.0181	0.0253	0.9946	0.9972	0.9999	
300.0	0.0173	0.0239	0.0396	0.9548	0.9582	
310.0	0.0165	0.0228	0.0369	0.0542	0.9104	
320.0	0.0158	0.0217	0.0346	0.0501	0.0688	
330.0	0.0152	0.0208	0.0329	0.0469	0.0631	
340.0	0.0147	0.0200	0.0314	0.0440	0.0587	

PRELIMINARY RESULTS - SUBJECT TO CHANGE

Table 1 (a). Density of R-32 as a function of pressure and temperature calculated from the preliminary MBWR equation of state described in the text. (SI units)

T/F	P/PSI 14.5	30.0	45.0	60.0	75.0	
-81.7	78.428	78.441	78.453	78.466	78.484	RHO LB/FT3
-63.7	76.262	76.268	76.275	76.287	76.299	
-45.7	0.181	74.339	74.358	74.370	74.383	
-27.7	0.169	0.356	72.498	72.504	72.523	
-9.7	0.162	0.331	0.512	70.594	70.612	
8.3	0.156	0.312	0.487	0.662	0.855	
26.3	0.150	0.300	0.462	0.624	0.799	
44.3	0.144	0.287	0.437	0.599	0.762	
62.3	0.137	0.275	0.425	0.568	0.724	
80.3	0.131	0.268	0.406	0.549	0.693	
98.3	0.125	0.256	0.393	0.524	0.668	
116.3	0.125	0.250	0.375	0.506	0.643	
134.3	0.119	0.243	0.362	0.493	0.618	
152.3	0.119	0.231	0.356	0.474	0.599	

T/F	P/PSI 110.0	145.0	220.0	290.0	360.0	
-81.7	78.497	78.528	78.572	78.603	78.772	RHO LB/FT3
-63.7	76.318	76.343	76.399	76.443	76.499	
-45.7	74.408	74.445	74.495	74.564	74.614	
-27.7	72.560	72.591	72.660	72.722	72.785	
-9.7	70.662	70.700	70.775	70.850	70.918	
8.3	68.671	68.721	68.814	68.902	68.995	
26.3	66.567	66.629	66.742	66.848	66.948	
44.3	1.199	1.704	64.513	64.644	64.769	
62.3	1.130	1.579	62.091	62.253	62.422	
80.3	1.080	1.492	2.472	59.606	59.818	
98.3	1.030	1.423	2.304	3.384	56.834	
116.3	0.986	1.355	2.160	3.128	4.295	
134.3	0.949	1.299	2.054	2.928	3.939	
152.3	0.918	1.249	1.960	2.747	3.665	

PRELIMINARY RESULTS - SUBJECT TO CHANGE

Table 1 (b). Density of R-32 as a function of pressure and temperature calculated from the preliminary MBWR equation of state described in the text. (PI units)

Table 2 - 4. Experimental Liquid Heat Capacity Data for R-32

Table 2 (a). Experimental liquid heat capacity data for R32.

T	ρ	P	N	V_{bomb}	ΔT	Q/ΔT	dQ_{tare}/dT	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}		J mol^{-1} K^{-1}	
283.6897	19.3888	4.5741	1.4217	73.325	4.2285	161.187	82.152	1.74	53.85
287.9037	19.2540	7.6976	1.4128	73.374	4.3502	156.632	82.438	1.88	50.64
292.1850	19.1388	11.1268	1.4053	73.428	4.3334	157.147	82.721	1.90	51.06
296.4449	19.0302	14.5414	1.3984	73.482	4.3214	157.548	82.995	1.93	51.39
300.7004	18.9263	17.9345	1.3918	73.535	4.3049	158.100	83.263	1.95	51.82
304.9401	18.8270	21.3014	1.3855	73.589	4.2875	158.758	83.523	1.98	52.33
309.1770	18.7311	24.6414	1.3794	73.643	4.2748	159.053	83.778	2.00	52.57
313.3917	18.6395	27.9525	1.3737	73.697	4.2621	159.511	84.027	2.02	52.93
317.6047	18.5504	31.2322	1.3681	73.751	4.2384	160.303	84.272	2.04	53.53
321.8154	18.4642	34.4901	1.3627	73.805	4.2203	160.894	84.515	2.07	53.98

Table 2 (b). Experimental liquid heat capacity data for R32.

T	ρ	P	N	V_{bomb}	ΔT	Q/ΔT	dQ_{tare}/dT	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu °F^{-1}		Btu lb^{-1} °F^{-1}	
50.971	62.97	663.4	0.163	4.475	7.611	0.085	0.043	0.0080	0.2474
58.557	62.53	1116.4	0.162	4.478	7.830	0.083	0.043	0.0086	0.2326
66.263	62.16	1613.8	0.161	4.481	7.800	0.083	0.044	0.0087	0.2346
73.931	61.81	2109.1	0.160	4.484	7.779	0.083	0.044	0.0089	0.2361
81.591	61.47	2601.2	0.160	4.487	7.749	0.083	0.044	0.0090	0.2381
89.222	61.15	3089.5	0.159	4.491	7.717	0.084	0.044	0.0091	0.2404
96.849	60.83	3573.9	0.158	4.494	7.695	0.084	0.044	0.0092	0.2415
104.435	60.54	4054.2	0.158	4.497	7.672	0.084	0.044	0.0093	0.2432
112.018	60.25	4529.9	0.157	4.501	7.629	0.084	0.044	0.0094	0.2459
119.598	59.97	5002.4	0.156	4.504	7.597	0.085	0.045	0.0095	0.2480

Table 3 (a). Experimental liquid heat capacity data for R32.

T	ρ	P	N	V_{bomb}	ΔT	$Q/\Delta T$	dQ_{tare}/dT	$W_{pv,m}$	$C_{v,exp}$
K	mol dm^{-3}	MPa	mol	cm^3	K	J K^{-1}		J mol^{-1} K^{-1}	
305.0416	17.7689	5.6806	1.3044	73.409	4.4454	152.912	83.529	1.58	51.62
309.4489	17.6593	8.5063	1.2972	73.457	4.4281	153.446	83.794	1.60	52.09
313.8644	17.5566	11.3453	1.2905	73.505	4.4280	153.338	84.055	1.63	52.06
318.2655	17.4592	14.1679	1.2842	73.553	4.4165	153.612	84.311	1.66	52.31
322.6547	17.3668	16.9797	1.2782	73.602	4.3905	154.503	84.563	1.69	53.03
327.0478	17.2790	19.7933	1.2726	73.651	4.3864	154.557	84.815	1.71	53.09
331.4360	17.1952	22.6006	1.2673	73.700	4.3949	154.178	85.066	1.73	52.81
335.8139	17.1148	25.3932	1.2622	73.749	4.3848	154.453	85.317	1.75	53.02
340.2035	17.0366	28.1760	1.2573	73.798	4.3618	155.100	85.572	1.78	53.52
305.3060	17.7623	5.8524	1.3040	73.412	4.4497	152.827	83.545	1.57	51.56
309.7743	17.6517	8.7172	1.2967	73.460	4.4227	153.563	83.813	1.60	52.18
314.2453	17.5475	11.5849	1.2899	73.509	4.4094	153.952	84.077	1.63	52.54
318.7038	17.4500	14.4520	1.2836	73.558	4.3984	154.366	84.336	1.66	52.90
323.1691	17.3567	17.3140	1.2776	73.608	4.3839	154.826	84.593	1.69	53.29
327.6285	17.2680	20.1699	1.2719	73.657	4.3709	155.165	84.848	1.71	53.57
332.0863	17.1827	23.0121	1.2665	73.707	4.3487	155.871	85.103	1.74	54.14
336.5466	17.1012	25.8533	1.2613	73.757	4.3432	155.953	85.359	1.76	54.21
340.9986	17.0221	28.6699	1.2563	73.807	4.2933	157.603	85.619	1.79	55.51

Table 3 (b). Experimental liquid heat capacity data for R32.

T	ρ	P	N	V_{bomb}	ΔT	$Q/\Delta T$	dQ_{tare}/dT	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu °F^{-1}		Btu lb^{-1} °F^{-1}	
89.405	57.71	823.9	0.150	4.480	8.002	0.081	0.044	0.0073	0.2372
97.338	57.35	1233.7	0.149	4.483	7.971	0.081	0.044	0.0074	0.2393
105.286	57.02	1645.5	0.148	4.486	7.970	0.081	0.044	0.0075	0.2392
113.208	56.70	2054.9	0.147	4.488	7.950	0.081	0.044	0.0076	0.2403
121.108	56.40	2462.7	0.147	4.491	7.903	0.081	0.045	0.0078	0.2436
129.016	56.12	2870.8	0.146	4.494	7.896	0.081	0.045	0.0079	0.2439
136.915	55.85	3277.9	0.145	4.497	7.911	0.081	0.045	0.0079	0.2426
144.795	55.58	3683.0	0.145	4.500	7.893	0.081	0.045	0.0080	0.2436
152.696	55.33	4086.6	0.144	4.503	7.851	0.082	0.045	0.0082	0.2459
89.881	57.69	848.8	0.150	4.480	8.009	0.081	0.044	0.0072	0.2369
97.924	57.33	1264.3	0.149	4.483	7.961	0.081	0.044	0.0074	0.2397
105.972	56.99	1680.3	0.148	4.486	7.937	0.081	0.044	0.0075	0.2414
113.997	56.67	2096.1	0.147	4.489	7.917	0.081	0.044	0.0076	0.2430
122.034	56.37	2511.2	0.147	4.492	7.891	0.082	0.045	0.0078	0.2448
130.061	56.08	2925.4	0.146	4.495	7.868	0.082	0.045	0.0079	0.2461
138.085	55.81	3337.6	0.145	4.498	7.828	0.082	0.045	0.0080	0.2487
146.114	55.54	3749.7	0.145	4.501	7.818	0.082	0.045	0.0081	0.2490
154.127	55.28	4158.2	0.144	4.504	7.728	0.083	0.045	0.0082	0.2550

Table 4 (a). Experimental liquid heat capacity data for R32.

T	ρ	P	N	V_{bomb}	ΔT	Q/ΔT	dQ_{tare}/dT	$W_{pv,m}$	$C_{v,exp}$
K	mol dm⁻³	MPa	mol	cm³	K	J K⁻¹		J mol⁻¹ K⁻¹	
334.6713	14.8348	5.5822	1.0905	73.509	4.6211	146.256	85.251	1.00	54.94
339.4371	14.7118	7.4099	1.0820	73.547	4.6197	146.271	85.527	1.03	55.11
332.7425	14.8752	4.7946	1.0932	73.493	3.5483	146.093	85.140	0.99	54.76
336.4787	14.7732	6.2213	1.0862	73.522	3.5462	146.116	85.356	1.02	54.92
340.2451	14.6809	7.6731	1.0798	73.553	3.5372	146.400	85.575	1.04	55.29

Table 4 (b). Experimental liquid heat capacity data for R32.

T	ρ	P	N	V_{bomb}	ΔT	Q/ΔT	dQ_{tare}/dT	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft⁻³	psia	lb	in³	°F	Btu °F⁻¹		Btu lb⁻¹ °F⁻¹	
142.738	48.18	809.6	0.125	4.486	8.318	0.077	0.045	0.0046	0.2524
151.317	47.78	1074.7	0.124	4.488	8.315	0.077	0.045	0.0047	0.2532
139.266	48.31	695.4	0.125	4.485	6.387	0.077	0.045	0.0045	0.2516
145.992	47.98	902.3	0.125	4.487	6.383	0.077	0.045	0.0047	0.2523
152.771	47.68	1112.9	0.124	4.488	6.367	0.077	0.045	0.0048	0.2540

Table 5. Transient Hot-Wire Thermal Conductivity Data for R-32

Transient Hot-Wire Thermal Conductivity Data For R32

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	162.295	65.155	0.24648	-167.539	9449.98	0.14251
1002	162.022	65.154	0.24693	-168.030	9449.83	0.14277
1003	161.770	65.160	0.24726	-168.484	9450.73	0.14296
1004	161.535	65.149	0.24772	-168.907	9449.10	0.14323
1005	162.355	54.444	0.24401	-167.431	7896.47	0.14108
1006	162.077	54.444	0.24449	-167.931	7896.47	0.14136
1007	161.819	54.433	0.24447	-168.396	7894.88	0.14135
1008	161.576	54.411	0.24487	-168.833	7891.73	0.14158
1009	162.402	42.614	0.24081	-167.346	6180.71	0.13923
1010	162.117	42.598	0.24134	-167.859	6178.27	0.13954
1011	161.859	42.580	0.24160	-168.324	6175.71	0.13969
1012	161.619	42.609	0.24174	-168.756	6179.88	0.13977
1013	161.950	31.583	0.23833	-168.160	4580.71	0.13780
1014	161.693	31.579	0.23877	-168.623	4580.14	0.13805
1015	161.453	31.574	0.23925	-169.055	4579.41	0.13833
1016	161.244	31.572	0.23960	-169.431	4579.20	0.13853
1017	161.994	21.269	0.23540	-168.081	3084.86	0.13610
1018	161.736	21.283	0.23597	-168.545	3086.92	0.13643
1019	161.473	21.284	0.23644	-169.019	3087.00	0.13670
1020	161.254	21.295	0.23686	-169.413	3088.65	0.13695
1021	161.997	11.839	0.23259	-168. ͺ	1717.07	0.13448
1022	161.745	11.843	0.23324	-168.529	1717.70	0.13485
1023	161.498	11.850	0.23359	-168.974	1718.72	0.13506
1024	161.271	11.861	0.23413	-169.382	1720.31	0.13537
1025	162.046	1.765	0.22980	-167.987	255.94	0.13287
1026	161.786	1.765	0.23025	-168.455	256.04	0.13313
1027	161.539	1.759	0.23068	-168.900	255.06	0.13337
1028	161.316	1.758	0.23122	-169.301	254.94	0.13369
2001	182.783	65.593	0.23898	-130.661	9513.46	0.13817
2002	182.461	65.570	0.23966	-131.240	9510.16	0.13857
2003	182.159	65.563	0.23987	-131.784	9509.18	0.13869
2004	181.884	65.556	0.24049	-132.279	9508.08	0.13905
2005	182.853	54.418	0.23583	-130.535	7892.63	0.13635
2006	182.523	54.423	0.23636	-131.129	7893.45	0.13666
2007	182.221	54.432	0.23665	-131.672	7894.67	0.13683
2008	181.940	54.440	0.23681	-132.178	7895.89	0.13692
2009	182.631	42.987	0.23275	-130.934	6234.70	0.13457
2010	182.316	43.015	0.23316	-131.501	6238.77	0.13481
2011	182.025	43.024	0.23335	-132.025	6240.07	0.13492
2012	181.761	43.035	0.23338	-132.500	6241.74	0.13494
2013	182.702	31.577	0.22850	-130.806	4579.93	0.13211
2014	182.381	31.579	0.22909	-131.384	4580.10	0.13246
2015	182.089	31.592	0.22938	-131.910	4582.12	0.13262
2016	181.806	31.589	0.22993	-132.419	4581.65	0.13294
2017	182.460	21.233	0.22549	-131.242	3079.64	0.13037
2018	182.157	21.239	0.22603	-131.787	3080.51	0.13069
2019	181.869	21.254	0.22630	-132.306	3082.68	0.13084
2020	181.609	21.265	0.22696	-132.774	3084.17	0.13122
2021	182.476	11.514	0.22203	-131.213	1669.91	0.12837

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Transient Hot-Wire Thermal Conductivity Data For R32 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R32 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
11014	221.977	0.076	0.00806	-60.111	11.08	0.00466
11015	222.968	0.059	0.00865	-58.328	8.49	0.00500
11016	222.581	0.059	0.00857	-59.024	8.52	0.00496
11017	222.211	0.059	0.00859	-59.690	8.54	0.00497
11018	221.901	0.059	0.00857	-60.248	8.52	0.00496
12001	233.092	0.127	0.00895	-40.104	18.35	0.00517
12002	232.683	0.126	0.00890	-40.841	18.33	0.00515
12003	232.309	0.126	0.00890	-41.514	18.34	0.00515
12004	231.976	0.126	0.00889	-42.113	18.33	0.00514
12005	233.119	0.117	0.00892	-40.056	16.93	0.00516
12006	232.693	0.116	0.00890	-40.823	16.86	0.00515
12007	232.317	0.116	0.00890	-41.499	16.82	0.00515
12008	231.974	0.116	0.00885	-42.117	16.79	0.00512
12009	233.180	0.105	0.00895	-39.946	15.21	0.00517
12010	232.757	0.105	0.00891	-40.707	15.21	0.00515
12011	232.379	0.105	0.00889	-41.388	15.21	0.00514
12012	232.031	0.105	0.00887	-42.014	15.20	0.00513
12013	233.206	0.094	0.00894	-39.899	13.70	0.00517
12014	232.781	0.095	0.00893	-40.664	13.73	0.00516
12015	232.405	0.095	0.00889	-41.341	13.73	0.00514
12016	232.050	0.095	0.00883	-41.980	13.75	0.00511
12017	233.275	0.072	0.00898	-39.775	10.39	0.00519
12018	232.836	0.072	0.00894	-40.565	10.44	0.00517
12019	232.449	0.072	0.00890	-41.262	10.48	0.00515
12020	232.081	0.073	0.00892	-41.924	10.53	0.00516
12021	233.409	0.043	0.00870	-39.534	6.17	0.00503
12022	232.962	0.042	0.00865	-40.338	6.14	0.00500
12023	232.549	0.042	0.00865	-41.082	6.11	0.00500
12024	232.157	0.042	0.00861	-41.787	6.10	0.00498
12025	231.813	0.042	0.00860	-42.407	6.09	0.00497
5001	243.398	66.849	0.20715	-21.554	9695.72	0.11977
5002	242.975	66.848	0.20767	-22.315	9695.47	0.12007
5003	242.591	66.841	0.20790	-23.006	9694.49	0.12020
5004	242.231	66.848	0.20853	-23.654	9695.54	0.12057
5005	243.450	56.194	0.20279	-21.460	8150.33	0.11725
5006	243.015	56.182	0.20350	-22.243	8148.56	0.11766
5007	242.618	56.211	0.20328	-22.958	8152.77	0.11753
5008	242.251	56.192	0.20371	-23.618	8149.95	0.11778
5009	243.474	45.386	0.19798	-21.417	6582.67	0.11447
5010	243.029	45.397	0.19859	-22.218	6584.23	0.11482
5011	242.628	45.394	0.19851	-22.940	6583.81	0.11477
5012	242.255	45.412	0.19850	-23.611	6586.51	0.11477
5013	243.123	34.152	0.19258	-22.049	4953.35	0.11135
5014	242.688	34.172	0.19329	-22.832	4956.18	0.11176
5015	242.299	34.160	0.19528	-23.532	4954.56	0.11291
5016	241.951	34.154	0.19605	-24.158	4953.61	0.11335
5017	243.133	24.483	0.18882	-22.031	3551.01	0.10917
5018	242.691	24.473	0.19113	-22.826	3549.45	0.11051
5019	242.310	24.472	0.19083	-23.512	3549.33	0.11033

