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

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

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ABSTRACT

Numerous fluids have been identified as promising alternative refrigerants, but much of the information needed to predict their behavior as pure fluids and as components in mixtures does not exist. In particular, reliable thermophysical properties data and models are needed to predict the performance of the new refrigerants in heating and cooling equipment and to design and optimize equipment to be reliable and energy efficient. The objective of this project is to provide highly accurate, selected thermophysical properties data for refrigerants HFC-143a (CH_3CF_3) and HFC-152a (CH_3CHF_2) and to use these data to fit complex equations of state and detailed transport property models. The new data will fill gaps in the existing data sets and resolve problems and uncertainties that exist in and between the data sets. **This report describes progress during the fourth quarter of this fifteen-month project, which was initiated on April 1, 1993.**

SCOPE

This project involves selected measurements of the thermodynamic properties of HFC-143a and HFC-152a and the development of high-accuracy modified Benedict-Webb-Rubin (MBWR) equations of state for each fluid. It also includes selected measurements of the transport properties (viscosity and thermal conductivity) of both HFC-143a and HFC-152a and the development of detailed correlations for same. The experimental thermodynamic property measurements will include, as appropriate, accurate determinations of the critical temperature, pressure, and density; vapor pressures and saturated densities; vapor-phase speed of sound and ideal-gas heat capacity; pressure-volume-temperature (PVT) behavior of the superheated vapor and compressed liquid; and isochoric heat capacity in the liquid and two-phase regions. The experimental transport property measurements will cover the one-phase and saturated liquid and vapor states over the temperature range of interest. Efforts during this fourth quarter focused on the development of MBWR equations of state for HFC-143a and HFC-152a; thermal conductivity measurements on HFC-143a and HFC-152a; and measurements of the speed of sound and the critical point parameters for HFC-143a.

HFC-143a

A cylindrical acoustic resonator has been used to measure the speed of sound (u) in HFC-143a along isotherms from 235.0 to 400.0 K (-36.7 to 260.3°F) at pressures between 40 and 1000 kPa (6 to 145.0 psia). The results are given in Table 1. The quantity $\delta u/u$ is the estimated fractional error in u . The ideal-gas heat capacity, C_p° , of HFC-143a has been obtained by analyzing the speed of sound measurements at low pressures. The results are given in Table 2. The following expressions for C_p° were obtained by fitting the data in Table 2.

$$C_p^\circ/R = a_0 + a_1T + a_2T^2 + a_3T^3$$

where

SI UNITS

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

PI UNITS

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

The second, third, and fourth acoustic virial coefficients (β_a , γ_a , δ_a) have been obtained by analyzing the pressure dependence of the speed of sound. The results are given in Table 3.

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

A 32-term MBWR equation of state for HFC-143a has been developed. It is valid at temperatures from 180 K (-136°F) to 400 K (260°F), and appears to be reasonable upon

extrapolation down to the triple point temperature of 162 K (-168°F) and up to a temperature of 500 K (440°F). The maximum pressure for the equation is 40 MPa (5800 psia), and it appears to be reasonable upon extrapolation up to 100 MPa (14500 psia). This equation was fit using a multiparameter linear least squares routine to the data measured under this contract. Data used in the fit include vapor pressures, saturated liquid and vapor densities, liquid- and-vapor phase pressure-volume-temperature (PVT) and speed-of-sound data, virial coefficients, and isochoric heat capacities at saturation and in the single-phase liquid. Table 4 gives the coefficients to the equation of state; Tables 5 and 6 give the critical parameters and the coefficients to the auxiliary ideal gas heat capacity equation. The ideal gas heat capacity equation is based on the C_p° determined in this work combined with selected literature data to extend the temperature range. This MBWR equation of state will be incorporated into a future version of the REFPROP computer package. Table 7 tabulates the saturation properties calculated with the equation of state.

Figure 1 shows the deviations of the equation of state with ancillary equations for the vapor pressure and saturated liquid and vapor densities. The fits of the vapor pressure and saturated liquid density are very good with maximum deviations of 0.21% for the vapor pressure near the triple point and 0.29% for the saturated liquid density near the critical point; the deviations are less than 0.1% over the temperature range of interest for refrigeration applications. The deviations for the saturated vapor density are higher, with deviations exceeding 1.5% within 5 K (9°F) of the critical point. This is not of great concern: there are few experimental saturated vapor density data points on which to base the saturation boundary, and thus, mostly calculated points were used. The saturated vapor density was given low weight in the MBWR fit.

Figures 2 and 3 show the deviations of the values calculated with the equation of state compared to the experimental PVT and heat capacity data used in the fit. Again the fit is very good. The RMS (root mean square) deviation of the PVT data is 0.05%. The RMS deviation of the heat capacity data is 1.2%, about twice the uncertainty in the experimental data.

The low-temperature and high-temperature transient hot-wire thermal conductivity instruments have been used to measure the thermal conductivity of HFC-143a at 1111 points. Liquid-phase data have been obtained in the temperature range from 190 to 340 K (-118 to 152°F) at pressures from the saturated vapor pressure to 71.7 MPa (10,400 psi). Vapor-phase data have been obtained from 190 to 340 K (-118 to 152°F). Supercritical data have been obtained at 370 K (206°F). The results of the analysis of the 1111 transient hot-wire measurements are given in Table 8. A plot of the entire thermal conductivity surface is provided for reference in Figure 4. A correlation of the thermal conductivity data for HFC-143a will be presented in the next progress report.

HFC-152a

A new 32-term MBWR equation of state for HFC-152a has been developed. This equation represents the final fit; the coefficients have been revised from the preliminary values reported in the January, 1994 progress report reflecting improvements and refinements in the fit. This MBWR equation of state will be incorporated into a future version of the REFPROP computer package. It is valid at temperatures from the triple point of 155 K (-181 °F) to 450 K (350 °F), and appears to be reasonable upon extrapolation up to 500 K (440 °F). The maximum pressure for the equation is 40 MPa (5800 psia), and it appears to be reasonable upon extrapolation up to 100 MPa (14500 psia). This equation was fit, using a multiparameter linear least squares routine, to the data measured under this contract as well as selected data reported in the literature. Data used in the fit include vapor pressures, saturated liquid and vapor densities, liquid- and vapor-phase pressure-volume-temperature (PVT) and speed-of-sound data, virial coefficients, and isochoric heat capacities at saturation and in the single-phase liquid. Table 9 gives the coefficients to the equation of state; Tables 10 and 11 give the critical parameters and the coefficients to the auxiliary ideal gas heat capacity equation. The ideal gas heat capacity equation is based on the C_p^o measured in this work combined with selected literature data to extend the temperature range. Table 12 tabulates the saturation properties calculated with the equation of state.

Figure 5 shows the deviation of the equation of state with ancillary equations for the vapor pressure and saturated liquid and vapor densities. The fits of the vapor pressure and saturated liquid density are very good with maximum deviations of 0.23% for vapor pressure near the triple point and 0.14% for the saturated liquid density near the critical point; the deviations are less than 0.1% over the temperature range of interest for refrigeration applications. The deviations for the saturated vapor density are higher, with a maximum of 1.42% near the critical point. This is not of great concern: there are few experimental saturated vapor density data points on which to base the saturation boundary, and thus, mostly calculated points were used. The saturated vapor density was given low weight in the MBWR fit.

Figures 6 and 7 show the deviations of the values calculated with the equation of state compared to the experimental PVT and heat capacity data used in the fit. Again the fit is very good. The RMS (root mean square) deviation of the PVT data is 0.03%. The RMS deviation of the heat capacity data is 1.7%, about twice the uncertainty in the experimental data.

The low-temperature and high-temperature transient hot-wire thermal conductivity instruments have been used to measure the thermal conductivity of HFC-152a at 1470 points. Liquid-phase data have been obtained in the temperature range from 195 to 370 K (-109 to 206°F) at pressures from the saturated vapor pressure to 71.7 MPa (10,400 psi). Vapor-phase data have been obtained from 225 to 375 K (-55 to 215°F). Supercritical data have been obtained at 410 K (278°F). The results of the analysis of the 1470 transient hot-wire measurements are given in Table 13. A plot of the entire thermal conductivity surface is provided for reference in Figure 8. A correlation of the thermal conductivity data for HFC-152a will be presented in the next progress report.

Figure 1. Deviations of the MBWR equation of state for HFC-143a from ancillary equations for vapor pressure, saturated liquid density, and saturated vapor density.

Figure 2. Deviations of the MBWR equation of state for HFC-143a from experimental pressure-volume-temperature (PVT) data used in the fit.

Figure 3. Deviations of the MBWR equation of state for HFC-143a from experimental isochoric heat capacity data at saturation and in the single-phase liquid region used in the fit.

Figure 4. Thermal conductivity surface for HFC-143a.

Figure 5. Deviations of the MBWR equation of state for HFC-152a from ancillary equations for vapor pressure, saturated liquid density, and saturated vapor density.

Figure 6. Deviations of the MBWR equation of state for HFC-152a from experimental pressure-volume-temperature (PVT) data used in the fit.

Figure 7. Deviations of the MBWR equation of state for HFC-152a from experimental isochoric heat capacity data at saturation and in the single-phase liquid region used in the fit.

Figure 8. Thermal conductivity surface for HFC-152a.

APPENDIX A:
TABLES OF THERMOPHYSICAL PROPERTIES DATA

Table 1. Speed of Sound for HFC-143a.

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

Table 1. Speed of Sound for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	10 ⁶ δu/u
		102.227	14.827	163.6375	536.8684	29.2
		102.220	14.826	163.6334	536.8550	37.7
		95.520	13.854	163.9132	537.7729	30.7
		89.016	12.911	164.1805	538.6499	20.5
		82.757	12.003	164.4358	539.4875	15.9
		75.591	10.964	164.7250	540.4364	25.7
		67.579	9.802	165.0505	541.5043	26.4
		60.445	8.767	165.3380	542.4475	10.3
		55.574	8.060	165.5367	543.0994	1.9
		47.417	6.877	165.8611	544.1637	2.5
		40.685	5.901	166.1365	545.0673	27.8
270.007	26.342	469.866	68.148	157.4986	516.7277	56.5
		454.351	65.898	158.1243	518.7805	76.3
		419.313	60.816	159.4748	523.2112	77.3
		390.112	56.581	160.5753	526.8218	81.9
		336.477	48.802	162.5473	533.2917	71.4
		292.117	42.368	164.1318	538.4902	66.8
		202.641	29.391	167.2034	548.5676	56.6
		175.202	25.411	168.1150	551.5584	48.6
		150.869	21.882	168.9154	554.1844	44.1
		142.545	20.674	169.1892	555.0826	48.4
		134.593	19.521	169.4460	555.9252	35.7
		127.341	18.469	169.6801	556.6932	26.0
		120.841	17.527	169.8904	557.3832	31.0
		115.140	16.700	170.0753	557.9898	23.8
		115.115	16.696	170.0769	557.9951	26.2
		105.844	15.351	170.3762	558.9771	26.7
		94.387	13.690	170.7499	560.2031	17.0
289.962	62.261	830.356	120.433	155.0840	508.8058	96.2
		759.209	110.114	157.5742	516.9757	43.2
		699.835	101.502	159.5719	523.5298	46.9
		588.583	85.367	163.1379	535.2293	65.6
		435.260	63.129	167.7460	550.3478	45.7
		350.690	50.863	170.1539	558.2477	53.0
		269.182	39.042	172.4022	565.6240	54.8
		183.227	26.575	174.7018	573.1686	40.4
		165.327	23.979	175.1813	574.7418	31.0
		103.300	14.982	176.8139	580.0981	21.8
		103.283	14.980	176.7986	580.0479	15.8
		93.728	13.594	177.0609	580.9084	24.4