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Transient Hot-Wire Thermal Conductivity Data For R32 (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)
5020	241.968	24.495	0.18795	-24.128	3552.78	0.10867
5021	243.149	14.148	0.18501	-22.002	2052.05	0.10697
5022	242.689	14.147	0.18948	-22.830	2051.84	0.10955
5023	242.322	14.153	0.18417	-23.490	2052.75	0.10648
5024	241.963	14.154	0.18165	-24.137	2052.92	0.10503
5026	243.211	1.802	0.18262	-21.890	261.36	0.10559
5027	242.786	1.804	0.17420	-22.655	261.68	0.10072
5028	242.347	1.798	0.17451	-23.445	260.76	0.10090
5029	241.961	1.802	0.17469	-24.140	261.42	0.10100
13001	245.033	0.184	0.00953	-18.611	26.63	0.00551
13002	244.559	0.181	0.00958	-19.464	26.32	0.00554
13003	244.102	0.180	0.00956	-20.286	26.15	0.00553
13004	243.660	0.179	0.00958	-21.082	26.01	0.00554
13005	245.025	0.201	0.00964	-18.625	29.08	0.00557
13006	244.544	0.198	0.00959	-19.491	28.72	0.00554
13007	244.098	0.196	0.00956	-20.294	28.40	0.00553
13008	243.655	0.194	0.00949	-21.091	28.11	0.00549
13009	245.414	0.131	0.00955	-17.925	18.97	0.00552
13010	244.901	0.130	0.00951	-18.848	18.80	0.00550
13011	244.411	0.129	0.00949	-19.730	18.67	0.00549
13012	243.943	0.128	0.00946	-20.573	18.51	0.00547
13013	243.495	0.127	0.00943	-21.379	18.36	0.00545
13014	243.085	0.126	0.00942	-22.117	18.23	0.00545
13015	244.335	0.053	0.00965	-19.867	7.72	0.00558
13016	243.846	0.053	0.00960	-20.747	7.71	0.00555
13017	243.387	0.053	0.00958	-21.573	7.70	0.00554
13018	242.952	0.053	0.00955	-22.356	7.71	0.00552
14001	255.208	0.303	0.01026	-0.296	43.99	0.00593
14002	254.754	0.301	0.01020	-1.113	43.63	0.00590
14003	254.306	0.298	0.01017	-1.919	43.26	0.00588
14004	253.881	0.296	0.01014	-2.684	42.91	0.00586
14005	253.040	0.276	0.01003	-4.198	40.04	0.00580
14006	252.677	0.272	0.01000	-4.851	39.47	0.00578
14007	252.328	0.269	0.00997	-5.480	38.95	0.00576
14008	252.000	0.265	0.00993	-6.070	38.48	0.00574
14009	253.193	0.192	0.00993	-3.923	27.84	0.00574
14010	252.816	0.189	0.00987	-4.601	27.48	0.00571
14011	252.444	0.187	0.00984	-5.271	27.10	0.00569
14012	252.094	0.185	0.00980	-5.901	26.76	0.00567
14013	253.326	0.140	0.00984	-3.683	20.31	0.00569
14014	252.927	0.138	0.00982	-4.401	19.97	0.00568
14015	252.534	0.135	0.00975	-5.109	19.65	0.00564
14016	252.174	0.133	0.00980	-5.757	19.32	0.00567
14017	253.705	0.061	0.00998	-3.001	8.85	0.00577
14018	253.254	0.060	0.00993	-3.813	8.68	0.00574
14019	252.830	0.059	0.00987	-4.576	8.51	0.00571
14020	252.442	0.057	0.00984	-5.274	8.33	0.00569
6001	263.141	67.169	0.19662	13.984	9742.08	0.11368
6002	262.685	67.171	0.19707	13.163	9742.33	0.11394

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Transient Hot-Wire Thermal Conductivity Data For R32 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
15020	262.577	0.187	0.01030	12.969	27.10	0.00596
15021	264.386	0.125	0.01053	16.225	18.09	0.00609
15022	263.590	0.124	0.01055	14.792	17.99	0.00610
15023	263.115	0.123	0.01051	13.937	17.88	0.00608
15024	262.708	0.123	0.01035	13.204	17.79	0.00598
15025	264.367	0.081	0.01063	16.191	11.72	0.00615
15026	263.716	0.080	0.01064	15.019	11.63	0.00615
15027	263.234	0.079	0.01060	14.151	11.52	0.00613
15028	262.825	0.079	0.01056	13.415	11.46	0.00611
16001	272.887	0.671	0.01187	31.527	97.30	0.00686
16002	272.547	0.667	0.01184	30.915	96.80	0.00685
16003	272.229	0.664	0.01187	30.342	96.25	0.00686
16004	271.934	0.660	0.01186	29.811	95.73	0.00686
16005	272.959	0.550	0.01160	31.656	79.72	0.00671
16006	272.599	0.550	0.01158	31.008	79.71	0.00670
16007	272.291	0.550	0.01153	30.454	79.74	0.00667
16008	271.977	0.550	0.01155	29.889	79.74	0.00668
16009	273.107	0.479	0.01142	31.923	69.54	0.00660
16010	272.674	0.479	0.01141	31.143	69.51	0.00660
16011	272.362	0.479	0.01137	30.582	69.48	0.00657
16012	272.060	0.479	0.01135	30.038	69.48	0.00656
16013	273.166	0.408	0.01129	32.029	59.12	0.00653
16014	272.772	0.407	0.01127	31.320	59.04	0.00652
16015	272.445	0.407	0.01121	30.731	58.99	0.00648
16016	272.130	0.407	0.01121	30.164	58.96	0.00648
16017	273.331	0.333	0.01117	32.326	48.35	0.00646
16018	272.894	0.333	0.01112	31.539	48.28	0.00643
16019	272.539	0.332	0.01111	30.900	48.22	0.00642
16020	272.199	0.332	0.01108	30.288	48.18	0.00641
16021	273.412	0.265	0.01120	32.472	38.38	0.00648
16022	273.004	0.264	0.01116	31.737	38.26	0.00645
16023	272.634	0.263	0.01111	31.071	38.21	0.00642
16024	272.345	0.263	0.01097	30.551	38.17	0.00634
16025	273.557	0.197	0.01119	32.733	28.64	0.00647
16026	273.104	0.197	0.01111	31.917	28.57	0.00642
16027	272.730	0.196	0.01111	31.244	28.44	0.00642
16028	272.401	0.196	0.01098	30.652	28.37	0.00635
16029	273.656	0.141	0.01122	32.911	20.43	0.00649
16030	273.233	0.140	0.01126	32.149	20.29	0.00651
16031	272.868	0.139	0.01121	31.492	20.18	0.00648
16032	272.542	0.138	0.01101	30.906	20.07	0.00637
16033	273.776	0.094	0.01137	33.127	13.67	0.00657
16034	273.349	0.094	0.01165	32.358	13.63	0.00674
16035	272.944	0.094	0.01133	31.629	13.59	0.00655
16036	272.573	0.093	0.01117	30.961	13.52	0.00646
7001	282.873	67.315	0.18737	49.501	9763.30	0.10833
7002	282.428	67.305	0.18832	48.700	9761.79	0.10888
7003	282.025	67.304	0.18809	47.975	9761.68	0.10875
7004	281.640	67.303	0.18928	47.282	9761.52	0.10944

Transient Hot-Wire Thermal Conductivity Data For R32 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
17026	283.317	0.173	0.01192	50.301	25.14	0.00689
17027	282.930	0.173	0.01186	49.604	25.07	0.00686
17028	282.564	0.172	0.01190	48.945	24.98	0.00688
17029	283.379	0.117	0.01208	50.412	17.02	0.00698
17030	282.995	0.117	0.01205	49.721	16.99	0.00697
17031	282.615	0.117	0.01198	49.037	16.99	0.00693
17032	282.250	0.117	0.01206	48.380	16.96	0.00697
18001	293.104	1.264	0.01426	67.917	183.35	0.00824
18002	292.778	1.259	0.01425	67.330	182.64	0.00824
18003	292.485	1.255	0.01427	66.803	181.98	0.00825
18004	292.208	1.250	0.01427	66.304	181.31	0.00825
18005	293.064	1.222	0.01414	67.845	177.28	0.00818
18006	292.792	1.217	0.01411	67.356	176.54	0.00816
18007	292.489	1.212	0.01410	66.810	175.73	0.00815
18008	292.207	1.206	0.01411	66.303	174.93	0.00816
18009	293.367	1.070	0.01373	68.391	155.16	0.00794
18010	292.966	1.069	0.01376	67.669	155.10	0.00796
18011	292.692	1.069	0.01372	67.176	155.04	0.00793
18012	292.398	1.069	0.01365	66.646	155.03	0.00789
18013	293.417	0.948	0.01347	68.481	137.43	0.00779
18014	293.075	0.948	0.01346	67.865	137.55	0.00778
18015	292.760	0.949	0.01344	67.298	137.61	0.00777
18016	292.454	0.949	0.01336	66.747	137.62	0.00772
18017	293.638	0.800	0.01315	68.878	116.10	0.00760
18018	293.264	0.800	0.01314	68.205	116.10	0.00760
18019	292.933	0.801	0.01312	67.609	116.22	0.00759
18020	292.612	0.803	0.01307	67.032	116.49	0.00756
18021	293.391	0.653	0.01287	68.434	94.78	0.00744
18022	293.009	0.653	0.01289	67.746	94.72	0.00745
18023	292.672	0.653	0.01284	67.140	94.64	0.00742
18024	292.351	0.652	0.01280	66.562	94.61	0.00740
18025	293.123	0.532	0.01269	67.951	77.19	0.00734
18026	292.810	0.532	0.01267	67.388	77.15	0.00733
18027	292.493	0.532	0.01260	66.817	77.13	0.00729
18028	292.177	0.532	0.01259	66.249	77.09	0.00728
18029	293.354	0.401	0.01254	68.367	58.12	0.00725
18030	292.950	0.400	0.01252	67.640	58.02	0.00724
18031	292.609	0.400	0.01246	67.026	57.96	0.00720
18032	292.303	0.399	0.01245	66.475	57.91	0.00720
18033	293.064	0.281	0.01256	67.845	40.75	0.00726
18034	292.684	0.279	0.01252	67.161	40.49	0.00724
18035	292.360	0.278	0.01249	66.578	40.28	0.00722
18036	292.051	0.276	0.01241	66.022	40.06	0.00718
18037	293.240	0.180	0.01263	68.162	26.12	0.00730
18038	292.883	0.179	0.01256	67.519	26.03	0.00726
18039	292.524	0.179	0.01255	66.873	25.92	0.00726
18040	292.185	0.178	0.01256	66.263	25.81	0.00726
18041	293.413	0.098	0.01297	68.473	14.22	0.00750
18042	293.012	0.098	0.01294	67.752	14.15	0.00748

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
18043	292.649	0.097	0.01280	67.098	14.10	0.00740
18044	292.287	0.097	0.01282	66.447	14.04	0.00741
8001	303.054	65.111	0.17664	85.827	9443.64	0.10213
8002	302.588	65.110	0.17769	84.988	9443.47	0.10274
8003	302.143	65.113	0.17865	84.187	9443.92	0.10329
8004	301.764	65.113	0.17958	83.505	9443.93	0.10383
8005	303.041	54.392	0.17061	85.804	7888.95	0.09864
8006	302.544	54.389	0.17144	84.909	7888.47	0.09912
8007	302.098	54.403	0.17259	84.106	7890.53	0.09979
8008	301.712	54.401	0.17421	83.412	7890.20	0.10072
8009	303.054	43.225	0.16350	85.827	6269.23	0.09453
8010	302.527	43.225	0.16464	84.879	6269.25	0.09519
8011	302.072	43.230	0.16585	84.060	6269.98	0.09589
8012	301.672	43.230	0.16699	83.340	6269.98	0.09655
8013	302.860	33.917	0.15743	85.478	4919.32	0.09102
8014	302.284	33.918	0.15904	84.441	4919.43	0.09195
8015	301.855	33.922	0.15995	83.669	4920.04	0.09248
8016	301.464	33.924	0.16150	82.965	4920.25	0.09338
8017	302.160	23.570	0.15010	84.218	3418.51	0.08678
8018	301.638	23.570	0.15159	83.278	3418.60	0.08765
8019	301.181	23.563	0.15177	82.456	3417.49	0.08775
8020	300.752	23.567	0.15369	81.684	3418.05	0.08886
8021	302.360	12.635	0.13912	84.578	1832.53	0.08044
8022	301.789	12.638	0.14062	83.550	1833.00	0.08130
8023	301.288	12.626	0.14135	82.648	1831.19	0.08173
8024	300.852	12.628	0.14226	81.864	1831.60	0.08225
9001	303.730	1.638	0.01588	87.044	237.61	0.00918
9002	302.805	1.637	0.01565	85.379	237.44	0.00905
9003	301.984	1.637	0.01569	83.901	237.39	0.00907
9004	301.307	1.637	0.01575	82.683	237.41	0.00911
9005	303.783	1.553	0.01539	87.139	225.20	0.00890
9006	302.811	1.555	0.01538	85.390	225.49	0.00889
9007	301.989	1.558	0.01556	83.910	225.93	0.00900
9008	301.291	1.562	0.01585	82.654	226.54	0.00916
9009	303.499	1.436	0.01509	86.628	208.33	0.00872
9010	302.681	1.435	0.01507	85.156	208.14	0.00871
9011	301.966	1.434	0.01510	83.869	207.99	0.00873
9012	301.365	1.433	0.01510	82.787	207.89	0.00873
9013	303.778	1.270	0.01465	87.130	184.15	0.00847
9014	302.906	1.270	0.01465	85.561	184.26	0.00847
9015	302.151	1.271	0.01463	84.202	184.39	0.00846
9016	301.510	1.272	0.01466	83.048	184.44	0.00848
9017	303.496	1.110	0.01428	86.623	161.03	0.00826
9018	302.648	1.110	0.01426	85.096	161.01	0.00824
9019	301.905	1.110	0.01426	83.759	160.96	0.00824
9020	301.282	1.110	0.01428	82.638	160.93	0.00826
9021	303.711	0.932	0.01393	87.010	135.15	0.00805
9022	302.805	0.931	0.01393	85.379	135.07	0.00805
9023	302.023	0.931	0.01388	83.971	134.99	0.00803

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
9024	301.351	0.930	0.01392	82.762	134.88	0.00805
9025	303.587	0.756	0.01365	86.787	109.70	0.00789
9026	302.731	0.756	0.01358	85.246	109.62	0.00785
9027	301.962	0.756	0.01396	83.862	109.61	0.00807
9028	301.319	0.755	0.01350	82.704	109.56	0.00781
9029	303.860	0.533	0.01334	87.278	77.35	0.00771
9030	303.098	0.533	0.01326	85.906	77.31	0.00767
9031	302.349	0.533	0.01329	84.558	77.26	0.00768
9032	301.742	0.532	0.01330	83.466	77.23	0.00769
9033	304.127	0.324	0.01312	87.759	47.02	0.00759
9034	303.296	0.324	0.01326	86.263	46.95	0.00767
9035	302.619	0.323	0.01318	85.044	46.90	0.00762
9036	301.994	0.323	0.01314	83.919	46.84	0.00760
9037	303.523	0.143	0.01356	86.671	20.68	0.00784
9038	302.918	0.141	0.01348	85.582	20.46	0.00779
9039	302.366	0.140	0.01343	84.589	20.28	0.00776
9040	301.837	0.139	0.01341	83.637	20.11	0.00775
19001	312.996	2.250	0.01747	103.723	326.28	0.01010
19004	312.387	2.248	0.01745	102.627	326.05	0.01009
19007	311.871	2.247	0.01725	101.698	325.96	0.00997
19010	311.436	2.247	0.01729	100.915	325.93	0.01000
19013	313.243	2.069	0.01686	104.167	300.08	0.00975
19016	312.597	2.066	0.01681	103.005	299.58	0.00972
19019	312.034	2.064	0.01674	101.991	299.32	0.00968
19022	311.546	2.062	0.01685	101.113	299.14	0.00974
19025	312.738	1.904	0.01626	103.258	276.15	0.00940
19028	312.144	1.903	0.01638	102.189	276.00	0.00947
19031	311.639	1.902	0.01612	101.280	275.93	0.00932
19034	311.203	1.902	0.01591	100.495	275.89	0.00920
19037	312.843	1.772	0.01586	103.447	257.08	0.00917
19040	312.224	1.770	0.01593	102.333	256.65	0.00921
19043	311.705	1.767	0.01579	101.399	256.31	0.00913
19046	311.261	1.764	0.01612	100.600	255.91	0.00932
19049	312.968	1.673	0.01566	103.672	242.62	0.00905
19052	312.292	1.672	0.01558	102.456	242.56	0.00901
19055	311.733	1.673	0.01559	101.449	242.66	0.00901
19058	311.316	1.674	0.01556	100.699	242.79	0.00900
19061	313.072	1.495	0.01514	103.860	216.80	0.00875
19064	312.403	1.495	0.01522	102.655	216.80	0.00880
19067	311.822	1.495	0.01509	101.610	216.82	0.00872
19070	311.342	1.495	0.01502	100.746	216.81	0.00868
19073	312.879	1.337	0.01482	103.512	193.86	0.00857
19076	312.353	1.337	0.01470	102.565	193.91	0.00850
19079	311.851	1.337	0.01484	101.662	193.89	0.00858
19082	311.466	1.337	0.01477	100.969	193.90	0.00854
19085	312.978	1.164	0.01456	103.690	168.89	0.00842
19089	312.425	1.165	0.01444	102.695	168.95	0.00835
19093	311.944	1.165	0.01448	101.829	168.98	0.00837
19097	311.489	1.165	0.01418	101.010	168.99	0.00820