Table 1. Speed of Sound for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	10 ⁶ δu/u
		83.703	12.140	177.3267	581.7805	8.0
		74.745	10.841	177.5636	582.5577	4.9
		66.747	9.681	177.7820	583.2743	28.3
		40.095	5.815	178.5560	585.8137	14.2
309.997	98.324	858.878	124.570	165.2726	542.2329	32.3
		775.176	112.430	167.4276	549.3032	48.7
		703.106	101.977	169.2374	555.2408	55.2
		633.576	91.892	170.9307	560.7963	51.2
		532.718	77.264	173.3351	568.6847	58.1
		429.272	62.261	175.7257	576.5279	61.7
		323.072	46.858	178.1101	584.3508	53.0
		218.406	31.677	180.3991	591.8605	47.4
		120.467	17.472	182.5050	598.7697	18.8
		98.819	14.332	182.9685	600.2903	8.5
		67.929	9.852	183.6237	602.4399	5.6
319.438	115.319	1007.237	146.087	166.3388	545.7310	30.7
		916.969	132.995	168.4744	552.7375	46.5
		814.311	118.106	170.8382	560.4928	30.5
		707.626	102.632	173.2158	568.2933	39.9
		613.543	88.987	175.2608	575.0026	57.7
		510.081	73.981	177.4572	582.2087	45.9
		407.288	59.072	179.5805	589.1749	41.5
		309.776	44.929	181.5518	595.6424	33.8
		205.672	29.830	183.6153	602.4124	31.1
		102.393	14.851	185.6200	608.9895	23.4
		102.393	14.851	185.6244	609.0040	19.6
		95.631	13.870	185.7559	609.4354	35.8
		84.566	12.265	185.9746	610.1529	32.6
		78.984	11.456	186.0885	610.5266	36.4
		73.777	10.700	186.2000	610.8924	22.9
		65.301	9.471	186.3811	611.4866	26.0
		47.937	6.953	186.8125	612.9019	13.6
339.913	152.173	1007.270	146.092	175.9685	577.3245	79.9
		918.079	133.156	177.5970	582.6673	53.8
		824.144	119.532	179.2861	588.2090	36.1
		708.874	102.813	181.3184	594.8766	58.1
		609.281	88.369	183.0384	600.5197	92.0
		518.050	75.137	184.5965	605.6315	71.0
		402.519	58.380	186.5367	611.9970	80.5

Table 1. Speed of Sound for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	10 ⁶ δu/u
359.984	188.302	309.192	44.844	188.0796	617.0591	59.9
		203.177	29.468	189.8046	622.7185	42.4
		102.201	14.823	191.4351	628.0679	4.7
		102.193	14.822	191.4396	628.0827	6.0
		94.550	13.713	191.5608	628.4803	0.9
		88.020	12.766	191.6682	628.8326	3.4
		81.576	11.832	191.7746	629.1818	1.0
		75.452	10.943	191.8775	629.5193	17.1
		69.895	10.137	191.9902	629.8891	141.8
		48.040	6.968	192.3981	631.2274	29.1
		986.134	143.027	184.5045	605.3297	2.5
		905.703	131.361	185.7016	609.2572	242.8
		826.630	119.893	186.8506	613.0269	68.7
		737.541	106.971	188.1239	617.2044	47.4
		652.231	94.598	189.3425	621.2025	50.0
		560.978	81.363	190.6311	625.4301	60.3
		466.283	67.629	191.9527	629.7661	61.2
		375.850	54.512	193.2030	633.8681	58.1
		281.271	40.795	194.5019	638.1296	48.0
379.998	224.326	194.535	28.215	195.6845	642.0095	31.2
		102.025	14.797	196.9449	646.1447	6.3
		102.021	14.797	196.9389	646.1250	2.1
		96.772	14.036	197.0206	646.3931	5.6
		89.463	12.976	197.1622	646.8576	12.0
		84.367	12.236	197.2382	647.1070	16.1
		76.863	11.148	197.3530	647.4836	11.9
		61.450	8.913	197.6018	648.2999	2.6
		49.021	7.110	197.8721	649.1867	15.0
		1014.191	147.096	191.5013	628.2851	88.5
		939.723	136.295	192.4034	631.2448	46.7
		816.994	118.495	193.8669	636.0463	89.8
		719.879	104.410	195.0215	639.8343	95.0
		626.194	90.822	196.1268	643.4606	82.6
		520.044	75.426	197.3735	647.5508	55.7
		413.807	60.018	198.6113	651.6119	52.0
		308.200	44.701	199.8343	655.6244	48.3
		202.935	29.433	201.0501	659.6132	30.4
		100.070	14.514	202.2433	663.5279	6.3
		100.060	14.512	202.2355	663.5023	6.1
		96.268	13.962	202.2978	663.7067	5.7

Table 1. Speed of Sound for HFC-143a (continued).

T/K	T/°F	P/kPa	P/psia	u/(m/s)	u/(ft/s)	10⁶δu/u
399.979	260.292	88.479	12.833	202.3924	664.0170	7.6
		81.407	11.807	202.4826	664.3130	3.3
		69.417	10.068	202.6502	664.8629	18.9
		53.079	7.698	202.9137	665.7274	36.1
		40.793	5.917	203.3929	667.2996	50.0
		1011.209	146.663	198.3404	650.7231	31.2
		922.187	133.752	199.2290	653.6385	35.1
		832.866	120.797	200.1204	656.5630	58.1
		712.647	103.361	201.3128	660.4751	78.1
		610.012	88.475	202.3283	663.8068	89.1
		503.289	72.996	203.3840	667.2703	60.6
		409.715	59.424	204.3052	670.2927	58.3
		306.504	44.455	205.3211	673.6257	44.1
		207.615	30.112	206.2907	676.8068	26.9
		104.162	15.107	207.3118	680.1568	2.7
		99.725	14.464	207.3662	680.3353	1.0
		95.496	13.851	207.4181	680.5056	4.8
		82.344	11.943	207.5709	681.0069	17.3
		66.188	9.600	207.7723	681.6676	12.9
		46.348	6.722	208.1338	682.8537	42.8

Table 2. Ideal-Gas Heat Capacity, C_p° , of HFC-143a.

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

Table 3a. Acoustic Virial Coefficients for HFC-143a (SI Units).

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

Table 3b. Acoustic Virial Coefficients for HFC-143a (PI Units).

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

Table 4. Coefficients of the MBWR Equation of State for HFC-143a
[Units are K, bar, L, mol, R = 8.3145 J/(mol · K)].