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
19101	313.114	0.947	0.01413	103.935	137.30	0.00817
19105	312.522	0.947	0.01416	102.870	137.35	0.00819
19109	312.012	0.947	0.01402	101.952	137.37	0.00811
19113	311.551	0.947	0.01386	101.122	137.40	0.00801
19117	312.818	0.738	0.01392	103.402	107.09	0.00805
19121	312.260	0.739	0.01388	102.398	107.24	0.00803
19125	311.762	0.740	0.01393	101.502	107.27	0.00805
19129	311.356	0.740	0.01379	100.771	107.33	0.00797
19133	312.958	0.516	0.01366	103.654	74.83	0.00790
19137	312.368	0.516	0.01371	102.592	74.90	0.00793
19141	311.839	0.517	0.01349	101.640	74.96	0.00780
19145	311.379	0.517	0.01361	100.812	74.93	0.00787
19149	313.231	0.230	0.01360	104.146	33.43	0.00786
19153	312.572	0.232	0.01358	102.960	33.60	0.00785
19157	311.984	0.232	0.01332	101.901	33.65	0.00770
19161	311.499	0.233	0.01330	101.028	33.73	0.00769
19165	313.804	0.037	0.01198	105.177	5.32	0.00693
19169	312.995	0.037	0.01200	103.721	5.39	0.00694
19173	312.287	0.038	0.01203	102.447	5.45	0.00696
19177	311.701	0.038	0.01195	101.392	5.50	0.00691
20001	322.140	73.373	0.19292	120.182	10641.92	0.11154
20002	322.313	73.392	0.21264	120.493	10644.58	0.12294
20003	322.426	73.437	0.20858	120.697	10651.13	0.12060
20004	322.406	73.445	0.20794	120.661	10652.40	0.12023
20005	322.443	36.989	0.14423	120.727	5364.78	0.08339
20006	322.482	39.477	0.16533	120.798	5725.66	0.09559
21001	322.477	39.683	0.16509	120.789	5755.55	0.09545
21002	322.269	39.691	0.16735	120.414	5756.78	0.09676
21003	322.039	39.691	0.17112	120.000	5756.74	0.09894
21004	321.856	39.690	0.17445	119.671	5756.61	0.10086
21005	322.506	33.897	0.15786	120.841	4916.37	0.09127
21006	322.278	33.897	0.15991	120.430	4916.38	0.09246
21007	322.075	33.896	0.16311	120.065	4916.15	0.09431
21008	321.857	33.892	0.16791	119.673	4915.62	0.09708
21009	322.684	29.378	0.14964	121.161	4260.99	0.08652
21010	322.439	29.380	0.15438	120.720	4261.27	0.08926
21011	322.207	29.384	0.15993	120.303	4261.80	0.09247
21012	322.002	29.388	0.16558	119.934	4262.35	0.09574
21013	322.693	25.745	0.14774	121.177	3733.99	0.08542
21014	322.447	25.748	0.15154	120.735	3734.43	0.08762
21015	322.217	25.751	0.15545	120.321	3734.91	0.08988
21016	322.010	25.756	0.16113	119.948	3735.66	0.09316
21017	322.711	21.924	0.14308	121.210	3179.84	0.08273
21018	322.463	21.927	0.14662	120.763	3180.30	0.08477
21019	322.234	21.930	0.14981	120.351	3180.71	0.08662
21020	322.004	21.933	0.15540	119.937	3181.06	0.08985
21021	322.768	15.780	0.13568	121.312	2288.72	0.07845
21022	322.506	15.781	0.13796	120.841	2288.91	0.07977
21023	322.256	15.784	0.14064	120.391	2289.30	0.08132

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
21024	322.028	15.786	0.14521	119.980	2289.57	0.08396
21025	322.803	13.725	0.13259	121.375	1990.60	0.07666
21026	322.543	13.725	0.13509	120.907	1990.72	0.07811
21027	322.293	13.729	0.13761	120.457	1991.18	0.07956
21028	322.060	13.732	0.14057	120.038	1991.60	0.08127
21029	322.855	11.532	0.12977	121.469	1672.62	0.07503
21030	322.590	11.538	0.13182	120.992	1673.47	0.07622
21031	322.339	11.542	0.13456	120.540	1674.00	0.07780
21032	322.110	11.545	0.13742	120.128	1674.47	0.07945
21033	322.922	9.192	0.12530	121.590	1333.22	0.07245
21034	322.639	9.194	0.12752	121.080	1333.48	0.07373
21035	322.384	9.194	0.12979	120.621	1333.45	0.07504
21036	322.142	9.195	0.13191	120.186	1333.59	0.07627
21037	322.938	7.635	0.12323	121.618	1107.33	0.07125
21038	322.666	7.640	0.12507	121.129	1108.03	0.07231
21039	322.408	7.641	0.12664	120.664	1108.23	0.07322
21040	322.161	7.640	0.12880	120.220	1108.08	0.07447
21041	322.977	5.748	0.11962	121.689	833.66	0.06916
21042	322.689	5.750	0.12273	121.170	834.03	0.07096
21043	322.420	5.751	0.12305	120.686	834.05	0.07115
21044	322.167	5.754	0.12703	120.231	834.54	0.07345
21045	322.992	4.377	0.12150	121.716	634.84	0.07025
21046	322.695	4.380	0.12149	121.181	635.20	0.07024
21047	322.425	4.381	0.12320	120.695	635.47	0.07123
21048	322.175	4.384	0.12427	120.245	635.78	0.07185
22005	323.625	2.873	0.01966	122.855	416.73	0.01137
22006	323.045	2.873	0.01946	121.811	416.76	0.01125
22007	322.531	2.874	0.01994	120.886	416.78	0.01153
22008	322.084	2.874	0.01963	120.081	416.82	0.01135
22009	323.763	2.785	0.01947	123.103	403.92	0.01126
22010	323.163	2.785	0.01944	122.023	403.89	0.01124
22011	322.625	2.785	0.01947	121.055	403.87	0.01126
22012	322.147	2.785	0.01940	120.195	403.86	0.01122
22013	323.856	2.683	0.01903	123.271	389.13	0.01100
22014	323.230	2.683	0.01902	122.144	389.18	0.01100
22015	322.670	2.684	0.01903	121.136	389.22	0.01100
22016	322.184	2.684	0.01897	120.261	389.25	0.01097
22017	324.097	2.538	0.01828	123.705	368.04	0.01057
22018	323.433	2.537	0.01826	122.509	368.00	0.01056
22019	322.838	2.537	0.01829	121.438	367.93	0.01057
22020	322.324	2.536	0.01834	120.513	367.82	0.01060
22021	323.548	2.426	0.01783	122.716	351.92	0.01031
22023	322.948	2.426	0.01787	121.636	351.86	0.01033
22025	322.406	2.426	0.01773	120.661	351.84	0.01025
22027	321.935	2.425	0.01788	119.813	351.72	0.01034
22029	323.689	2.283	0.01722	122.970	331.14	0.00996
22031	323.062	2.281	0.01728	121.842	330.83	0.00999
22033	322.492	2.280	0.01720	120.816	330.63	0.00994
22034	322.482	2.275	0.01720	120.798	329.99	0.00994

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
22036	322.004	2.274	0.01727	119.937	329.84	0.00999
22038	323.817	2.175	0.01689	123.201	315.43	0.00977
22040	323.151	2.176	0.01690	122.002	315.64	0.00977
22042	322.567	2.177	0.01684	120.951	315.78	0.00974
22044	322.056	2.178	0.01683	120.031	315.88	0.00973
22046	323.974	1.999	0.01631	123.483	289.96	0.00943
22048	323.275	2.000	0.01634	122.225	290.11	0.00945
22050	322.664	2.000	0.01638	121.125	290.06	0.00947
22052	322.124	2.000	0.01627	120.153	290.12	0.00941
22054	324.117	1.854	0.01591	123.741	268.95	0.00920
22056	323.393	1.855	0.01593	122.437	269.09	0.00921
22058	322.764	1.855	0.01584	121.305	269.08	0.00916
22060	322.204	1.856	0.01579	120.297	269.14	0.00913
22063	324.276	1.663	0.01545	124.027	241.14	0.00893
22065	323.529	1.662	0.01545	122.682	241.04	0.00893
22067	322.859	1.662	0.01548	121.476	241.05	0.00895
22069	322.278	1.662	0.01538	120.430	241.05	0.00889
22072	324.404	1.510	0.01518	124.257	219.05	0.00878
22074	323.615	1.521	0.01523	122.837	220.54	0.00881
22076	322.921	1.529	0.01516	121.588	221.78	0.00877
22078	322.315	1.536	0.01510	120.497	222.79	0.00873
22080	324.651	1.263	0.01473	124.702	183.12	0.00852
22082	323.827	1.263	0.01462	123.219	183.19	0.00845
22084	323.086	1.263	0.01460	121.885	183.20	0.00844
22086	322.446	1.264	0.01459	120.733	183.30	0.00844
22104	324.835	1.079	0.01440	125.033	156.56	0.00833
22106	323.977	1.080	0.01440	123.489	156.58	0.00833
22108	323.200	1.080	0.01432	122.090	156.62	0.00828
22110	322.534	1.080	0.01435	120.891	156.65	0.00830
22117	324.095	0.897	0.01417	123.701	130.13	0.00819
22119	323.294	0.898	0.01406	122.259	130.24	0.00813
22121	322.609	0.898	0.01401	121.026	130.20	0.00810
22123	322.013	0.898	0.01397	119.953	130.25	0.00808
22129	324.280	0.686	0.01387	124.034	99.55	0.00802
22131	323.437	0.687	0.01387	122.517	99.59	0.00802
22133	322.701	0.686	0.01377	121.192	99.56	0.00796
22135	322.075	0.687	0.01378	120.065	99.63	0.00797
22147	324.491	0.450	0.01361	124.414	65.29	0.00787
22149	323.600	0.450	0.01356	122.810	65.29	0.00784
22151	322.822	0.450	0.01348	121.410	65.29	0.00779
22153	322.153	0.450	0.01343	120.205	65.29	0.00776
22167	324.922	0.226	0.01344	125.190	32.77	0.00777
22169	323.936	0.226	0.01336	123.415	32.83	0.00772
22171	323.079	0.227	0.01333	121.872	32.91	0.00771
22173	322.334	0.227	0.01326	120.531	32.92	0.00767
23001	333.740	3.637	0.02569	141.062	527.56	0.01485
23003	333.174	3.638	0.02545	140.043	527.63	0.01471
23005	332.647	3.638	0.02513	139.095	527.72	0.01453
23007	332.163	3.639	0.02479	138.223	527.80	0.01433

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
23009	333.858	3.591	0.02511	141.274	520.89	0.01452
23011	333.270	3.592	0.02492	140.216	520.94	0.01441
23013	332.731	3.593	0.02479	139.246	521.06	0.01433
23015	332.239	3.593	0.02470	138.360	521.11	0.01428
23017	333.398	3.519	0.02423	140.446	510.39	0.01401
23019	332.840	3.519	0.02411	139.442	510.37	0.01394
23021	332.335	3.519	0.02422	138.533	510.36	0.01400
23023	331.883	3.517	0.02410	137.719	510.06	0.01393
23025	333.512	3.458	0.02363	140.652	501.57	0.01366
23027	332.938	3.458	0.02356	139.618	501.49	0.01362
23029	332.418	3.457	0.02361	138.682	501.46	0.01365
23031	331.962	3.457	0.02358	137.862	501.46	0.01363
23033	333.671	3.370	0.02287	140.938	488.72	0.01322
23035	333.079	3.368	0.02280	139.872	488.45	0.01318
23037	332.538	3.367	0.02275	138.898	488.32	0.01315
23039	332.054	3.365	0.02273	138.027	488.04	0.01314
23041	333.844	3.281	0.02229	141.249	475.92	0.01289
23043	333.218	3.284	0.02222	140.122	476.35	0.01285
23045	332.643	3.286	0.02226	139.087	476.61	0.01287
23047	332.148	3.287	0.02236	138.196	476.79	0.01293
23049	334.028	3.158	0.02129	141.580	458.10	0.01231
23051	333.381	3.157	0.02132	140.416	457.95	0.01233
23053	332.786	3.157	0.02131	139.345	457.88	0.01232
23055	332.263	3.157	0.02140	138.403	457.83	0.01237
23057	334.145	3.069	0.02081	141.791	445.11	0.01203
23059	333.477	3.069	0.02079	140.589	445.15	0.01202
23061	332.864	3.070	0.02068	139.485	445.23	0.01196
23063	332.320	3.071	0.02087	138.506	445.35	0.01207
23065	334.293	2.946	0.02016	142.057	427.23	0.01166
23067	333.613	2.947	0.02023	140.833	427.39	0.01170
23069	332.969	2.948	0.02028	139.674	427.64	0.01173
23071	332.399	2.950	0.02021	138.648	427.82	0.01169
23073	334.457	2.813	0.01963	142.353	408.03	0.01135
23075	333.736	2.818	0.01939	141.055	408.73	0.01121
23077	333.055	2.823	0.01980	139.829	409.45	0.01145
23079	332.471	2.828	0.01925	138.778	410.17	0.01113
23081	334.652	2.682	0.01905	142.704	389.00	0.01101
23083	333.911	2.684	0.01902	141.370	389.21	0.01100
23085	333.226	2.685	0.01894	140.137	389.36	0.01095
23087	332.602	2.686	0.01895	139.014	389.51	0.01096
23089	334.893	2.481	0.01832	143.137	359.78	0.01059
23092	334.112	2.476	0.01827	141.732	359.11	0.01056
23095	333.388	2.474	0.01825	140.428	358.86	0.01055
23098	332.746	2.474	0.01829	139.273	358.76	0.01057
23101	332.173	2.474	0.01812	138.241	358.79	0.01048
23104	331.668	2.477	0.01810	137.332	359.24	0.01047
23107	334.237	2.315	0.01777	141.957	335.79	0.01027
23110	333.503	2.314	0.01774	140.635	335.60	0.01026
23113	332.828	2.312	0.01775	139.420	335.28	0.01026

Transient Hot-Wire Thermal Conductivity Data For R32 (Continued)

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

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Transient Hot-Wire Thermal Conductivity Data For R32 (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)
23263	336.180	0.073	0.01305	145.454	10.62	0.00755
23266	334.957	0.074	0.01301	143.253	10.71	0.00752
23269	333.865	0.074	0.01293	141.287	10.76	0.00748
23272	332.919	0.075	0.01286	139.584	10.81	0.00744
24009	342.878	4.443	0.03392	157.510	644.42	0.01961
24011	342.522	4.442	0.03337	156.870	644.26	0.01929
24013	342.187	4.442	0.03307	156.267	644.27	0.01912
24015	341.875	4.442	0.03283	155.705	644.26	0.01898
24017	343.061	4.392	0.03206	157.840	636.97	0.01854
24019	342.689	4.392	0.03170	157.170	636.94	0.01833
24021	342.333	4.392	0.03140	156.529	636.99	0.01815
24023	342.010	4.392	0.03145	155.948	636.95	0.01818
24025	343.251	4.320	0.03046	158.182	626.55	0.01761
24027	342.869	4.318	0.03022	157.494	626.31	0.01747
24029	342.493	4.318	0.03010	156.817	626.24	0.01740
24031	342.144	4.317	0.02998	156.189	626.20	0.01733
24033	343.416	4.256	0.02934	158.479	617.33	0.01696
24035	342.998	4.256	0.02913	157.726	617.29	0.01684
24037	342.609	4.256	0.02894	157.026	617.31	0.01673
24039	342.249	4.256	0.02906	156.378	617.50	0.01680
24041	343.545	4.189	0.02833	158.711	607.59	0.01638
24043	343.127	4.188	0.02818	157.959	607.47	0.01629
24045	342.730	4.188	0.02799	157.244	607.36	0.01618
24047	342.342	4.187	0.02801	156.546	607.34	0.01619
24049	343.694	4.115	0.02741	158.979	596.90	0.01585
24051	343.245	4.115	0.02727	158.171	596.79	0.01577
24053	342.824	4.115	0.02712	157.413	596.76	0.01568
24055	342.436	4.114	0.02707	156.715	596.71	0.01565
24057	343.817	4.049	0.02665	159.201	587.28	0.01541
24059	343.339	4.049	0.02650	158.340	587.22	0.01532
24061	342.901	4.048	0.02648	157.552	587.17	0.01531
24063	342.508	4.048	0.02629	156.844	587.14	0.01520
24065	343.936	3.967	0.02582	159.415	575.41	0.01493
24067	343.460	3.967	0.02566	158.558	575.32	0.01484
24069	343.009	3.968	0.02558	157.746	575.45	0.01479
24071	342.589	3.968	0.02578	156.990	575.44	0.01491
24073	344.071	3.895	0.02513	159.658	564.91	0.01453
24075	343.587	3.894	0.02506	158.787	564.75	0.01449
24077	343.111	3.893	0.02503	157.930	564.64	0.01447
24079	342.682	3.892	0.02499	157.158	564.55	0.01445
24081	343.696	3.793	0.02426	158.983	550.13	0.01403
24083	343.234	3.792	0.02420	158.151	549.95	0.01399
24085	342.794	3.791	0.02417	157.359	549.84	0.01397
24087	342.381	3.790	0.02427	156.616	549.74	0.01403
24089	343.850	3.677	0.02349	159.260	533.34	0.01358
24091	343.369	3.674	0.02341	158.394	532.93	0.01354
24093	342.909	3.673	0.02328	157.566	532.74	0.01346
24095	342.476	3.672	0.02341	156.787	532.65	0.01354
24097	344.012	3.552	0.02268	159.552	515.21	0.01311