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

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

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

Table 5. Critical Parameters for HFC-143a for Use with the MBWR Equation of State.

T_c	346.751 K
P_c	38.32 bar
ρ_c	5.14868 mol/L

Table 6. Ideal Gas Heat Capacity Auxiliary Equation and its Coefficients for HFC-143a [Units are K and J/(mol · K)].

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

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

Table 7a. Properties of Saturated Liquid and Saturated Vapor HFC-143a (SI Units).

	Temp* °C	Pressure MPa	Density kg/m ³ liq	Volume m ³ /kg vap	Enthalpy kJ/kg		Entropy kJ/(kg·K)		Specific Heat, C _p kJ/(kg·K)		C _p /C _v vap	Vel of Sound m/s	
					liq	vap	liq	vap	liq	vap		liq	vap
A-11	-111.33a	0.00112	1329.4	14.21813	53.19	320.53	0.3181	1.9701	1.188	0.621	1.192	1046.	138.
	-110.00	0.00129	1326.1	12.50656	54.78	321.34	0.3278	1.9617	1.193	0.625	1.191	1040.	138.
	-100.00	0.00332	1301.9	5.13897	66.87	327.50	0.3997	1.9050	1.222	0.652	1.185	994.	142.
	-90.00	0.00758	1277.6	2.36952	79.19	333.77	0.4689	1.8589	1.241	0.680	1.181	947.	145.
	-80.00	0.01569	1252.8	1.20117	91.68	340.12	0.5353	1.8215	1.257	0.711	1.179	900.	148.
	-70.00	0.02987	1227.6	0.65848	104.34	346.48	0.5991	1.7910	1.274	0.744	1.178	851.	151.
	-60.00	0.05302	1201.8	0.38517	117.18	352.82	0.6607	1.7662	1.293	0.781	1.180	802.	153.
	-50.00	0.08869	1175.2	0.23780	130.24	359.10	0.7204	1.7460	1.316	0.821	1.185	754.	154.
	-47.23b	0.10132	1167.6	0.20982	133.90	360.82	0.7367	1.7411	1.323	0.832	1.187	740.	155.
	-40.00	0.14107	1147.7	0.15357	143.55	365.26	0.7786	1.7295	1.342	0.864	1.193	706.	155.
	-30.00	0.21491	1119.1	0.10297	157.14	371.26	0.8354	1.7160	1.371	0.912	1.203	658.	156.
	-20.00	0.31545	1089.3	0.07122	171.04	377.06	0.8910	1.7049	1.405	0.965	1.219	611.	156.
	-10.00	0.44840	1058.1	0.05054	185.31	382.59	0.9458	1.6955	1.444	1.025	1.239	563.	155.
	0.00	0.61988	1025.0	0.03661	200.00	387.77	1.0000	1.6874	1.490	1.094	1.267	516.	153.
	10.00	0.83645	989.6	0.02695	215.17	392.51	1.0538	1.6801	1.546	1.175	1.306	468.	151.
	20.00	1.10518	951.3	0.02007	230.91	396.66	1.1074	1.6728	1.617	1.276	1.362	420.	147.
	30.00	1.43380	909.0	0.01503	247.37	399.99	1.1614	1.6649	1.713	1.412	1.447	371.	142.
	40.00	1.83099	861.1	0.01126	264.76	402.16	1.2164	1.6552	1.856	1.614	1.588	320.	136.
	50.00	2.30692	804.4	0.00834	283.50	402.51	1.2735	1.6418	2.101	1.968	1.857	266.	128.
	60.00	2.87442	731.7	0.00598	304.53	399.59	1.3353	1.6207	2.671	2.814	2.537	207.	119.
	70.00	3.55262	610.9	0.00381	331.98	387.47	1.4134	1.5752	6.470	8.334	7.118	137.	106.
	73.60c	3.83200	432.7	0.00231	360.57	360.57	1.5163	1.5163	∞	∞	∞	0.	0.

*temperatures are on the ITS-90 scale

a triple point; b boiling point; c critical point

Table 7b. Properties of Saturated Liquid and Saturated Vapor HFC-143a (PI Units).

Temp* °F	Pressure psia	Density lb/ft ³ liq	Volume ft ³ /lb vap	Enthalpy BTU/lb		Entropy BTU/(lb · °F)		Specific Heat, C _p BTU/(lb · °F)		C _p /C _v vap	Vel of Sound ft/s	
				liq	vap	liq	vap	liq	vap		liq	vap
-168.39a	0.163	82.99	227.7526	-38.871	76.139	-0.11006	0.28479	0.2839	0.1485	1.1924	3432.	452.
-160.00	0.260	82.28	146.8298	-36.470	77.364	-0.10193	0.27793	0.2880	0.1514	1.1892	3362.	458.
-140.00	0.704	80.60	57.6052	-30.641	80.333	-0.08311	0.26404	0.2943	0.1587	1.1831	3194.	470.
-120.00	1.666	78.90	25.7498	-24.709	83.351	-0.06512	0.25301	0.2987	0.1666	1.1794	3021.	481.
-100.00	3.525	77.17	12.7876	-18.691	86.392	-0.04792	0.24425	0.3030	0.1752	1.1782	2845.	491.
-80.00	6.806	75.39	6.9159	-12.578	89.428	-0.03140	0.23727	0.3080	0.1846	1.1797	2668.	500.
-60.00	12.181	73.55	4.0094	-6.354	92.434	-0.01546	0.23171	0.3139	0.1950	1.1844	2491.	506.
-53.02b	14.696	72.89	3.3609	-4.151	93.471	-0.01001	0.23005	0.3161	0.1989	1.1868	2429.	508.
-40.00	20.461	71.65	2.4600	0.000	95.382	0.00000	0.22728	0.3207	0.2066	1.1926	2315.	510.
-20.00	32.584	69.66	1.5809	6.504	98.247	0.01506	0.22373	0.3286	0.2194	1.2049	2141.	512.
0.00	49.601	67.58	1.0550	13.180	100.999	0.02981	0.22086	0.3378	0.2337	1.2226	1968.	511.
20.00	72.658	65.38	0.7256	20.054	103.600	0.04431	0.21848	0.3486	0.2502	1.2474	1796.	507.
40.00	102.999	63.03	0.5110	27.159	106.001	0.05864	0.21643	0.3618	0.2696	1.2827	1624.	499.
60.00	141.967	60.48	0.3661	34.540	108.135	0.07289	0.21451	0.3784	0.2935	1.3344	1449.	488.
80.00	191.028	57.66	0.2651	42.265	109.894	0.08719	0.21250	0.4009	0.3254	1.4142	1271.	472.
100.00	251.831	54.46	0.1924	50.442	111.106	0.10170	0.21009	0.4345	0.3730	1.5493	1087.	451.
120.00	326.304	50.65	0.1382	59.274	111.446	0.11674	0.20674	0.4934	0.4578	1.8156	893.	424.
140.00	416.899	45.68	0.0958	69.254	110.151	0.13307	0.20127	0.6384	0.6725	2.5366	681.	389.
160.00	527.402	36.63	0.0565	82.984	103.528	0.15475	0.18790	2.1370	2.8139	9.9860	420.	343.
164.48c	555.785	27.01	0.0370	93.367	93.367	0.16912	0.16912	∞	∞	∞	0.	0.