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Transient Hot-Wire Thermal Conductivity Data For R32 (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)
24099	343.503	3.551	0.02260	158.635	514.97	0.01307
24101	343.019	3.550	0.02261	157.764	514.85	0.01307
24103	342.571	3.549	0.02263	156.958	514.75	0.01308
24105	344.140	3.452	0.02215	159.782	500.73	0.01281
24107	343.602	3.451	0.02213	158.814	500.57	0.01280
24109	343.109	3.451	0.02207	157.926	500.50	0.01276
24111	342.653	3.451	0.02203	157.105	500.49	0.01274
24113	341.346	3.451	0.02217	154.753	500.48	0.01282
24115	344.019	3.312	0.02151	159.564	480.43	0.01244
24117	343.478	3.311	0.02145	158.590	480.27	0.01240
24119	342.996	3.311	0.02140	157.723	480.22	0.01237
24121	342.530	3.311	0.02140	156.884	480.19	0.01237
24123	341.390	3.312	0.02183	154.832	480.30	0.01262
24125	344.153	3.188	0.02094	159.805	462.42	0.01211
24127	343.601	3.188	0.02088	158.812	462.36	0.01207
24129	343.086	3.188	0.02081	157.885	462.33	0.01203
24131	342.612	3.187	0.02089	157.032	462.28	0.01208
24133	341.434	3.190	0.02073	154.911	462.65	0.01199
24135	344.316	3.030	0.02027	160.099	439.51	0.01172
24137	343.739	3.031	0.02031	159.060	439.63	0.01174
24139	343.207	3.031	0.02021	158.103	439.65	0.01169
24141	342.710	3.032	0.02020	157.208	439.81	0.01168
24143	341.488	3.043	0.02023	155.008	441.37	0.01170
24145	344.412	2.940	0.01999	160.272	426.45	0.01156
24147	343.823	2.943	0.01993	159.211	426.78	0.01152
24149	343.271	2.944	0.02006	158.218	427.06	0.01160
24151	342.779	2.946	0.01996	157.332	427.28	0.01154
24153	341.532	2.949	0.02020	155.088	427.74	0.01168
24155	344.592	2.773	0.01948	160.596	402.12	0.01126
24157	343.969	2.772	0.01979	159.474	402.02	0.01144
24159	343.418	2.772	0.01968	158.482	402.09	0.01138
24161	342.893	2.772	0.01969	157.537	402.05	0.01138
24163	341.601	2.772	0.01999	155.212	402.01	0.01156
24165	344.406	2.635	0.01908	160.261	382.19	0.01103
24167	343.803	2.636	0.01905	159.175	382.29	0.01101
24169	343.244	2.637	0.01893	158.169	382.42	0.01094
24171	342.726	2.638	0.01895	157.237	382.57	0.01096
24173	341.644	2.639	0.01895	155.289	382.77	0.01096
24175	344.569	2.443	0.01853	160.554	354.38	0.01071
24177	343.951	2.445	0.01852	159.442	354.59	0.01071
24179	343.359	2.446	0.01845	158.376	354.80	0.01067
24181	342.821	2.448	0.01845	157.408	355.03	0.01067
24183	341.697	2.451	0.01826	155.385	355.50	0.01056
24185	344.700	2.266	0.01811	160.790	328.60	0.01047
24187	344.071	2.264	0.01807	159.658	328.41	0.01045
24189	343.462	2.264	0.01806	158.562	328.37	0.01044
24191	342.912	2.264	0.01799	157.572	328.37	0.01040
24193	341.759	2.264	0.01773	155.496	328.40	0.01025
24195	344.503	2.102	0.01777	160.435	304.89	0.01027

Transient Hot-Wire Thermal Conductivity Data For R32 (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)
24197	343.867	2.103	0.01769	159.291	305.06	0.01023
24199	343.269	2.105	0.01765	158.214	305.36	0.01020
24201	342.716	2.107	0.01764	157.219	305.53	0.01020
24203	341.795	2.108	0.01758	155.561	305.75	0.01016
24205	344.669	1.893	0.01739	160.734	274.52	0.01005
24207	344.008	1.888	0.01733	159.544	273.87	0.01002
24209	343.390	1.885	0.01719	158.432	273.37	0.00994
24211	342.819	1.883	0.01731	157.404	273.12	0.01001
24213	341.864	1.881	0.01731	155.685	272.87	0.01001
24215	344.840	1.696	0.01710	161.042	245.92	0.00989
24217	344.157	1.687	0.01703	159.813	244.68	0.00985
24219	343.518	1.680	0.01694	158.662	243.68	0.00979
24221	342.934	1.674	0.01692	157.611	242.86	0.00978
24223	341.936	1.668	0.01713	155.815	241.88	0.00990
24225	344.658	1.492	0.01674	160.714	216.38	0.00968
24227	343.969	1.491	0.01676	159.474	216.27	0.00969
24229	343.336	1.491	0.01667	158.335	216.24	0.00964
24231	342.763	1.491	0.01669	157.303	216.26	0.00965
24233	341.998	1.492	0.01648	155.926	216.41	0.00953
24235	344.835	1.271	0.01647	161.033	184.28	0.00952
24237	344.123	1.271	0.01641	159.751	184.28	0.00949
24239	343.455	1.271	0.01627	158.549	184.30	0.00941
24241	342.857	1.271	0.01620	157.473	184.33	0.00937
24243	342.072	1.271	0.01625	156.060	184.36	0.00940
24245	345.041	1.040	0.01619	161.404	150.86	0.00936
24247	344.291	1.040	0.01613	160.054	150.90	0.00933
24249	343.603	1.041	0.01608	158.815	150.92	0.00930
24251	342.974	1.041	0.01604	157.683	150.97	0.00927
24253	342.145	1.041	0.01595	156.191	151.04	0.00922
24255	345.278	0.789	0.01596	161.830	114.49	0.00923
24257	344.489	0.790	0.01588	160.410	114.53	0.00918
24259	343.771	0.790	0.01584	159.118	114.61	0.00916
24261	343.113	0.790	0.01573	157.933	114.60	0.00909
24263	342.253	0.791	0.01571	156.385	114.67	0.00908
24265	345.557	0.540	0.01578	162.333	78.36	0.00912
24267	344.724	0.541	0.01569	160.833	78.45	0.00907
24269	343.956	0.541	0.01556	159.451	78.51	0.00900
24271	343.262	0.542	0.01552	158.202	78.55	0.00897
24273	342.348	0.542	0.01551	156.556	78.63	0.00897
24275	345.986	0.281	0.01565	163.105	40.82	0.00905
24277	345.104	0.282	0.01553	161.517	40.94	0.00898
24279	344.267	0.283	0.01550	160.011	41.02	0.00896
24281	343.523	0.283	0.01537	158.671	41.08	0.00889
24283	342.531	0.284	0.01535	156.886	41.14	0.00888

PRELIMINARY RESULTS - SUBJECT TO CHANGE

Table 6. Speed of Sound in R-124

Table 7. Ideal-Gas Heat Capacity, C_p^o, of R-124

Table 8. Acoustic Viral Coefficients for R-124

Table 6. Speed of Sound in R-124

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

Table 6. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10⁶*du/u
300.043	80.407	179.000	25.962	135.9367	445.9865	50.0
		168.320	24.413	136.2724	447.0879	50.0
		152.076	22.057	136.7828	448.7625	50.0
		111.775	16.212	138.0176	452.8136	28.7
		111.800	16.215	138.0183	452.8159	18.2
		95.020	13.782	138.5224	454.4698	10.1
		77.717	11.272	139.0341	456.1486	17.2
		57.114	8.284	139.6412	458.1404	10.6
		40.037	5.807	140.1374	459.7684	33.5
		19.710	2.859	140.7155	461.6650	22.2
319.675	115.745	442.476	64.176	133.9481	439.4623	16.8
		378.196	54.853	135.8273	445.6276	12.4
		308.872	44.798	137.7688	451.9974	10.3
		240.381	34.864	139.6121	458.0449	15.5
		170.777	24.769	141.4163	463.9642	10.7
		102.455	14.860	143.1273	469.5778	10.0
320.269	116.814	206.351	29.929	140.6523	461.4577	52.9
		176.440	25.590	141.4174	463.9678	47.9
		145.323	21.077	142.2018	466.5413	41.3
		112.325	16.291	143.0207	469.2280	28.5
		83.718	12.142	143.7203	471.5233	10.4
		51.555	7.477	144.4987	474.0771	12.9
		20.225	2.933	145.2433	476.5200	37.6
339.740	151.862	777.171	112.719	131.8811	432.6808	12.4
		706.910	102.529	133.7857	438.9295	10.1
		638.555	92.614	135.5654	444.7684	11.1
		559.584	81.161	137.5542	451.2933	12.9
		489.988	71.067	139.2476	456.8491	10.0
		418.994	60.770	140.9163	462.3238	10.5
		344.139	49.913	142.6221	467.9203	10.4
		316.415	45.892	143.2367	469.9367	55.2
		298.737	43.328	143.6284	471.2218	53.9
		277.309	40.220	144.1006	472.7710	10.5
		269.057	39.023	144.2765	473.3481	52.8

Table 6. Speed of Sound in R-124 (Continued)

T/K	/deg F	p/kPa	p/psi	u/(m/s)	u/(ft/s)	10⁶*du/u
339.740	151.862	242.039	35.105	144.8619	475.2687	52.9
		217.743	31.581	145.3829	476.9780	43.8
		204.751	29.697	145.6622	477.8944	10.0
		195.884	28.411	145.8474	478.5020	46.4
		176.207	25.557	146.2619	479.8619	45.5
340.221	152.728	294.021	42.644	143.8562	471.9692	101.3
		265.902	38.566	144.4693	473.9806	52.0
		240.398	34.867	145.0187	475.7831	50.6
		203.815	29.561	145.7971	478.3369	45.8
		172.929	25.081	146.4461	480.4662	40.9
		146.634	21.268	146.9938	482.2631	34.0
		112.631	16.336	147.6945	484.5620	22.5
		83.704	12.140	148.2842	486.4967	10.0
		55.698	8.078	148.8504	488.3543	12.2
		54.111	7.848	148.8834	488.4626	13.8
		39.741	5.764	149.1716	489.4081	20.7
		29.679	4.305	149.3682	490.0532	51.7
355.095	179.501	294.704	42.743	147.6819	484.5207	48.5
		267.525	38.801	148.1941	486.2011	46.3
		240.670	34.906	148.6976	487.8530	43.8
		202.915	29.430	149.3982	490.1516	44.7
		172.036	24.952	149.9658	492.0138	42.9
		146.499	21.248	150.4310	493.5400	29.1
		115.274	16.719	150.9955	495.3921	20.9
		82.394	11.950	151.5862	497.3301	10.8
		57.873	8.394	152.0232	498.7638	12.1
		55.857	8.101	152.0600	498.8845	25.5
		55.877	8.104	152.0603	498.8855	22.3
		20.316	2.947	152.6843	500.9327	51.2
360.040	188.402	861.534	124.955	137.6826	451.7146	50.0
		857.615	124.387	137.7619	451.9747	50.0
		793.765	115.126	139.1445	456.5108	50.0
		707.828	102.662	140.9484	462.4291	22.5
		622.243	90.249	142.6928	468.1522	17.8

Table 6. Speed of Sound in R-124 (Continued)

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

Table 6. Speed of Sound in R-124 (Continued)

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

Table 6. Speed of Sound in R-124 (Continued)

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

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

t /deg F = (T/K-273.15)*1.8 + 32
1 psi = 1 psia = 6894.759 Pa
1 ft/s = 0.3048000 m/s
1 Btu = 1054.35 J
1 pound mass = 2.2046226 kg

Table 7. Ideal-Gas Heat Capacity, C_p^0, of R-124

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

[a] Values of C_p^0/R on this isotherm were determined from two-parameter fits with the virial gamma held fixed at the value obtained from (3) in the text.

Table 8 (a). Acoustic Viral Coefficients for R-124 (SI units)

T	10^6 beta	10^9 gamma	10^{12} delta
/K	/(m³/mol)	/(m³/mol-Pa)	/(m³/mol-Pa²)
250.010	-1509.83 +/- 5.37	-	-
259.966	-1367.30 +/- 2.55	-	-
269.908	-1255.04 +/- 6.16	-0.6544 +/- 0.055	-
279.871	-1160.28 +/- 4.31	-0.4298 +/- 0.032	-
300.035	-987.90 +/- 2.33	-0.2438 +/- 0.008	-
300.043	-989.09 +/- 1.94	-0.2450 +/- 0.010	-
319.675*	-854.94 +/- 1.62	-0.1247 +/- 0.008	-5.96E-5 +/-1.1E-5
319.675	-863.07 +/- 2.77	-0.0905 +/- 0.011	-10.1E-5 +/- 1.3E-5
320.269	-855.66 +/- 2.99	-0.1266 +/- 0.012	-
339.740*	-745.84 +/- 1.09	-0.0684 +/- 0.004	-3.40E-5 +/-0.30E-5
339.740	-745.55 +/- 3.29	-0.0672 +/- 0.008	-3.58E-5 +/-0.54E-5
340.221	-743.20 +/- 2.02	-0.0806 +/- 0.006	-
355.095	-673.91 +/- 1.67	-0.0528 +/- 0.005	-
360.040	-649.22 +/- 0.91	-0.0445 +/- 0.002	-1.53E-5 +/-0.15E-5
365.000	-634.61 +/- 1.80	-0.0328 +/- 0.006	-
374.900	-592.23 +/- 1.77	-0.0336 +/- 0.006	-
380.120	-567.49 +/- 0.85	-0.0371 +/- 0.001	-
385.650	-555.59 +/- 2.21	-0.0193 +/- 0.006	-
399.933	-505.39 +/- 1.04	-0.0194 +/- 0.003	-
400.045	-504.27 +/- 1.03	-0.0198 +/- 0.001	-
400.045*	-505.64 +/- 0.44	-0.0185 +/- 0.001	-

* Merged isotherm of high and low pressure data

Table 8 (b). Acoustic Viral Coefficients for R-124 (PI units)

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

* Merged isotherm of high and low pressure data

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Table 9 - 15. Experimental Liquid Heat Capacity Data for R-125

Table 9 (a). Experimental liquid heat capacity data for R125.

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

Table 9 (b). Experimental liquid heat capacity data for R125.

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

Table 10 (a). Experimental liquid heat capacity data for R125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
K	mol dm⁻³	MPa	mol	cm³	K	J	J K⁻¹	J mol⁻¹ K⁻¹	
274.0725	11.1366	3.8317	0.8161	73.285	6.5490	533.193	162.483	12.164	97.47
280.5589	11.1261	7.8191	0.8161	73.351	6.5710	537.956	161.833	13.551	95.92
287.0378	11.1156	11.8615	0.8161	73.419	6.5106	535.873	163.151	13.879	96.93
293.4970	11.1050	15.8752	0.8161	73.487	6.4280	531.831	165.141	13.986	98.80
299.8980	11.0946	19.8149	0.8161	73.554	6.3791	530.467	166.176	14.056	99.53
306.2467	11.0987	23.6876	0.8171	73.621	6.3562	531.166	166.543	14.152	99.32
275.7181	11.1339	4.8303	0.8161	73.301	5.3507	436.253	161.405	10.505	95.90
281.0479	11.1253	8.1235	0.8161	73.356	5.3127	435.122	161.942	10.986	96.01
286.3325	11.1168	11.4215	0.8161	73.411	5.2693	433.453	163.396	11.229	97.29
291.5642	11.1082	14.6779	0.8161	73.466	5.2290	431.963	164.683	11.336	98.40
296.8015	11.0996	17.9139	0.8161	73.521	5.1866	430.252	165.748	11.376	99.26
301.9998	11.0912	21.1005	0.8161	73.576	5.1961	432.801	165.506	11.463	98.54
306.8817	11.0832	24.0734	0.8160	73.628	6.9756	583.204	167.201	15.606	100.20
313.8655	11.0718	28.2995	0.8160	73.703	6.9413	583.377	168.379	15.850	101.06
320.8002	11.0604	32.4633	0.8160	73.777	6.8607	579.473	169.739	16.085	102.16
311.9560	11.0749	27.1470	0.8160	73.682	5.0800	426.350	168.704	11.572	101.61
317.0758	11.0665	30.2318	0.8160	73.737	5.0610	426.346	169.722	11.737	102.44
322.1551	11.0582	33.2717	0.8160	73.792	5.0197	424.377	170.500	11.859	102.98

Table 10 (b). Experimental liquid heat capacity data for R125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft⁻³	psia	lb	in³	°F	Btu	Btu °F⁻¹	Btu lb⁻¹ °F⁻¹	
33.660	83.44	555.7	0.216	4.472	11.788	0.506	0.086	0.0242	0.1941
45.336	83.36	1134.1	0.216	4.476	11.828	0.510	0.085	0.0270	0.1910
56.998	83.28	1720.4	0.216	4.480	11.719	0.508	0.086	0.0276	0.1930
68.625	83.21	2302.5	0.216	4.484	11.570	0.504	0.087	0.0279	0.1968
80.146	83.13	2873.9	0.216	4.489	11.482	0.503	0.088	0.0280	0.1982
91.574	83.16	3435.6	0.216	4.493	11.441	0.504	0.088	0.0282	0.1978
36.623	83.42	700.6	0.216	4.473	9.631	0.414	0.085	0.0209	0.1910
46.216	83.36	1178.2	0.216	4.476	9.563	0.413	0.085	0.0219	0.1912
55.728	83.29	1656.6	0.216	4.480	9.485	0.411	0.086	0.0224	0.1937
65.146	83.23	2128.9	0.216	4.483	9.412	0.410	0.087	0.0226	0.1960
74.573	83.16	2598.2	0.216	4.487	9.336	0.408	0.087	0.0227	0.1977
83.930	83.10	3060.4	0.216	4.490	9.353	0.410	0.087	0.0228	0.1962
92.717	83.04	3491.6	0.216	4.493	12.556	0.553	0.088	0.0311	0.1995
105.288	82.96	4104.5	0.216	4.498	12.494	0.553	0.089	0.0316	0.2013
117.770	82.87	4708.4	0.216	4.502	12.349	0.550	0.089	0.0320	0.2034
101.851	82.98	3937.3	0.216	4.496	9.144	0.404	0.089	0.0230	0.2023
111.066	82.92	4384.8	0.216	4.500	9.110	0.404	0.089	0.0234	0.2040
120.209	82.85	4825.7	0.216	4.503	9.035	0.403	0.090	0.0236	0.2051

Table 11 (a). Experimental liquid heat capacity data for R125.