*temperatures are on the ITS-90 scale

a triple point; b boiling point; c critical point

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a.

Point Number	T _{Exp.} K	P _{Cell} MPa	$\lambda_{Exp.}$ W/(m·K)	T _{Exp.} °F	P _{Cell} psia	$\lambda_{Exp.}$ BTU/(ft·hr·°F)
1001	192.774	71.006	0.13800	-112.677	10298.57	0.07979
1003	191.987	71.008	0.13849	-114.093	10298.85	0.08008
1005	191.316	70.978	0.13874	-115.301	10294.55	0.08022
1007	190.803	70.969	0.13903	-116.225	10293.27	0.08039
1009	192.714	71.501	0.13824	-112.785	10370.39	0.07993
1011	191.940	71.504	0.13862	-114.178	10370.78	0.08015
1013	191.275	71.508	0.13891	-115.375	10371.32	0.08032
1015	190.749	71.508	0.13937	-116.322	10371.38	0.08058
1017	192.826	54.248	0.13328	-112.583	7868.09	0.07706
1019	192.025	54.251	0.13386	-114.025	7868.45	0.07740
1021	191.350	54.258	0.13420	-115.240	7869.44	0.07759
1023	190.785	54.265	0.13446	-116.257	7870.51	0.07775
1025	192.958	37.865	0.12765	-112.346	5491.92	0.07381
1027	192.126	37.850	0.12870	-113.843	5489.69	0.07441
1029	191.416	37.858	0.12924	-115.121	5490.85	0.07473
1031	190.854	37.862	0.12948	-116.133	5491.50	0.07487
1033	192.827	23.941	0.12349	-112.581	3472.39	0.07140
1035	191.996	23.945	0.12447	-114.077	3472.96	0.07197
1037	191.296	23.941	0.12462	-115.337	3472.43	0.07206
1039	190.757	23.938	0.12509	-116.307	3471.99	0.07233
1041	192.881	11.127	0.11927	-112.484	1613.79	0.06896
1043	192.014	11.130	0.12000	-114.045	1614.32	0.06938
1045	191.288	11.130	0.12036	-115.352	1614.25	0.06959
1047	190.710	11.132	0.12062	-116.392	1614.50	0.06974
1049	192.977	2.314	0.11601	-112.311	335.65	0.06708
1051	192.089	2.321	0.11660	-113.910	336.59	0.06742
1053	191.349	2.322	0.11647	-115.242	336.84	0.06734
1055	190.769	2.321	0.11799	-116.286	336.63	0.06822
2001	223.141	71.259	0.12909	-58.016	10335.34	0.07464
2003	222.208	71.261	0.12952	-59.696	10335.58	0.07489
2005	221.440	71.261	0.12988	-61.078	10335.50	0.07510
2007	220.806	71.263	0.13052	-62.219	10335.80	0.07547
2009	222.989	56.161	0.12438	-58.290	8145.44	0.07192
2011	222.141	56.157	0.12484	-59.816	8144.88	0.07218
2013	221.427	56.155	0.12518	-61.101	8144.58	0.07238
2015	220.867	56.162	0.12558	-62.109	8145.59	0.07261
2017	223.065	42.369	0.11971	-58.153	6145.14	0.06922
2019	222.185	42.370	0.12012	-59.737	6145.28	0.06945
2021	221.447	42.372	0.12051	-61.065	6145.58	0.06968
2023	220.850	42.371	0.12089	-62.140	6145.46	0.06990
2025	223.342	31.094	0.11553	-57.654	4509.79	0.06680
2027	222.438	31.093	0.11577	-59.282	4509.64	0.06694
2029	221.674	31.090	0.11621	-60.657	4509.27	0.06719
2031	221.029	31.085	0.11644	-61.818	4508.45	0.06733
2033	223.296	19.782	0.11081	-57.737	2869.13	0.06407
2035	222.349	19.792	0.11112	-59.442	2870.64	0.06425
2037	221.562	19.802	0.11161	-60.858	2872.06	0.06453
2039	220.940	19.810	0.11211	-61.978	2873.27	0.06482
2041	223.103	10.556	0.10682	-58.085	1530.99	0.06176