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

Table 11 (b). Experimental liquid heat capacity data for R125.

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

Table 12 (a). Experimental liquid heat capacity data for R125.

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

Table 12 (b). Experimental liquid heat capacity data for R125.

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

Table 13 (a). Experimental liquid heat capacity data for R125.

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

Table 13 (b). Experimental liquid heat capacity data for R125.

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

Table 14 (a). **Experimental liquid heat capacity data for R125.**

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

Table 14 (b). **Experimental liquid heat capacity data for R125.**

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

Table 15 (a). Experimental liquid heat capacity data for R125.

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

Table 15 (b). Experimental liquid heat capacity data for R125.

T	ρ	P	N	V_{bomb}	ΔT	Q_{tare}	$Q/\Delta T$	$W_{pv,m}$	$C_{v,exp}$
°F	lb ft^{-3}	psia	lb	in^3	°F	Btu	Btu °F^{-1}	Btu lb^{-1} °F^{-1}	
-106.865	101.29	758.1	0.261	4.458	7.654	0.297	0.085	0.0373	0.1694
-99.264	101.19	1579.2	0.261	4.462	7.613	0.298	0.086	0.0388	0.1695
-91.767	101.09	2381.2	0.261	4.466	7.572	0.298	0.086	0.0389	0.1699
-84.328	101.00	3165.4	0.261	4.470	7.487	0.297	0.087	0.0385	0.1725
-76.938	100.9C	3931.2	0.261	4.475	7.397	0.295	0.088	0.0385	0.1753
-69.621	100.81	4676.5	0.261	4.479	7.321	0.294	0.089	0.0392	0.1774

Table 16 - 22. Experimental Two-Phase Heat Capacity Data for R-125

Table 16 (a). **Experimental two-phase heat capacity data for R125.**

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

Table 16 (b). **Experimental two-phase heat capacity data for R125.**

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

Table 17 (a). Experimental two-phase heat capacity data for R125.

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

Table 17 (b). Experimental two-phase heat capacity data for R125.

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

Table 18 (a). Experimental two-phase heat capacity data for R125.

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

Table 18 (b). Experimental two-phase heat capacity data for R125.

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

Table 19 (a). Experimental two-phase heat capacity data for R125.

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

Table 19 (b). Experimental two-phase heat capacity data for R125.

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

Table 20 (a). Experimental two-phase heat capacity data for R125.

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

Table 20 (b). Experimental two-phase heat capacity data for R125.

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

Table 21 (a). **Experimental two-phase heat capacity data for R125.**

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

Table 21 (b). **Experimental two-phase heat capacity data for R125.**

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

Table 22 (a). Experimental two-phase heat capacity data for R125.

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

Table 22 (b). Experimental two-phase heat capacity data for R125.

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

Table 23. Transient Hot-Wire Thermal Conductivity Data for R-123

Transient Hot-Wire Thermal Conductivity Data For R123

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

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
19001	223.275	67.411	0.11514	-57.775	9777.21	0.06657
19002	222.740	67.398	0.11543	-58.738	9775.23	0.06674
19003	222.249	67.405	0.11576	-59.622	9776.25	0.06693
19004	221.808	67.387	0.11605	-60.416	9773.68	0.06710
19005	223.354	56.074	0.11287	-57.633	8132.93	0.06526
19006	222.806	56.065	0.11315	-58.619	8131.56	0.06542
19007	222.312	56.065	0.11338	-59.508	8131.62	0.06555
19008	221.859	56.069	0.11385	-60.324	8132.14	0.06583
19009	223.435	45.413	0.11057	-57.487	6586.63	0.06393
19010	222.838	45.418	0.11095	-58.562	6587.35	0.06415
19011	222.333	45.418	0.11119	-59.471	6587.39	0.06429
19012	221.877	45.426	0.11166	-60.291	6588.47	0.06456
19013	222.998	34.705	0.10850	-58.274	5033.58	0.06273
19014	222.477	34.701	0.10877	-59.211	5032.99	0.06289
19015	222.002	34.699	0.10927	-60.066	5032.61	0.06318
19016	221.574	34.698	0.10969	-60.837	5032.55	0.06342
19017	223.066	23.950	0.10592	-58.151	3473.67	0.06124
19018	222.530	23.960	0.10646	-59.116	3475.17	0.06155
19019	222.044	23.968	0.10658	-59.991	3476.28	0.06162
19020	221.613	23.972	0.10709	-60.767	3476.79	0.06192
19021	223.121	13.069	0.10321	-58.052	1895.55	0.05967
19022	222.573	13.078	0.10364	-59.039	1896.77	0.05992
19023	222.073	13.082	0.10389	-59.939	1897.37	0.06007
19024	221.632	13.081	0.10444	-60.732	1897.21	0.06039
19025	223.144	2.049	0.10020	-58.011	297.17	0.05793
19026	222.610	2.059	0.10067	-58.972	298.65	0.05821
19027	222.100	2.067	0.10097	-59.890	299.86	0.05838
19028	221.649	2.070	0.10152	-60.702	300.17	0.05870
20001	243.187	66.560	0.11104	-21.933	9653.70	0.06420
20002	242.620	66.554	0.11136	-22.954	9652.87	0.06439
20003	242.110	66.550	0.11165	-23.872	9652.27	0.06455
20004	241.656	66.541	0.11227	-24.689	9651.05	0.06491
20005	243.263	55.286	0.10846	-21.797	8018.65	0.06271
20006	242.687	55.289	0.10882	-22.833	8018.96	0.06292
20007	242.168	55.290	0.10916	-23.768	8019.17	0.06311
20008	241.703	55.292	0.10976	-24.605	8019.45	0.06346
20009	243.345	44.157	0.10548	-21.649	6404.42	0.06099
20010	242.757	44.160	0.10571	-22.707	6404.87	0.06112
20011	242.225	44.167	0.10639	-23.665	6405.90	0.06151
20012	241.752	44.165	0.10701	-24.516	6405.61	0.06187
20013	242.886	33.502	0.10350	-22.475	4859.01	0.05984
20014	242.423	33.503	0.10381	-23.309	4859.23	0.06002
20015	241.992	33.506	0.10423	-24.084	4859.65	0.06026
20016	241.614	33.510	0.10471	-24.765	4860.21	0.06054
20017	242.948	22.767	0.10064	-22.364	3302.03	0.05819
20018	242.445	22.766	0.10090	-23.269	3301.99	0.05834
20019	242.007	22.768	0.10143	-24.057	3302.24	0.05864
20020	241.619	22.770	0.10187	-24.756	3302.56	0.05890
20021	242.995	11.728	0.09746	-22.279	1700.96	0.05635

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
20022	242.507	11.729	0.09783	-23.157	1701.20	0.05656
20023	242.067	11.733	0.09826	-23.949	1701.77	0.05681
20024	241.655	11.733	0.09870	-24.691	1701.70	0.05707
20025	243.078	1.955	0.09440	-22.130	283.62	0.05458
20026	242.574	1.957	0.09487	-23.037	283.89	0.05485
20027	242.117	1.959	0.09516	-23.859	284.13	0.05502
20028	241.706	1.965	0.09570	-24.599	284.96	0.05533
21001	264.017	67.199	0.10627	15.561	9746.46	0.06144
21002	263.373	67.194	0.10679	14.401	9745.70	0.06174
21003	262.799	67.194	0.10723	13.368	9745.77	0.06200
21004	262.285	67.189	0.10764	12.443	9744.97	0.06224
21005	264.091	55.971	0.10374	15.694	8118.00	0.05998
21006	263.433	55.973	0.10408	14.509	8118.21	0.06018
21007	262.844	55.977	0.10452	13.449	8118.84	0.06043
21008	262.311	55.967	0.10500	12.490	8117.39	0.06071
21009	264.164	44.816	0.10067	15.825	6499.99	0.05821
21010	263.499	44.820	0.10098	14.628	6500.59	0.05838
21011	262.894	44.819	0.10142	13.539	6500.48	0.05864
21012	262.356	44.821	0.10217	12.571	6500.83	0.05907
21013	263.689	33.999	0.09818	14.970	4931.13	0.05677
21014	263.162	34.002	0.09843	14.022	4931.58	0.05691
21015	262.676	34.000	0.09883	13.147	4931.30	0.05714
21016	262.238	34.002	0.09930	12.358	4931.63	0.05741
21017	263.745	23.281	0.09505	15.071	3376.68	0.05496
21018	263.202	23.292	0.09530	14.094	3378.23	0.05510
21019	262.707	23.289	0.09579	13.203	3377.83	0.05538
21020	262.257	23.290	0.09598	12.393	3377.95	0.05549
21021	263.799	12.524	0.09168	15.168	1816.42	0.05301
21022	263.240	12.526	0.09195	14.162	1816.76	0.05316
21023	262.731	12.529	0.09240	13.246	1817.12	0.05342
21024	262.268	12.526	0.09268	12.412	1816.77	0.05359
21025	263.875	1.717	0.08796	15.305	249.02	0.05086
21026	263.292	1.721	0.08836	14.256	249.54	0.05109
21027	262.764	1.720	0.08871	13.305	249.43	0.05129
21028	262.283	1.724	0.08903	12.439	249.99	0.05148
22001	284.205	66.072	0.10171	51.899	9582.93	0.05881
22002	283.491	66.071	0.10194	50.614	9582.78	0.05894
22003	282.837	66.067	0.10210	49.437	9582.26	0.05903
22004	282.261	66.067	0.10273	48.400	9582.27	0.05940
22005	284.286	54.558	0.09870	52.045	7913.05	0.05707
22006	283.554	54.556	0.09874	50.727	7912.74	0.05709
22007	282.885	54.563	0.09890	49.523	7913.67	0.05718
22008	282.291	54.562	0.09945	48.454	7913.61	0.05750
22009	284.358	43.600	0.09604	52.174	6323.63	0.05553
22010	283.604	43.599	0.09610	50.817	6323.59	0.05556
22011	282.924	43.604	0.09545	49.593	6324.21	0.05519
22012	282.312	43.603	0.09646	48.492	6324.15	0.05577
22013	284.527	32.317	0.09225	52.479	4687.17	0.05334
22014	283.743	32.320	0.09243	51.067	4687.60	0.05344

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
22015	283.039	32.319	0.09268	49.800	4687.42	0.05359
22016	282.412	32.322	0.09302	48.672	4687.90	0.05378
22018	283.923	21.124	0.08905	51.391	3063.82	0.05149
22019	283.301	21.119	0.08910	50.272	3062.99	0.05152
22020	282.729	21.117	0.08918	49.242	3062.78	0.05156
22021	282.209	21.115	0.08987	48.306	3062.50	0.05196
22022	283.968	11.339	0.08553	51.472	1644.60	0.04945
22023	283.326	11.340	0.08529	50.317	1644.70	0.04931
22024	282.732	11.344	0.08562	49.248	1645.34	0.04950
22025	282.195	11.349	0.08638	48.281	1646.06	0.04994
22026	284.064	1.615	0.08163	51.645	234.20	0.04720
22027	283.394	1.615	0.08166	50.439	234.28	0.04721
22028	282.783	1.619	0.08217	49.339	234.84	0.04751
22029	282.235	1.621	0.08280	48.353	235.05	0.04787
8001	283.712	0.040	0.00963	51.012	5.84	0.00557
8002	283.281	0.040	0.00955	50.236	5.85	0.00552
8003	282.873	0.040	0.00946	49.501	5.85	0.00547
8004	282.500	0.040	0.00942	48.830	5.85	0.00545
8005	283.766	0.037	0.01006	51.109	5.30	0.00582
8006	283.311	0.037	0.01007	50.290	5.30	0.00582
8007	282.905	0.037	0.01001	49.559	5.31	0.00579
8008	282.517	0.037	0.01002	48.861	5.30	0.00579
8009	283.789	0.029	0.01076	51.150	4.27	0.00622
8010	283.344	0.030	0.01068	50.349	4.30	0.00617
8011	282.912	0.030	0.01067	49.572	4.29	0.00617
8012	282.532	0.030	0.01063	48.888	4.31	0.00615
8013	283.847	0.030	0.01074	51.255	4.30	0.00621
8014	283.373	0.030	0.01015	50.401	4.29	0.00587
8015	282.963	0.029	0.01066	49.663	4.27	0.00616
8016	282.563	0.029	0.01080	48.943	4.27	0.00624
8017	283.820	0.031	0.01090	51.206	4.50	0.00630
8018	283.359	0.030	0.01087	50.376	4.42	0.00628
8019	282.916	0.030	0.01050	49.579	4.40	0.00607
8020	282.527	0.030	0.01082	48.879	4.37	0.00626
8021	283.731	0.042	0.00867	51.046	6.10	0.00501
8022	283.277	0.042	0.00856	50.229	6.11	0.00495
8023	282.860	0.042	0.00847	49.478	6.10	0.00490
8024	282.468	0.042	0.00838	48.772	6.11	0.00485
9001	288.398	0.052	0.00621	59.446	7.58	0.00359
9002	287.951	0.052	0.00606	58.642	7.59	0.00350
9003	287.545	0.052	0.00584	57.911	7.59	0.00338
9004	287.203	0.052	0.00576	57.295	7.57	0.00333
9005	288.559	0.048	0.00773	59.736	7.02	0.00447
9006	288.110	0.048	0.00781	58.928	7.02	0.00452
9007	287.677	0.048	0.00771	58.149	7.01	0.00446
9008	287.277	0.048	0.00763	57.429	7.02	0.00441
9009	288.625	0.044	0.00874	59.855	6.37	0.00505
9010	288.117	0.044	0.00872	58.941	6.38	0.00504
9011	287.732	0.044	0.00866	58.248	6.36	0.00501

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
9012	287.311	0.044	0.00866	57.490	6.37	0.00501
9013	288.676	0.038	0.00924	59.947	5.56	0.00534
9014	288.206	0.038	0.00920	59.101	5.57	0.00532
9015	287.758	0.038	0.00920	58.294	5.57	0.00532
9016	287.353	0.038	0.00920	57.565	5.56	0.00532
9017	288.684	0.033	0.00953	59.961	4.73	0.00551
9018	288.244	0.033	0.00950	59.169	4.74	0.00549
9019	287.836	0.033	0.00936	58.435	4.72	0.00541
9020	287.387	0.033	0.00946	57.627	4.73	0.00547
10001	293.214	0.066	0.00576	68.115	9.53	0.00333
10002	292.772	0.066	0.00560	67.320	9.51	0.00324
10003	292.362	0.066	0.00545	66.582	9.51	0.00315
10004	292.019	0.066	0.00528	65.964	9.52	0.00305
10005	293.333	0.063	0.00730	68.329	9.10	0.00422
10006	292.908	0.063	0.00700	67.564	9.11	0.00405
10007	292.492	0.063	0.00683	66.816	9.12	0.00395
10008	292.100	0.063	0.00666	66.110	9.13	0.00385
10009	293.434	0.058	0.00850	68.511	8.42	0.00491
10010	292.982	0.058	0.00842	67.698	8.40	0.00487
10011	292.561	0.058	0.00831	66.940	8.41	0.00480
10012	292.171	0.058	0.00828	66.238	8.42	0.00479
10013	293.500	0.051	0.00934	68.630	7.34	0.00540
10014	293.041	0.051	0.00929	67.804	7.33	0.00537
10015	292.612	0.051	0.00926	67.032	7.34	0.00535
10016	292.173	0.051	0.00914	66.241	7.34	0.00528
10017	293.558	0.043	0.00970	68.734	6.26	0.00561
10018	293.090	0.043	0.00970	67.892	6.26	0.00561
10019	292.657	0.043	0.00968	67.113	6.25	0.00560
10020	292.247	0.043	0.00965	66.375	6.24	0.00558
11001	298.278	0.080	0.00635	77.230	11.66	0.00367
11002	297.894	0.080	0.00615	76.539	11.64	0.00356
11003	297.494	0.080	0.00606	75.819	11.63	0.00350
11004	297.116	0.080	0.00591	75.139	11.63	0.00342
11005	298.440	0.076	0.00818	77.522	10.98	0.00473
11006	297.997	0.076	0.00804	76.725	10.99	0.00465
11007	297.587	0.076	0.00791	75.987	10.99	0.00457
11008	297.166	0.076	0.00772	75.229	10.97	0.00446
11009	298.484	0.070	0.00920	77.601	10.19	0.00532
11010	298.042	0.070	0.00913	76.806	10.19	0.00528
11011	297.624	0.070	0.00909	76.053	10.19	0.00526
11012	297.235	0.070	0.00905	75.353	10.18	0.00523
11013	298.523	0.064	0.00968	77.671	9.24	0.00560
11014	298.069	0.064	0.00965	76.854	9.24	0.00558
11015	297.636	0.064	0.00967	76.075	9.24	0.00559
11016	297.238	0.064	0.00963	75.358	9.24	0.00557
11017	298.560	0.057	0.00998	77.738	8.20	0.00577
11018	298.110	0.057	0.00998	76.928	8.21	0.00577
11019	297.683	0.056	0.00993	76.159	8.19	0.00574
11020	297.239	0.057	0.00995	75.360	8.20	0.00575

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
13002	307.562	0.113	0.00846	93.942	16.34	0.00489
13003	307.167	0.113	0.00834	93.231	16.36	0.00482
13004	306.806	0.113	0.00818	92.581	16.38	0.00473
13005	307.995	0.109	0.00950	94.721	15.75	0.00549
13006	307.580	0.109	0.00933	93.974	15.80	0.00539
13007	307.193	0.109	0.00917	93.277	15.82	0.00530
13008	306.833	0.109	0.00927	92.629	15.81	0.00536
13009	308.021	0.105	0.00997	94.768	15.17	0.00576
13010	307.641	0.105	0.00987	94.084	15.17	0.00571
13011	307.216	0.105	0.00984	93.319	15.19	0.00569
13012	306.891	0.106	0.00969	92.734	15.35	0.00560
13013	308.017	0.106	0.00996	94.761	15.34	0.00576
13014	307.651	0.106	0.00990	94.102	15.34	0.00572
13015	307.260	0.106	0.00984	93.398	15.40	0.00569
13016	306.893	0.106	0.00976	92.737	15.41	0.00564
13017	308.116	0.095	0.01048	94.939	13.82	0.00606
13018	307.686	0.096	0.01040	94.165	13.88	0.00601
13019	307.293	0.096	0.01041	93.457	13.86	0.00602
13020	306.915	0.096	0.01045	92.777	13.88	0.00604
13021	308.140	0.088	0.01063	94.982	12.75	0.00615
13022	307.713	0.088	0.01062	94.213	12.76	0.00614
13023	307.308	0.088	0.01062	93.484	12.76	0.00614
13024	306.940	0.088	0.01060	92.822	12.78	0.00613
13025	308.115	0.079	0.01085	94.937	11.48	0.00627
13026	307.723	0.079	0.01082	94.231	11.47	0.00626
13027	307.320	0.079	0.01083	93.506	11.46	0.00626
13028	306.947	0.079	0.01081	92.835	11.46	0.00625
13029	308.207	0.069	0.01097	95.103	10.05	0.00634
13030	307.768	0.069	0.01096	94.312	10.07	0.00634
13031	307.354	0.070	0.01095	93.567	10.09	0.00633
13032	306.974	0.070	0.01094	92.883	10.10	0.00633
13033	308.199	0.058	0.01106	95.088	8.44	0.00639
13034	307.754	0.058	0.01103	94.287	8.37	0.00638
13035	307.340	0.058	0.01104	93.542	8.34	0.00638
13036	306.953	0.058	0.01103	92.845	8.35	0.00638
13037	308.294	0.049	0.01116	95.259	7.04	0.00645
13038	307.794	0.049	0.01118	94.359	7.06	0.00646
13039	307.377	0.049	0.01113	93.609	7.08	0.00644
13040	306.986	0.049	0.01110	92.905	7.09	0.00642
14001	312.962	0.132	0.01072	103.662	19.09	0.00620
14002	312.563	0.132	0.01062	102.943	19.10	0.00614
14003	312.183	0.132	0.01059	102.259	19.13	0.00612
14004	311.838	0.132	0.01054	101.638	19.11	0.00609
14005	312.984	0.123	0.01116	103.701	17.85	0.00645
14006	312.576	0.123	0.01104	102.967	17.86	0.00638
14007	312.193	0.123	0.01102	102.277	17.85	0.00637
14008	311.851	0.123	0.01088	101.662	17.88	0.00629
14009	312.975	0.114	0.01134	103.685	16.54	0.00656
14010	312.583	0.114	0.01120	102.979	16.57	0.00648

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

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Transient Hot-Wire Thermal Conductivity Data For R123 (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)
15032	316.960	0.054	0.01325	110.858	7.81	0.00766
15033	318.234	0.038	0.01393	113.151	5.58	0.00805
15034	317.794	0.038	0.01387	112.359	5.58	0.00802
15035	317.383	0.039	0.01386	111.619	5.59	0.00801
15036	317.008	0.038	0.01385	110.944	5.58	0.00801
16001	322.859	0.188	0.01046	121.476	27.32	0.00605
16002	322.468	0.188	0.01030	120.772	27.32	0.00596
16003	322.105	0.188	0.01021	120.119	27.32	0.00590
16004	321.769	0.188	0.01017	119.514	27.32	0.00588
16005	322.881	0.176	0.01131	121.516	25.51	0.00654
16006	322.482	0.176	0.01130	120.798	25.51	0.00653
16007	322.118	0.176	0.01123	120.142	25.51	0.00649
16008	321.785	0.176	0.01125	119.543	25.48	0.00650
16009	322.885	0.166	0.01164	121.523	24.04	0.00673
16010	322.488	0.166	0.01156	120.808	24.03	0.00668
16011	322.133	0.166	0.01149	120.169	24.02	0.00664
16012	321.779	0.166	0.01161	119.532	24.05	0.00671
16013	322.946	0.148	0.01182	121.633	21.42	0.00683
16014	322.543	0.148	0.01180	120.907	21.43	0.00682
16015	322.177	0.148	0.01186	120.249	21.46	0.00686
16016	321.834	0.148	0.01185	119.631	21.46	0.00685
16017	322.952	0.131	0.01192	121.644	18.94	0.00689
16018	322.557	0.131	0.01188	120.933	18.97	0.00687
16019	322.212	0.131	0.01197	120.312	18.93	0.00692
16020	321.847	0.131	0.01194	119.655	18.96	0.00690
16021	323.020	0.110	0.01219	121.766	15.98	0.00705
16022	322.616	0.110	0.01207	121.039	15.96	0.00698
16023	322.231	0.110	0.01204	120.346	15.98	0.00696
16024	321.864	0.110	0.01214	119.685	15.99	0.00702
16025	323.049	0.095	0.01217	121.818	13.82	0.00704
16026	322.632	0.096	0.01210	121.068	13.86	0.00700
16027	322.245	0.096	0.01226	120.371	13.88	0.00709
16028	321.874	0.096	0.01211	119.703	13.89	0.00700
16029	323.195	0.066	0.01204	122.081	9.58	0.00696
16030	322.752	0.066	0.01201	121.284	9.59	0.00694
16031	322.343	0.066	0.01201	120.547	9.58	0.00694
16032	321.960	0.066	0.01200	119.858	9.59	0.00694
16033	323.298	0.047	0.01218	122.266	6.77	0.00704
16034	322.842	0.047	0.01216	121.446	6.78	0.00703
16035	322.416	0.047	0.01217	120.679	6.78	0.00704
16036	322.030	0.047	0.01211	119.984	6.78	0.00700
2001	327.403	66.509	0.09183	129.655	9646.41	0.05309
2002	326.633	66.508	0.09218	128.269	9646.14	0.05330
2003	325.911	66.505	0.09232	126.970	9645.77	0.05338
2004	325.289	66.504	0.08989	125.850	9645.68	0.05197
2005	326.749	48.679	0.08674	128.478	7060.24	0.05015
2006	325.992	48.675	0.08710	127.116	7059.70	0.05036
2007	325.326	48.680	0.08709	125.917	7060.43	0.05035
2008	324.709	48.681	0.08742	124.806	7060.61	0.05054

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

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Transient Hot-Wire Thermal Conductivity Data For R123 (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)
26013	353.383	0.316	0.01338	176.419	45.87	0.00774
26014	352.978	0.316	0.01338	175.690	45.83	0.00774
26015	352.592	0.316	0.01335	174.996	45.79	0.00772
26016	352.236	0.316	0.01327	174.355	45.78	0.00767
26017	353.432	0.261	0.01342	176.508	37.91	0.00776
26018	353.023	0.261	0.01344	175.771	37.90	0.00777
26019	352.616	0.261	0.01345	175.039	37.88	0.00778
26020	352.239	0.261	0.01343	174.360	37.86	0.00776
26021	353.470	0.219	0.01358	176.576	31.75	0.00785
26022	353.053	0.218	0.01356	175.825	31.68	0.00784
26024	352.655	0.218	0.01350	175.109	31.63	0.00781
26024	352.309	0.218	0.01353	174.486	31.60	0.00782
26025	353.542	0.173	0.01371	176.706	25.12	0.00793
26026	353.128	0.173	0.01367	175.960	25.02	0.00790
26027	352.726	0.172	0.01369	175.237	24.97	0.00792
26027	352.362	0.172	0.01360	174.582	24.90	0.00786
26029	353.637	0.133	0.01390	176.877	19.32	0.00804
26030	353.174	0.131	0.01397	176.043	18.93	0.00808
26031	352.773	0.130	0.01383	175.321	18.90	0.00800
26032	352.400	0.130	0.01389	174.650	18.87	0.00803
26033	353.710	0.101	0.01402	177.008	14.59	0.00811
26034	353.241	0.101	0.01403	176.164	14.60	0.00811
26035	352.839	0.101	0.01397	175.440	14.61	0.00808
26036	352.469	0.101	0.01410	174.774	14.66	0.00815
4001	363.200	66.074	0.08557	194.090	9583.26	0.04947
4002	362.398	66.063	0.08607	192.646	9581.62	0.04976
4003	361.721	66.058	0.08640	191.428	9580.89	0.04995
4004	361.073	66.053	0.08620	190.261	9580.26	0.04984
4005	363.172	51.570	0.08142	194.040	7479.58	0.04708
4006	362.372	51.570	0.08163	192.600	7479.67	0.04720
4007	361.654	51.565	0.08183	191.307	7478.95	0.04731
4008	360.974	51.565	0.08184	190.083	7478.95	0.04732
4009	363.334	38.124	0.07675	194.331	5529.43	0.04438
4010	362.482	38.125	0.07676	192.798	5529.52	0.04438
4011	361.721	38.124	0.07715	191.428	5529.43	0.04461
4012	361.034	38.123	0.07745	190.191	5529.25	0.04478
4013	363.521	26.603	0.07237	194.668	3858.43	0.04184
4014	362.630	26.603	0.07264	193.064	3858.43	0.04200
4015	361.838	26.603	0.07283	191.638	3858.52	0.04211
4016	361.109	26.605	0.07310	190.326	3858.71	0.04226
4017	362.925	16.858	0.06844	193.595	2445.07	0.03957
4018	362.067	16.857	0.06846	192.051	2444.97	0.03958
4019	361.316	16.859	0.06879	190.699	2445.25	0.03977
4020	360.645	16.861	0.06881	189.491	2445.53	0.03978
4021	363.081	9.276	0.06480	193.876	1345.44	0.03747
4022	362.207	9.278	0.06500	192.303	1345.72	0.03758
4023	361.423	9.278	0.06521	190.891	1345.72	0.03770
4024	360.708	9.278	0.06537	189.604	1345.72	0.03780
4025	363.250	3.236	0.06149	194.180	469.40	0.03555

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
28023	372.851	0.145	0.01536	211.462	20.99	0.00888
28024	372.476	0.145	0.01526	210.787	20.97	0.00882
5001	382.556	67.276	0.08326	228.931	9757.58	0.04814
5002	381.708	67.273	0.08345	227.404	9757.12	0.04825
5003	380.947	67.268	0.08360	226.035	9756.49	0.04834
5004	380.263	67.242	0.08384	224.803	9752.67	0.04847
5005	382.691	52.358	0.07864	229.174	7593.84	0.04547
5006	381.803	52.355	0.07867	227.575	7593.48	0.04549
5007	381.011	52.355	0.07898	226.150	7593.48	0.04566
5008	380.283	52.356	0.07872	224.839	7593.57	0.04551
5009	382.009	37.199	0.07323	227.946	5395.31	0.04234
5010	381.153	37.201	0.07359	226.405	5395.59	0.04255
5011	380.435	37.202	0.07062	225.113	5395.68	0.04083
5012	379.727	37.203	0.07387	223.839	5395.86	0.04271
5013	382.029	37.209	0.07329	227.982	5396.78	0.04237
5014	381.173	37.211	0.07343	226.441	5397.05	0.04246
5015	380.424	37.207	0.07357	225.093	5396.50	0.04259
5016	379.769	37.212	0.07392	223.914	5397.14	0.04274
5017	382.211	28.571	0.06995	228.310	4143.94	0.04044
5018	381.317	28.566	0.07024	226.701	4143.20	0.04061
5019	380.537	28.566	0.07015	225.297	4143.20	0.04056
5020	379.845	28.562	0.07056	224.051	4142.55	0.04080
5021	382.395	20.339	0.06645	228.641	2949.99	0.03842
5022	381.500	20.352	0.06654	227.030	2951.75	0.03847
5023	380.662	20.356	0.06669	225.522	2952.40	0.03856
5024	379.951	20.355	0.06701	224.242	2952.31	0.03874
5025	382.598	13.320	0.06307	229.006	1931.97	0.03647
5026	381.637	13.319	0.06319	227.277	1931.78	0.03654
5027	380.792	13.318	0.06332	225.756	1931.60	0.03661
5028	380.063	13.319	0.06343	224.443	1931.69	0.03667
5029	381.940	6.690	0.05950	227.822	970.25	0.03440
5030	381.021	6.690	0.05972	226.168	970.25	0.03453
5031	380.229	6.692	0.05997	224.742	970.53	0.03467
5032	379.523	6.692	0.06008	223.471	970.62	0.03474
5033	382.068	2.760	0.05686	228.052	400.37	0.03288
5034	381.124	2.760	0.05718	226.353	400.28	0.03306
5035	380.277	2.760	0.05724	224.829	400.28	0.03310
5036	379.588	2.760	0.05747	223.588	400.37	0.03323
29001	382.543	0.913	0.01425	228.907	132.48	0.00824
29002	382.216	0.914	0.01405	228.319	132.51	0.00812
29003	381.900	0.914	0.01374	227.750	132.51	0.00794
29004	381.581	0.914	0.01333	227.176	132.53	0.00771
29005	382.638	0.835	0.01529	229.078	121.07	0.00884
29006	382.277	0.835	0.01525	228.429	121.11	0.00882
29007	381.947	0.835	0.01518	227.835	121.04	0.00878
29008	381.628	0.835	0.01527	227.260	121.06	0.00883
29009	382.730	0.718	0.01522	229.244	104.10	0.00880
29010	382.355	0.718	0.01528	228.569	104.15	0.00883
29011	382.042	0.718	0.01508	228.006	104.12	0.00872

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
30025	393.097	0.390	0.01603	247.905	56.53	0.00927
30026	392.738	0.389	0.01606	247.258	56.46	0.00929
30027	392.379	0.389	0.01614	246.612	56.42	0.00933
30028	392.066	0.388	0.01588	246.049	56.34	0.00918
30029	393.229	0.291	0.01627	248.142	42.20	0.00941
30030	392.803	0.290	0.01622	247.375	42.08	0.00938
30031	392.449	0.290	0.01637	246.738	42.01	0.00946
30032	392.113	0.290	0.01638	246.133	42.00	0.00947
30033	393.292	0.216	0.01658	248.256	31.27	0.00959
30035	392.874	0.215	0.01653	247.503	31.21	0.00956
30035	392.488	0.214	0.01649	246.808	31.08	0.00953
30036	392.174	0.213	0.01644	246.243	30.95	0.00951
30037	393.469	0.106	0.01700	248.574	15.43	0.00983
30038	393.029	0.106	0.01701	247.782	15.41	0.00983
30039	392.654	0.106	0.01709	247.107	15.37	0.00988
30040	392.280	0.106	0.01704	246.434	15.43	0.00985
6001	402.024	67.179	0.08114	263.973	9743.53	0.04691
6002	401.157	67.166	0.08109	262.413	9741.71	0.04688
6003	400.397	67.168	0.08100	261.045	9741.89	0.04683
6004	399.718	67.168	0.08113	259.822	9741.98	0.04691
6005	402.114	54.020	0.07647	264.135	7835.00	0.04421
6006	401.229	54.022	0.07660	262.542	7835.19	0.04429
6007	400.447	54.023	0.07663	261.135	7835.46	0.04431
6008	399.751	54.023	0.07691	259.882	7835.37	0.04447
6009	402.321	41.889	0.07239	264.508	6075.53	0.04185
6010	401.411	41.890	0.07242	262.870	6075.62	0.04187
6011	400.570	41.892	0.07239	261.356	6075.90	0.04185
6012	399.837	41.893	0.07258	260.037	6076.08	0.04196
6013	401.618	31.198	0.06826	263.242	4524.90	0.03947
6014	400.724	31.199	0.06858	261.633	4525.08	0.03965
6015	399.945	31.198	0.06810	260.231	4524.90	0.03937
6016	399.265	31.199	0.06845	259.007	4525.08	0.03958
6017	401.597	31.202	0.06849	263.205	4525.45	0.03960
6018	400.719	31.206	0.06848	261.624	4526.00	0.03959
6019	399.966	31.209	0.06822	260.269	4526.46	0.03944
6020	399.254	31.211	0.06840	258.987	4526.83	0.03955
6021	401.810	23.290	0.06468	263.588	3377.94	0.03740
6022	400.880	23.293	0.06472	261.914	3378.32	0.03742
6023	400.071	23.293	0.06480	260.458	3378.32	0.03747
6024	399.342	23.291	0.06520	259.146	3378.13	0.03770
6025	402.223	16.258	0.06110	264.331	2358.01	0.03533
6025	402.196	16.253	0.06111	264.283	2357.27	0.03533
6026	401.238	16.252	0.06131	262.558	2357.18	0.03545
6027	400.374	16.252	0.06131	261.003	2357.18	0.03545
6028	399.590	16.255	0.06158	259.592	2357.55	0.03560
6029	402.368	10.752	0.05825	264.592	1559.49	0.03368
6030	401.367	10.752	0.05822	262.791	1559.49	0.03366
6031	400.467	10.752	0.05843	261.171	1559.40	0.03378
6032	399.667	10.754	0.05844	259.731	1559.67	0.03379