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
2043	222.185	10.564	0.10721	-59.737	1532.22	0.06199
2045	221.415	10.572	0.10749	-61.123	1533.31	0.06215
2047	220.809	10.575	0.10794	-62.214	1533.76	0.06241
2049	223.196	3.609	0.10339	-57.917	523.48	0.05978
2051	222.244	3.612	0.10381	-59.631	523.91	0.06002
2053	221.456	3.614	0.10408	-61.049	524.16	0.06018
2055	220.841	3.620	0.10489	-62.156	525.03	0.06065
3001	253.276	71.206	0.11989	-3.773	10327.63	0.06932
3003	252.298	71.203	0.12032	-5.534	10327.20	0.06957
3005	251.492	71.198	0.12100	-6.984	10326.50	0.06996
3007	250.852	71.190	0.12173	-8.136	10325.22	0.07038
3009	253.136	57.752	0.11504	-4.025	8376.22	0.06652
3011	252.253	57.759	0.11479	-5.615	8377.30	0.06637
3013	251.507	57.762	0.11508	-6.957	8377.65	0.06654
3015	250.911	57.762	0.11598	-8.030	8377.75	0.06706
3017	253.223	46.720	0.11068	-3.869	6776.18	0.06400
3019	252.314	46.729	0.11072	-5.505	6777.42	0.06402
3021	251.549	46.734	0.11111	-6.882	6778.25	0.06424
3023	250.922	46.735	0.11217	-8.010	6778.31	0.06486
3025	253.197	36.421	0.10627	-3.915	5282.43	0.06145
3027	252.232	36.420	0.10676	-5.652	5282.24	0.06173
3029	251.438	36.424	0.10685	-7.082	5282.88	0.06178
3031	250.809	36.404	0.10829	-8.214	5279.95	0.06261
3033	253.266	27.617	0.10254	-3.791	4005.52	0.05929
3035	252.268	27.616	0.10281	-5.588	4005.35	0.05944
3037	251.446	27.619	0.10282	-7.067	4005.81	0.05945
3039	250.799	27.622	0.10436	-8.232	4006.25	0.06034
3041	253.400	19.364	0.09847	-3.550	2808.49	0.05694
3043	252.358	19.364	0.09884	-5.426	2808.52	0.05715
3045	251.513	19.366	0.09915	-6.947	2808.75	0.05733
3047	250.844	19.368	0.10079	-8.151	2809.14	0.05828
3049	253.169	12.330	0.09474	-3.966	1788.36	0.05478
3051	252.230	12.328	0.09497	-5.656	1788.08	0.05491
3053	251.455	12.324	0.09535	-7.051	1787.43	0.05513
3055	250.833	12.319	0.09659	-8.171	1786.74	0.05585
3057	253.369	5.744	0.09085	-3.606	833.12	0.05253
3059	252.400	5.743	0.09140	-5.350	832.90	0.05285
3061	251.601	5.745	0.09136	-6.788	833.29	0.05282
3063	250.946	5.744	0.09282	-7.967	833.11	0.05367
3065	253.392	1.844	0.08833	-3.564	267.51	0.05107
3067	252.407	1.842	0.08911	-5.337	267.20	0.05152
3069	251.582	1.840	0.08922	-6.822	266.92	0.05159
3071	250.918	1.838	0.09042	-8.018	266.64	0.05228
4001	283.227	71.104	0.11185	50.139	10312.78	0.06467
4003	282.254	71.098	0.11191	48.387	10312.00	0.06471
4005	281.448	71.094	0.11198	46.936	10311.38	0.06475
4007	280.786	71.088	0.11361	45.745	10310.44	0.06569
4009	283.117	60.172	0.10761	49.941	8727.25	0.06222
4011	282.149	60.169	0.10755	48.198	8726.73	0.06219

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
4013	281.342	60.167	0.10817	46.746	8726.58	0.06254
4015	280.719	60.165	0.10962	45.624	8726.25	0.06338
4017	282.891	50.513	0.10367	49.534	7326.38	0.05994
4019	282.024	50.505	0.10413	47.973	7325.13	0.06021
4021	281.300	50.505	0.10451	46.670	7325.19	0.06043
4023	280.726	50.503	0.10585	45.637	7324.82	0.06120
4025	283.147	41.170	0.09971	49.995	5971.22	0.05765
4027	282.250	41.170	0.09984	48.380	5971.26	0.05773
4029	281.509	41.170	0.10026	47.046	5971.27	0.05797
4031	280.897	41.171	0.10199	45.945	5971.33	0.05897
4033	283.140	34.116	0.09651	49.982	4948.18	0.05580
4035	282.313	34.115	0.09663	48.493	4947.99	0.05587
4037	281.606	34.109	0.09671	47.221	4947.14	0.05592
4039	281.026	34.109	0.09779	46.177	4947.09	0.05654
4041	282.876	26.965	0.09304	49.507	3910.91	0.05380
4043	282.071	26.965	0.09321	48.058	3911.03	0.05389
4045	281.389	26.967	0.09302	46.830	3911.20	0.05378
4047	280.818	26.968	0.09471	45.802	3911.41	0.05476
4049	282.769	20.467	0.08918	49.314	2968.51	0.05156
4051	281.965	20.469	0.08946	47.867	2968.82	0.05173
4053	281.291	20.466	0.08949	46.654	2968.41	0.05174
4055	280.743	20.468	0.09098	45.667	2968.64	0.05260
4057	282.871	14.536	0.08563	49.498	2108.34	0.04951
4059	282.035	14.543	0.08539	47.993	2109.23	0.04937
4061	281.346	14.545	0.08596	46.753	2109.64	0.04970
4063	280.772	14.546	0.08702	45.720	2109.70	0.05032
4065	282.742	10.487	0.08255	49.266	1521.03	0.04773
4067	281.927	10.491	0.08277	47.799	1521.65	0.04786
4069	281.249	10.494	0.08386	46.578	1522.06	0.04849
4071	280.684	10.492	0.08510	45.561	1521.69	0.04920
4073	282.574	6.470	0.07993	48.963	938.33	0.04622
4075	281.769	6.466	0.08032	47.514	937.80	0.04644
4077	281.114	6.464	0.08101	46.335	937.50	0.04684
4079	280.577	6.459	0.08211	45.369	936.84	0.04748
4081	282.633	2.886	0.07729	49.069	418.55	0.04469
4083	281.805	2.880	0.07763	47.579	417.71	0.04489
4085	281.131	2.864	0.07823	46.366	415.43	0.04523
4087	280.585	2.856	0.07833	45.383	414.22	0.04529
4089	282.677	1.586	0.07617	49.149	230.06	0.04404
4091	281.840	1.588	0.07650	47.642	230.31	0.04423
4093	281.158	1.586	0.07713	46.414	230.01	0.04460
4095	280.604	1.585	0.07800	45.417	229.95	0.04510
5001	312.991	69.885	0.10478	103.714	10135.96	0.06058
5003	312.074	69.887	0.10476	102.063	10136.24	0.06057
5005	311.310	69.884	0.10491	100.688	10135.87	0.06066
5007	310.711	69.880	0.10572	99.610	10135.24	0.06113
5009	313.069	61.848	0.10140	103.854	8970.30	0.05863
5011	312.131	61.847	0.10150	102.166	8970.21	0.05869
5013	311.345	61.846	0.10151	100.751	8970.07	0.05869

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
5015	310.732	61.841	0.10230	99.648	8969.38	0.05915
5018	313.233	53.084	0.09737	104.149	7699.27	0.05630
5020	312.266	53.089	0.09784	102.409	7699.98	0.05657
5022	311.458	53.088	0.09792	100.954	7699.81	0.05662
5024	310.831	53.085	0.09883	99.826	7699.29	0.05714
5026	313.315	46.004	0.09424	104.297	6672.29	0.05449
5028	312.306	46.000	0.09440	102.481	6671.79	0.05458
5030	311.487	46.000	0.09490	101.007	6671.69	0.05487
5032	310.823	45.996	0.09519	99.811	6671.11	0.05504
5034	313.437	39.157	0.09089	104.517	5679.26	0.05255
5036	312.399	39.158	0.09114	102.648	5679.35	0.05270
5038	311.547	39.161	0.09124	101.115	5679.86	0.05276
5040	310.873	39.161	0.09175	99.901	5679.79	0.05305
5042	313.452	32.723	0.08753	104.544	4746.02	0.05061
5044	312.400	32.718	0.08773	102.650	4745.33	0.05073
5046	311.541	32.718	0.08787	101.104	4745.39	0.05081
5048	310.855	32.718	0.08904	99.869	4745.41	0.05148
5050	313.542	27.167	0.08422	104.706	3940.21	0.04870
5052	312.455	27.167	0.08446	102.749	3940.19	0.04883
5054	311.561	27.166	0.08489	101.140	3940.11	0.04908
5056	310.865	27.159	0.08551	99.887	3939.15	0.04944
5058	313.621	22.141	0.08114	104.848	3211.28	0.04692
5060	312.505	22.140	0.08136	102.839	3211.21	0.04704
5062	311.587	22.139	0.08178	101.187	3211.07	0.04729
5064	310.855	22.136	0.08221	99.869	3210.56	0.04753
5066	313.311	18.300	0.07849	104.290	2654.17	0.04538
5068	312.286	18.302	0.07886	102.445	2654.48	0.04560
5070	311.445	18.306	0.07931	100.931	2655.04	0.04586
5072	310.771	18.308	0.08026	99.718	2655.30	0.04641
5074	313.424	14.575	0.07589	104.493	2113.91	0.04388
5076	312.379	14.550	0.07624	102.612	2110.25	0.04408
5078	311.512	14.533	0.07629	101.052	2107.79	0.04411
5080	310.828	14.514	0.07744	99.820	2105.14	0.04478
5082	313.540	11.642	0.07334	104.702	1688.58	0.04241
5084	312.457	11.643	0.07372	102.753	1688.73	0.04263
5086	311.567	11.644	0.07387	101.151	1688.82	0.04271
5088	310.864	11.638	0.07501	99.885	1687.97	0.04337
5090	313.488	8.956	0.07091	104.608	1298.92	0.04100
5092	312.399	8.952	0.07142	102.648	1298.35	0.04130
5094	311.509	8.954	0.07156	101.046	1298.60	0.04138
5096	310.818	8.947	0.07273	99.802	1297.59	0.04205
5098	313.361	6.945	0.06917	104.380	1007.33	0.03999
5100	312.351	6.945	0.06938	102.562	1007.29	0.04012
5101	312.355	6.951	0.06937	102.569	1008.17	0.04011
5103	311.525	6.953	0.07020	101.075	1008.43	0.04059
5105	310.880	6.953	0.07061	99.914	1008.46	0.04083
5107	313.420	4.786	0.06662	104.486	694.18	0.03852
5109	312.386	4.787	0.06698	102.625	694.29	0.03873
5111	311.539	4.785	0.06769	101.100	694.04	0.03914

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
5113	310.856	4.784	0.06828	99.871	693.87	0.03948
5115	313.275	3.236	0.06460	104.225	469.28	0.03735
5117	312.241	3.234	0.06516	102.364	469.10	0.03768
5119	311.397	3.235	0.06563	100.845	469.14	0.03795
5121	310.745	3.234	0.06652	99.671	469.12	0.03846
5123	313.321	2.320	0.06325	104.308	336.55	0.03657
5125	312.269	2.321	0.06380	102.414	336.66	0.03689
5127	311.413	2.321	0.06457	100.873	336.60	0.03733
5129	310.742	2.321	0.06520	99.666	336.65	0.03770
6001	343.274	63.523	0.09699	158.223	9213.32	0.05608
6003	342.312	63.528	0.09656	156.492	9213.99	0.05583
6005	341.474	63.528	0.09650	154.983	9214.02	0.05580
6007	340.809	63.535	0.09720	153.786	9214.97	0.05620
6009	343.516	52.667	0.09191	158.659	7638.78	0.05314
6011	342.461	52.675	0.09167	156.760	7639.83	0.05300
6013	341.583	52.677	0.09181	155.179	7640.16	0.05308
6015	340.882	52.683	0.09189	153.918	7641.02	0.05313
6017	343.720	43.112	0.08706	159.026	6252.95	0.05034
6019	342.553	43.112	0.08654	156.925	6252.94	0.05004
6021	341.589	43.114	0.08691	155.190	6253.22	0.05025
6023	340.862	43.115	0.08746	153.882	6253.30	0.05057
6025	343.450	35.501	0.08295	158.540	5148.95	0.04796
6027	342.401	35.502	0.08287	156.652	5149.11	0.04792
6029	341.526	35.473	0.08277	155.077	5144.91	0.04786
6031	340.845	35.449	0.08323	153.851	5141.44	0.04812
6033	343.407	28.858	0.07882	158.463	4185.47	0.04557
6035	342.403	28.861	0.07891	156.655	4185.89	0.04563
6037	341.568	28.863	0.07878	155.152	4186.22	0.04555
6039	340.886	28.863	0.07899	153.925	4186.18	0.04567
6041	343.562	23.292	0.07501	158.742	3378.28	0.04337
6043	342.516	23.294	0.07522	156.859	3378.59	0.04349
6045	341.642	23.293	0.07504	155.286	3378.35	0.04339
6047	340.943	23.290	0.07526	154.027	3378.01	0.04352
6049	343.501	18.987	0.07178	158.632	2753.89	0.04150
6051	342.440	19.000	0.07152	156.722	2755.78	0.04135
6053	341.578	19.016	0.07180	155.170	2758.06	0.04151
6055	340.886	19.035	0.07227	153.925	2760.82	0.04179
6057	343.219	15.182	0.06860	158.124	2202.00	0.03966
6059	342.248	15.180	0.06840	156.376	2201.75	0.03955
6061	341.439	15.181	0.06871	154.920	2201.84	0.03973
6063	340.810	15.187	0.06877	153.788	2202.66	0.03976
6065	343.283	13.121	0.06658	158.239	1903.08	0.03850
6067	342.276	13.122	0.06637	156.427	1903.20	0.03838
6069	341.448	13.120	0.06681	154.936	1902.96	0.03863
6071	340.804	13.119	0.06667	153.777	1902.73	0.03855
6073	343.365	11.330	0.06448	158.387	1643.23	0.03728
6075	342.342	11.328	0.06446	156.546	1643.00	0.03727
6077	341.492	11.317	0.06477	155.016	1641.36	0.03745
6079	340.822	11.296	0.06473	153.810	1638.37	0.03743