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
6033	401.480	7.125	0.05573	262.994	1033.45	0.03222
6034	400.561	7.125	0.05601	261.349	1033.45	0.03238
6035	399.746	7.126	0.05618	259.873	1033.54	0.03248
6036	399.032	7.127	0.05632	258.588	1033.64	0.03256
6037	401.665	3.690	0.05322	263.327	535.19	0.03077
6038	400.710	3.690	0.05354	261.608	535.19	0.03096
6039	399.850	3.691	0.05360	260.060	535.28	0.03099
6040	399.115	3.692	0.05394	258.737	535.47	0.03119
6041	401.785	1.578	0.05170	263.543	228.85	0.02989
6042	400.792	1.579	0.05184	261.756	228.95	0.02997
6043	399.887	1.577	0.05204	260.127	228.76	0.03009
6044	399.150	1.578	0.05219	258.800	228.85	0.03018
31001	403.215	1.334	0.01693	266.117	193.55	0.00979
31002	402.906	1.335	0.01690	265.561	193.60	0.00977
31003	402.607	1.335	0.01685	265.023	193.69	0.00974
31004	402.317	1.336	0.01682	264.501	193.70	0.00972
31005	403.284	1.215	0.01682	266.241	176.21	0.00972
31006	402.969	1.215	0.01680	265.674	176.23	0.00971
31007	402.683	1.215	0.01674	265.159	176.24	0.00968
31008	402.387	1.215	0.01676	264.627	176.23	0.00969
31009	403.382	1.079	0.01668	266.418	156.54	0.00964
31010	403.050	1.079	0.01666	265.820	156.52	0.00963
31011	402.790	1.079	0.01658	265.352	156.51	0.00959
31012	402.475	1.079	0.01658	264.785	156.52	0.00959
31013	403.547	0.881	0.01658	266.715	127.78	0.00959
31014	403.186	0.881	0.01650	266.065	127.73	0.00954
31015	402.841	0.880	0.01643	265.444	127.70	0.00950
31016	402.551	0.880	0.01647	264.922	127.68	0.00952
31017	403.638	0.753	0.01657	266.878	109.28	0.00958
31018	403.288	0.753	0.01652	266.248	109.22	0.00955
31019	402.945	0.753	0.01649	265.631	109.20	0.00953
31020	402.615	0.753	0.01645	265.037	109.15	0.00951
31021	403.323	0.638	0.01663	266.311	92.48	0.00962
31022	402.993	0.637	0.01655	265.717	92.43	0.00957
31023	402.656	0.637	0.01654	265.111	92.44	0.00956
31024	402.380	0.637	0.01652	264.614	92.43	0.00955
31025	403.420	0.502	0.01662	266.486	72.87	0.00961
31026	403.090	0.502	0.01665	265.892	72.79	0.00963
31027	402.745	0.501	0.01666	265.271	72.71	0.00963
31028	402.437	0.501	0.01662	264.717	72.68	0.00961
31029	403.517	0.385	0.01684	266.661	55.81	0.00974
31030	403.163	0.385	0.01686	266.023	55.77	0.00975
31031	402.829	0.384	0.01698	265.422	55.75	0.00982
31032	402.493	0.384	0.01677	264.817	55.72	0.00970
31033	403.611	0.273	0.01716	266.830	39.55	0.00992
31034	403.256	0.272	0.01716	266.191	39.50	0.00992
31035	402.933	0.273	0.01724	265.609	39.54	0.00997
31036	402.559	0.272	0.01711	264.936	39.44	0.00989
31037	403.839	0.132	0.01789	267.240	19.11	0.01034

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
31038	403.433	0.131	0.01787	266.509	19.03	0.01033
31039	403.060	0.131	0.01784	265.838	18.97	0.01031
31040	402.717	0.130	0.01791	265.221	18.91	0.01036
32001	411.953	1.585	0.01820	281.845	229.87	0.01052
32002	411.702	1.584	0.01839	281.394	229.70	0.01063
32003	411.472	1.583	0.01811	280.980	229.63	0.01047
32004	411.242	1.583	0.01807	280.566	229.60	0.01045
32005	412.078	1.451	0.01818	282.070	210.46	0.01051
32006	411.796	1.451	0.01796	281.563	210.45	0.01038
32007	411.560	1.451	0.01799	281.138	210.46	0.01040
32008	411.314	1.451	0.01783	280.695	210.46	0.01031
32000	412.174	1.299	0.01784	282.243	188.38	0.01031
32009	412.185	1.299	0.01763	282.263	188.35	0.01019
32010	411.918	1.299	0.01745	281.782	188.38	0.01009
32011	411.643	1.299	0.01776	281.287	188.38	0.01027
32012	411.400	1.299	0.01750	280.850	188.38	0.01012
32013	412.306	1.150	0.01746	282.481	166.75	0.01010
32014	411.992	1.150	0.01748	281.916	166.79	0.01011
32015	411.718	1.150	0.01746	281.422	166.79	0.01010
32016	411.470	1.150	0.01731	280.976	166.79	0.01001
32017	412.413	0.997	0.01735	282.673	144.61	0.01003
32018	412.109	0.998	0.01745	282.126	144.75	0.01009
32019	411.815	0.999	0.01733	281.597	144.93	0.01002
32020	411.556	1.000	0.01729	281.131	145.00	0.01000
32021	412.508	0.823	0.01729	282.844	119.30	0.01000
32022	412.194	0.822	0.01727	282.279	119.23	0.00999
32023	411.901	0.822	0.01724	281.752	119.16	0.00997
32024	411.600	0.821	0.01722	281.210	119.14	0.00996
32025	412.592	0.649	0.01731	282.996	94.17	0.01001
32026	412.278	0.649	0.01736	282.430	94.11	0.01004
32027	411.978	0.648	0.01744	281.890	94.03	0.01008
32028	411.688	0.648	0.01731	281.368	94.01	0.01001
32029	412.721	0.497	0.01735	283.228	72.13	0.01003
32030	412.402	0.496	0.01754	282.654	72.01	0.01014
32031	412.063	0.496	0.01745	282.043	71.94	0.01009
32032	411.786	0.495	0.01737	281.545	71.84	0.01004
32033	412.836	0.371	0.01765	283.435	53.80	0.01020
32034	412.495	0.370	0.01773	282.821	53.70	0.01025
32035	412.165	0.370	0.01768	282.227	53.65	0.01022
32036	411.847	0.370	0.01762	281.655	53.69	0.01019
32037	412.997	0.221	0.01811	283.725	32.08	0.01047
32038	412.631	0.221	0.01815	283.066	32.00	0.01049
32039	412.262	0.220	0.01821	282.402	31.91	0.01053
32040	411.954	0.220	0.01826	281.847	31.96	0.01056
32041	413.197	0.119	0.01879	284.085	17.29	0.01086
32042	412.805	0.121	0.01854	283.379	17.50	0.01072
32043	412.439	0.124	0.01880	282.720	17.94	0.01087
32044	412.073	0.125	0.01875	282.061	18.08	0.01084
42001	423.161	69.189	0.08065	302.020	10035.06	0.04663

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
42002	422.751	69.186	0.08066	301.282	10034.56	0.04664
42003	422.373	69.186	0.08070	300.601	10034.56	0.04666
42004	422.030	69.179	0.08064	299.984	10033.59	0.04662
42005	423.072	55.832	0.07572	301.860	8097.77	0.04378
42006	422.638	55.835	0.07570	301.078	8098.17	0.04377
42007	422.248	55.838	0.07555	300.376	8098.61	0.04368
42008	421.892	55.842	0.07584	299.736	8099.25	0.04385
42009	423.046	45.258	0.07187	301.813	6564.09	0.04155
42010	422.601	45.262	0.07169	301.012	6564.79	0.04145
42011	422.191	45.269	0.07169	300.274	6565.77	0.04145
42012	421.817	45.272	0.07166	299.601	6566.24	0.04143
42013	423.091	35.851	0.06704	301.894	5199.70	0.03876
42014	422.622	35.855	0.06698	301.050	5200.29	0.03873
42015	422.189	35.860	0.06723	300.270	5201.01	0.03887
42016	421.795	35.859	0.06685	299.561	5200.98	0.03865
42017	423.131	27.874	0.06322	301.966	4042.84	0.03655
42018	422.634	27.877	0.06327	301.071	4043.28	0.03658
42019	422.175	27.874	0.06311	300.245	4042.83	0.03649
42020	421.762	27.871	0.06318	299.502	4042.34	0.03653
42021	422.799	21.545	0.05981	301.368	3124.82	0.03458
42022	422.306	21.546	0.05992	300.481	3124.97	0.03464
42023	421.859	21.547	0.05971	299.676	3125.13	0.03452
42024	421.450	21.549	0.06000	298.940	3125.49	0.03469
42025	422.832	15.917	0.05662	301.428	2308.64	0.03274
42026	422.319	15.918	0.05668	300.504	2308.69	0.03277
42027	421.852	15.918	0.05652	299.664	2308.71	0.03268
42028	421.423	15.920	0.05662	298.891	2309.05	0.03274
42029	422.962	8.321	0.05151	301.662	1206.85	0.02978
42030	422.404	8.320	0.05148	300.657	1206.68	0.02976
42031	421.898	8.319	0.05165	299.746	1206.51	0.02986
42032	421.439	8.317	0.05166	298.920	1206.23	0.02987
42033	422.989	11.649	0.05390	301.710	1689.50	0.03116
42034	422.449	11.650	0.05387	300.738	1689.69	0.03115
42035	421.958	11.650	0.05391	299.854	1689.76	0.03117
42036	421.510	11.648	0.05397	299.048	1689.47	0.03120
42037	422.677	5.393	0.04915	301.149	782.16	0.02842
42038	422.119	5.393	0.04910	300.144	782.26	0.02839
42039	421.625	5.395	0.04918	299.255	782.52	0.02843
42040	421.180	5.396	0.04902	298.454	782.62	0.02834
42041	422.727	3.797	0.04762	301.239	550.73	0.02753
42042	422.168	3.798	0.04772	300.232	550.81	0.02759
42043	421.667	3.799	0.04761	299.331	551.05	0.02753
42044	421.205	3.800	0.04783	298.499	551.10	0.02765
42045	422.800	2.343	0.04608	301.370	339.86	0.02664
42046	422.225	2.344	0.04611	300.335	339.95	0.02666
42047	421.707	2.345	0.04606	299.403	340.05	0.02663
42048	421.239	2.345	0.04594	298.560	340.14	0.02656
33001	423.816	2.007	0.01890	303.199	291.10	0.01093
33002	423.513	2.009	0.01842	302.653	291.40	0.01065

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
43247	480.408	3.388	0.02519	405.064	491.32	0.01456
43248	479.934	3.388	0.02517	404.211	491.34	0.01455
43249	479.506	3.388	0.02518	403.441	491.38	0.01456
43250	480.821	3.213	0.02478	405.808	466.04	0.01433
43251	480.293	3.213	0.02472	404.857	466.00	0.01429
43252	479.819	3.213	0.02464	404.004	466.06	0.01425
43253	479.398	3.213	0.02448	403.246	466.00	0.01415
43254	480.893	3.046	0.02439	405.937	441.81	0.01410
43255	480.356	3.046	0.02439	404.971	441.80	0.01410
43256	479.873	3.046	0.02439	404.101	441.77	0.01410
43257	479.443	3.046	0.02438	403.327	441.76	0.01410
43258	480.949	2.880	0.02413	406.038	417.64	0.01395
43259	480.398	2.879	0.02407	405.046	417.58	0.01392
43260	479.901	2.879	0.02399	404.152	417.59	0.01387
43261	479.452	2.879	0.02393	403.344	417.57	0.01384
43262	481.024	2.650	0.02368	406.173	384.29	0.01369
43263	480.443	2.649	0.02365	405.127	384.24	0.01367
43264	479.935	2.649	0.02359	404.213	384.22	0.01364
43265	479.479	2.649	0.02350	403.392	384.23	0.01359
43266	480.851	2.445	0.02350	405.862	354.61	0.01359
43268	480.396	2.445	0.02330	405.043	354.57	0.01347
43270	479.988	2.445	0.02337	404.308	354.58	0.01351
43272	479.610	2.445	0.02325	403.628	354.60	0.01344
43274	480.909	2.257	0.02323	405.966	327.39	0.01343
43276	480.452	2.257	0.02325	405.144	327.31	0.01344
43278	480.019	2.257	0.02310	404.364	327.28	0.01336
43280	479.629	2.256	0.02313	403.662	327.24	0.01337
43282	481.020	1.950	0.02307	406.166	282.79	0.01334
43285	480.530	1.949	0.02291	405.284	282.66	0.01325
43288	480.082	1.948	0.02278	404.478	282.57	0.01317
43291	479.680	1.948	0.02266	403.754	282.56	0.01310
43294	481.069	1.661	0.02289	406.254	240.92	0.01323
43297	480.569	1.662	0.02280	405.354	241.00	0.01318
43300	480.108	1.662	0.02282	404.524	241.04	0.01319
43303	479.693	1.663	0.02265	403.777	241.15	0.01310
43306	480.892	1.430	0.02277	405.936	207.35	0.01317
43310	480.403	1.429	0.02281	405.055	207.32	0.01319
43314	479.951	1.429	0.02270	404.242	207.29	0.01312
43318	479.543	1.429	0.02275	403.507	207.30	0.01315
43322	480.850	0.814	0.02299	405.860	118.04	0.01329
43326	480.346	0.814	0.02305	404.953	118.10	0.01333
43330	479.883	0.815	0.02286	404.119	118.18	0.01322
43334	479.475	0.815	0.02292	403.385	118.20	0.01325
43338	481.390	0.156	0.02533	406.832	22.62	0.01465
43342	480.800	0.155	0.02525	405.770	22.45	0.01460
43346	480.254	0.154	0.02507	404.787	22.36	0.01449
43350	479.774	0.154	0.02515	403.923	22.28	0.01454

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
38019	430.542	2.105	0.01994	315.306	305.30	0.01153
38021	430.307	2.105	0.01988	314.883	305.30	0.01149
38023	430.090	2.105	0.01981	314.492	305.31	0.01145
38025	430.906	1.954	0.01936	315.961	283.34	0.01119
38027	430.651	1.954	0.01934	315.502	283.37	0.01118
38029	430.418	1.954	0.01930	315.082	283.37	0.01116
38031	430.183	1.954	0.01938	314.659	283.41	0.01121
38033	430.998	1.818	0.01915	316.126	263.61	0.01107
38035	430.742	1.818	0.01901	315.666	263.61	0.01099
38037	430.495	1.818	0.01903	315.221	263.65	0.01100
38039	430.260	1.818	0.01888	314.798	263.66	0.01092
38041	431.116	1.619	0.01873	316.339	234.88	0.01083
38043	430.838	1.619	0.01879	315.838	234.82	0.01086
38045	430.584	1.618	0.01870	315.381	234.69	0.01081
38047	430.338	1.617	0.01853	314.938	234.59	0.01071
38049	431.260	1.386	0.01841	316.598	201.04	0.01064
38051	430.975	1.386	0.01844	316.085	200.99	0.01066
38053	430.707	1.386	0.01837	315.603	201.01	0.01062
38055	430.447	1.386	0.01824	315.135	201.00	0.01055
38057	431.052	1.187	0.01831	316.224	172.13	0.01059
38059	430.772	1.131	0.01827	315.720	171.26	0.01056
38061	430.514	1.175	0.01831	315.255	170.41	0.01059
38063	430.259	1.169	0.01838	314.796	169.57	0.01063
38065	431.049	1.078	0.01824	316.218	156.42	0.01055
38067	430.764	1.079	0.01825	315.705	156.48	0.01055
38069	430.492	1.079	0.01814	315.216	156.54	0.01049
38071	430.233	1.079	0.01830	314.749	156.55	0.01058
38073	431.144	0.906	0.01835	316.389	131.36	0.01061
38075	430.851	0.906	0.01823	315.862	131.37	0.01054
38077	430.571	0.905	0.01822	315.358	131.31	0.01053
38079	430.302	0.905	0.01811	314.874	131.31	0.01047
38081	431.243	0.688	0.01844	316.567	99.72	0.01066
38083	430.948	0.677	0.01847	316.036	98.23	0.01068
38085	430.665	0.668	0.01823	315.527	96.90	0.01054
38087	430.389	0.659	0.01846	315.030	95.61	0.01067
38089	431.371	0.510	0.01855	316.798	73.99	0.01073
38091	431.055	0.510	0.01860	316.229	73.99	0.01075
38093	430.751	0.510	0.01843	315.682	73.97	0.01066
38095	430.467	0.510	0.01861	315.171	73.96	0.01076
38097	431.542	0.299	0.01921	317.106	43.31	0.01111
38099	431.205	0.299	0.01924	316.499	43.30	0.01112
38101	430.887	0.299	0.01904	315.927	43.30	0.01101
38103	430.588	0.298	0.01908	315.388	43.28	0.01103
38105	431.406	0.143	0.01998	316.861	20.76	0.01155
38107	431.066	0.142	0.01993	316.249	20.61	0.01152
38109	430.743	0.142	0.01989	315.667	20.53	0.01150
38111	430.442	0.141	0.01984	315.126	20.44	0.01147
38113	430.618	2.287	0.02153	315.442	331.67	0.01245
38115	430.378	2.287	0.02146	315.010	331.77	0.01241

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
38117	430.157	2.288	0.02138	314.613	331.84	0.01236
38119	429.940	2.288	0.02106	314.222	331.90	0.01218
38121	430.803	2.124	0.02003	315.775	308.12	0.01158
38123	430.563	2.123	0.02007	315.343	307.93	0.01160
38125	430.332	2.122	0.01998	314.928	307.78	0.01155
38127	430.107	2.121	0.01997	314.523	307.66	0.01155
38129	430.718	1.959	0.01954	315.622	284.19	0.01130
38131	430.466	1.960	0.01935	315.169	284.25	0.01119
38133	430.235	1.959	0.01946	314.753	284.19	0.01125
38135	430.005	1.960	0.01935	314.339	284.25	0.01119
38137	430.820	1.832	0.01914	315.806	265.76	0.01107
38139	430.560	1.832	0.01904	315.338	265.76	0.01101
38141	430.314	1.833	0.01894	314.895	265.79	0.01095
38143	430.089	1.832	0.01897	314.490	265.77	0.01097
38145	430.923	1.680	0.01885	315.991	243.73	0.01090
38147	430.656	1.681	0.01883	315.511	243.76	0.01089
38149	430.404	1.681	0.01879	315.057	243.75	0.01086
38151	430.159	1.681	0.01886	314.616	243.75	0.01090
38153	430.995	1.556	0.01861	316.121	225.74	0.01076
38155	430.715	1.556	0.01865	315.617	225.65	0.01078
38157	430.457	1.556	0.01849	315.153	225.66	0.01069
38159	430.212	1.556	0.01860	314.712	225.69	0.01075
38161	431.080	1.393	0.01843	316.274	202.00	0.01066
38163	430.796	1.392	0.01848	315.763	201.91	0.01068
38165	430.520	1.392	0.01845	315.266	201.93	0.01067
38167	430.269	1.392	0.01836	314.814	201.93	0.01062
40002	444.924	68.492	0.07808	341.193	9934.01	0.04514
40003	444.474	68.485	0.07808	340.383	9932.97	0.04514
40004	444.045	68.479	0.07816	339.611	9932.12	0.04519
40005	445.526	57.608	0.07388	342.277	8355.38	0.04272
40006	445.009	57.606	0.07394	341.346	8355.01	0.04275
40007	444.528	57.603	0.07398	340.480	8354.68	0.04277
40008	444.096	57.601	0.07395	339.703	8354.40	0.04276
40009	445.662	46.977	0.06963	342.522	6813.51	0.04026
40010	445.128	46.979	0.06957	341.560	6813.68	0.04022
40011	444.636	46.978	0.06962	340.675	6813.64	0.04025
40012	444.179	46.978	0.06974	339.852	6813.58	0.04032
40013	445.841	37.614	0.06551	342.844	5455.46	0.03788
40014	445.284	37.615	0.06570	341.841	5455.61	0.03799
40015	444.762	37.617	0.06556	340.902	5455.85	0.03791
40016	444.284	37.618	0.06577	340.041	5456.11	0.03803
40017	445.180	30.594	0.06234	341.654	4437.23	0.03604
40018	444.654	30.592	0.06235	340.707	4437.04	0.03605
40019	444.170	30.591	0.06249	339.836	4436.82	0.03613
40020	443.728	30.591	0.06239	339.040	4436.88	0.03607
40021	445.318	23.886	0.05892	341.902	3464.45	0.03407
40022	444.766	23.887	0.05904	340.909	3464.60	0.03414
40023	444.262	23.889	0.05893	340.002	3464.80	0.03407
40024	443.800	23.890	0.05905	339.170	3464.94	0.03414

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Transient Hot-Wire Thermal Conductivity Data For R123 (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)
40025	444.694	19.680	0.05650	340.779	2854.28	0.03267
40026	444.188	19.681	0.05652	339.868	2854.51	0.03268
40027	443.723	19.681	0.05663	339.031	2854.52	0.03274
40028	443.306	19.681	0.05659	338.281	2854.54	0.03272
40029	444.786	15.411	0.05409	340.945	2235.22	0.03127
40030	444.259	15.412	0.05391	339.996	2235.35	0.03117
40031	443.774	15.414	0.05403	339.123	2235.64	0.03124
40032	443.349	15.415	0.05410	338.358	2235.72	0.03128
40033	444.904	11.817	0.05137	341.157	1713.91	0.02970
40034	444.351	11.818	0.05138	340.162	1714.03	0.02971
40035	443.856	11.819	0.05155	339.271	1714.20	0.02981
40036	443.408	11.820	0.05135	338.464	1714.31	0.02969
40037	445.009	8.932	0.04909	341.346	1295.50	0.02838
40038	444.434	8.933	0.04903	340.311	1295.57	0.02835
40039	443.919	8.933	0.04920	339.384	1295.61	0.02845
40040	443.449	8.933	0.04918	338.538	1295.69	0.02843
40041	444.687	6.961	0.04726	340.767	1009.59	0.02732
40042	444.134	6.961	0.04736	339.771	1009.57	0.02738
40043	443.642	6.962	0.04729	338.886	1009.70	0.02734
40044	443.196	6.962	0.04744	338.083	1009.79	0.02743
40045	444.770	5.550	0.04579	340.916	804.98	0.02647
40046	444.208	5.550	0.04577	339.904	805.03	0.02646
40047	443.694	5.551	0.04593	338.979	805.07	0.02656
40048	443.240	5.551	0.04607	338.162	805.12	0.02664
40049	444.827	4.357	0.04439	341.019	631.90	0.02567
40050	444.250	4.357	0.04430	339.980	631.89	0.02561
40051	443.727	4.356	0.04433	339.039	631.84	0.02563
40052	443.264	4.357	0.04453	338.205	631.93	0.02575
40053	444.869	3.319	0.04298	341.094	481.45	0.02485
40054	444.281	3.319	0.04285	340.036	481.42	0.02478
40055	443.747	3.320	0.04281	339.075	481.47	0.02475
40056	443.274	3.320	0.04291	338.223	481.55	0.02481
44009	442.552	2.797	0.02335	336.924	405.74	0.01350
44011	442.382	2.798	0.02330	336.618	405.75	0.01347
44013	442.220	2.797	0.02327	336.326	405.71	0.01345
44015	442.062	2.798	0.02322	336.042	405.77	0.01343
44017	442.651	2.753	0.02299	337.102	399.30	0.01329
44019	442.480	2.753	0.02286	336.794	399.23	0.01322
44021	442.309	2.753	0.02293	336.486	399.27	0.01326
44023	442.149	2.753	0.02291	336.198	399.32	0.01325
44025	442.513	2.722	0.02270	336.853	394.79	0.01312
44027	442.337	2.722	0.02260	336.537	394.75	0.01307
44029	442.169	2.722	0.02269	336.234	394.74	0.01312
44031	442.016	2.722	0.02251	335.959	394.73	0.01301
44033	442.544	2.679	0.02235	336.909	388.56	0.01292
44035	442.364	2.679	0.02234	336.585	388.60	0.01292
44037	442.204	2.679	0.02245	336.297	388.60	0.01298
44039	442.048	2.679	0.02235	336.016	388.58	0.01292
44041	442.577	2.623	0.02211	336.969	380.50	0.01278

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
44043	442.386	2.623	0.02198	336.625	380.47	0.01271
44045	442.217	2.623	0.02212	336.321	380.44	0.01279
44047	442.055	2.623	0.02206	336.029	380.43	0.01275
44049	442.588	2.578	0.02188	336.988	373.98	0.01265
44051	442.404	2.578	0.02167	336.657	373.98	0.01253
44053	442.223	2.578	0.02178	336.331	373.96	0.01259
44055	442.040	2.578	0.02165	336.002	373.95	0.01252
44057	442.664	2.531	0.02163	337.125	367.07	0.01251
44059	442.473	2.531	0.02150	336.781	367.07	0.01243
44061	442.289	2.531	0.02152	336.450	367.11	0.01244
44063	442.129	2.531	0.02171	336.162	367.09	0.01255
44065	442.512	2.472	0.02134	336.852	358.53	0.01234
44067	442.329	2.472	0.02146	336.522	358.58	0.01241
44069	442.152	2.472	0.02135	336.204	358.57	0.01234
44071	442.005	2.472	0.02164	335.939	358.60	0.01251
44073	442.562	2.419	0.02113	336.942	350.92	0.01222
44075	442.359	2.420	0.02131	336.576	350.95	0.01232
44077	442.192	2.420	0.02113	336.276	350.99	0.01222
44079	442.017	2.420	0.02120	335.961	351.01	0.01226
44081	442.592	2.357	0.02093	336.996	341.85	0.01210
44083	442.404	2.357	0.02110	336.657	341.88	0.01220
44085	442.222	2.357	0.02101	336.330	341.90	0.01215
44087	442.054	2.358	0.02094	336.027	341.93	0.01211
44089	442.626	2.301	0.02082	337.057	333.70	0.01204
44091	442.431	2.302	0.02067	336.706	333.84	0.01195
44093	442.243	2.303	0.02068	336.367	333.96	0.01196
44095	442.066	2.304	0.02052	336.049	334.10	0.01186
44097	442.642	2.208	0.02053	337.086	320.21	0.01187
44099	442.451	2.208	0.02058	336.742	320.25	0.01190
44101	442.253	2.209	0.02038	336.385	320.35	0.01178
44103	442.085	2.209	0.02036	336.083	320.39	0.01177
44105	442.254	2.147	0.02027	336.387	311.38	0.01172
44107	442.081	2.146	0.02040	336.076	311.31	0.01179
44109	441.906	2.146	0.02015	335.761	311.30	0.01165
44111	441.748	2.146	0.02002	335.476	311.29	0.01158
39090	444.265	2.186	0.02068	340.007	317.04	0.01196
39092	444.140	2.186	0.02063	339.782	317.03	0.01193
39094	444.012	2.186	0.02062	339.552	317.04	0.01192
39096	444.427	2.114	0.02045	340.299	306.63	0.01182
39098	444.295	2.114	0.02052	340.061	306.62	0.01186
39100	444.166	2.114	0.02053	339.829	306.62	0.01187
39102	444.038	2.115	0.02044	339.598	306.69	0.01182
39104	444.490	2.011	0.02025	340.412	291.66	0.01171
39106	444.355	2.011	0.02026	340.169	291.67	0.01171
39108	444.225	2.011	0.02027	339.935	291.67	0.01172
39110	444.095	2.011	0.02026	339.701	291.65	0.01171
39112	444.540	1.921	0.02010	340.502	278.55	0.01162
39114	444.394	1.920	0.02006	340.239	278.50	0.01160
39116	444.261	1.920	0.02007	340.000	278.44	0.01160

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
39118	444.130	1.920	0.02005	339.764	278.45	0.01159
39120	444.301	1.804	0.01991	340.072	261.66	0.01151
39122	444.037	1.804	0.01994	339.597	261.66	0.01153
39124	443.787	1.804	0.01982	339.147	261.65	0.01146
39126	443.553	1.804	0.01986	338.725	261.59	0.01148
39128	444.340	1.687	0.01973	340.142	244.65	0.01141
39130	444.071	1.687	0.01978	339.658	244.63	0.01144
39132	443.814	1.686	0.01981	339.195	244.55	0.01145
39134	443.572	1.686	0.01964	338.760	244.58	0.01136
39136	444.366	1.594	0.01960	340.189	231.19	0.01133
39138	444.095	1.594	0.01957	339.701	231.16	0.01131
39140	443.839	1.594	0.01961	339.240	231.13	0.01134
39142	443.584	1.594	0.01968	338.781	231.12	0.01138
39144	444.441	1.444	0.01956	340.324	209.37	0.01131
39146	444.161	1.443	0.01960	339.820	209.34	0.01133
39148	443.899	1.443	0.01950	339.348	209.34	0.01127
39150	443.645	1.443	0.01933	338.891	209.35	0.01118
39152	444.488	1.322	0.01948	340.408	191.76	0.01126
39154	444.209	1.322	0.01952	339.906	191.80	0.01129
39156	443.940	1.322	0.01947	339.422	191.77	0.01126
39158	443.681	1.322	0.01940	338.956	191.75	0.01122
39160	444.252	1.194	0.01952	339.984	173.17	0.01129
39162	443.975	1.193	0.01926	339.485	173.06	0.01114
39164	443.715	1.193	0.01949	339.017	173.00	0.01127
39166	443.463	1.193	0.01945	338.563	172.96	0.01125
39168	444.320	0.992	0.01950	340.106	143.95	0.01127
39170	444.042	0.992	0.01946	339.606	143.85	0.01125
39172	443.771	0.992	0.01958	339.118	143.82	0.01132
39174	443.515	0.991	0.01952	338.657	143.77	0.01129
39176	444.391	0.821	0.01960	340.234	119.09	0.01133
39178	444.102	0.821	0.01953	339.714	119.01	0.01129
39180	443.816	0.820	0.01944	339.199	118.96	0.01124
39182	443.560	0.820	0.01962	338.738	118.93	0.01134
39184	444.156	0.681	0.01956	339.811	98.74	0.01131
39186	443.863	0.681	0.01970	339.283	98.71	0.01139
39188	443.592	0.680	0.01958	338.796	98.67	0.01132
39190	443.344	0.680	0.01967	338.349	98.64	0.01137
39192	444.232	0.517	0.01985	339.948	74.99	0.01148
39194	443.941	0.516	0.01987	339.424	74.86	0.01149
39196	443.659	0.516	0.01972	338.916	74.79	0.01140
39198	443.394	0.515	0.01968	338.439	74.74	0.01138
39200	444.343	0.348	0.02042	340.147	50.47	0.01181
39202	444.034	0.347	0.01995	339.591	50.40	0.01153
39204	443.747	0.347	0.02013	339.075	50.33	0.01164
39206	443.464	0.347	0.02007	338.565	50.30	0.01160
39208	444.587	0.126	0.02158	340.587	18.33	0.01248
39210	444.254	0.125	0.02140	339.987	18.14	0.01237
39212	443.938	0.124	0.02153	339.418	18.03	0.01245
39214	443.640	0.123	0.02142	338.882	17.91	0.01238

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

Transient Hot-Wire Thermal Conductivity Data For R123 (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)
43100	479.487	5.890	0.04046	403.407	854.21	0.02339
43101	479.135	5.890	0.04082	402.773	854.27	0.02360
43102	480.351	5.796	0.04067	404.962	840.57	0.02351
43103	479.885	5.796	0.04055	404.123	840.59	0.02345
43104	479.483	5.795	0.04040	403.399	840.54	0.02336
43105	479.140	5.795	0.04053	402.782	840.51	0.02343
43106	480.346	5.699	0.04057	404.953	826.54	0.02346
43107	479.889	5.699	0.04027	404.130	826.59	0.02328
43108	479.475	5.699	0.04011	403.385	826.55	0.02319
43109	479.127	5.699	0.04048	402.759	826.61	0.02340
43110	480.331	5.623	0.04043	404.926	815.51	0.02338
43111	479.876	5.622	0.04044	404.107	815.46	0.02338
43112	479.463	5.622	0.04004	403.363	815.45	0.02315
43113	479.120	5.622	0.04042	402.746	815.40	0.02337
43114	480.346	5.548	0.04037	404.953	804.61	0.02334
43115	479.883	5.548	0.04018	404.119	804.61	0.02323
43116	479.475	5.548	0.04013	403.385	804.63	0.02320
43117	479.122	5.548	0.03998	402.750	804.62	0.02312
43118	480.234	5.465	0.04051	404.751	792.58	0.02342
43119	479.771	5.465	0.04034	403.918	792.62	0.02332
43120	479.367	5.465	0.04008	403.191	792.60	0.02317
43121	479.004	5.465	0.03997	402.537	792.61	0.02311
43122	480.254	5.420	0.04052	404.787	786.09	0.02343
43123	479.794	5.420	0.04003	403.959	786.11	0.02314
43124	479.390	5.420	0.03970	403.232	786.08	0.02295
43125	479.033	5.420	0.03984	402.589	786.06	0.02303
43126	480.266	5.359	0.04035	404.809	777.27	0.02333
43127	479.802	5.359	0.03998	403.974	777.27	0.02312
43128	479.389	5.359	0.03982	403.230	777.32	0.02302
43129	479.041	5.360	0.03992	402.604	777.34	0.02308
43130	480.291	5.316	0.04039	404.854	771.06	0.02335
43131	479.821	5.316	0.03991	404.008	771.07	0.02308
43132	479.414	5.316	0.03975	403.275	771.08	0.02298
43133	479.058	5.316	0.03979	402.634	771.08	0.02301
43134	480.294	5.271	0.04038	404.859	764.56	0.02335
43135	479.826	5.271	0.03982	404.017	764.54	0.02302
43136	479.424	5.271	0.03963	403.293	764.55	0.02291
43137	479.072	5.271	0.03944	402.660	764.55	0.02280
43138	480.303	5.224	0.04030	404.875	757.64	0.02330
43139	479.843	5.224	0.03978	404.047	757.64	0.02300
43140	479.429	5.224	0.03939	403.302	757.66	0.02277
43141	479.064	5.224	0.03960	402.645	757.66	0.02290
43142	480.178	5.183	0.04002	404.650	751.77	0.02314
43143	479.783	5.183	0.03969	403.939	751.77	0.02295
43144	479.433	5.183	0.03929	403.309	751.80	0.02272
43145	479.125	5.183	0.03933	402.755	751.76	0.02274
43146	480.180	5.147	0.04013	404.654	746.51	0.02320
43147	479.788	5.147	0.03958	403.948	746.51	0.02288
43148	479.429	5.147	0.03926	403.302	746.50	0.02270

Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

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Transient Hot-Wire Thermal Conductivity Data For R123 (Continued)

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

END

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