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
6081	343.462	9.843	0.06252	158.562	1427.65	0.03615
6083	342.415	9.840	0.06270	156.677	1427.23	0.03625
6085	341.557	9.842	0.06328	155.133	1427.51	0.03659
6087	340.882	9.854	0.06322	153.918	1429.16	0.03655
6089	343.513	8.590	0.06081	158.653	1245.87	0.03516
6091	342.440	8.592	0.06105	156.722	1246.15	0.03530
6093	341.566	8.587	0.06163	155.149	1245.44	0.03563
6095	340.865	8.585	0.06163	153.887	1245.18	0.03563
6097	343.580	7.434	0.05897	158.774	1078.20	0.03410
6099	342.485	7.436	0.05931	156.803	1078.46	0.03429
6101	341.585	7.434	0.05994	155.183	1078.15	0.03466
6103	340.891	7.434	0.06022	153.934	1078.26	0.03482
6105	343.198	6.524	0.05767	158.086	946.18	0.03334
6107	342.288	6.525	0.05812	156.448	946.36	0.03361
6109	341.513	6.524	0.05859	155.053	946.30	0.03388
6111	340.884	6.526	0.05892	153.921	946.55	0.03407
6113	343.237	5.781	0.05615	158.157	838.52	0.03247
6115	342.302	5.781	0.05687	156.474	838.43	0.03288
6117	341.530	5.781	0.05724	155.084	838.52	0.03310
6119	340.891	5.781	0.05761	153.934	838.52	0.03331
6121	343.274	5.134	0.05483	158.223	744.61	0.03170
6123	342.328	5.135	0.05551	156.520	744.72	0.03210
6125	341.541	5.134	0.05590	155.104	744.60	0.03232
6127	340.909	5.134	0.05621	153.966	744.66	0.03250
6129	343.311	4.695	0.05358	158.290	680.96	0.03098
6131	342.356	4.696	0.05442	156.571	681.10	0.03147
6133	341.567	4.695	0.05490	155.151	680.96	0.03174
6135	340.930	4.695	0.05554	154.004	681.01	0.03211
6137	343.305	4.275	0.05251	158.279	620.05	0.03036
6139	342.347	4.275	0.05335	156.555	620.04	0.03085
6141	341.557	4.276	0.05388	155.133	620.13	0.03115
6143	340.908	4.275	0.05437	153.964	620.02	0.03144
6145	343.350	3.953	0.05195	158.360	573.40	0.03004
6147	342.402	3.954	0.05232	156.654	573.47	0.03025
6149	341.598	3.954	0.05300	155.206	573.53	0.03064
6151	340.967	3.955	0.05338	154.071	573.57	0.03086
6153	343.283	3.709	0.05270	158.239	537.94	0.03047
6155	342.353	3.709	0.05201	156.565	538.02	0.03007
6157	341.571	3.710	0.05236	155.158	538.12	0.03027
6159	340.936	3.711	0.05290	154.015	538.18	0.03059
7001	193.249	0.010	0.00807	-111.822	1.43	0.00467
7003	192.152	0.010	0.00768	-113.796	1.43	0.00444
7005	191.249	0.010	0.00744	-115.422	1.44	0.00430
7007	190.518	0.010	0.00701	-116.738	1.42	0.00405
7009	193.293	0.010	0.00856	-111.743	1.49	0.00495
7011	192.204	0.010	0.00804	-113.703	1.48	0.00465
7013	191.291	0.010	0.00790	-115.346	1.50	0.00457
7015	190.624	0.010	0.00767	-116.547	1.52	0.00443
7017	193.295	0.010	0.00919	-111.739	1.46	0.00531

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
7019	192.203	0.010	0.00858	-113.705	1.44	0.00496
7021	191.304	0.010	0.00826	-115.323	1.43	0.00478
7023	190.514	0.010	0.00802	-116.745	1.42	0.00464
7025	193.313	0.009	0.00889	-111.707	1.36	0.00514
7027	192.218	0.009	0.00850	-113.678	1.35	0.00491
7029	191.326	0.009	0.00802	-115.283	1.32	0.00464
7031	190.501	0.009	0.00789	-116.768	1.32	0.00456
7033	193.350	0.008	0.00862	-111.640	1.20	0.00498
7035	192.228	0.008	0.00853	-113.660	1.21	0.00493
7037	191.312	0.008	0.00814	-115.308	1.19	0.00471
7039	190.642	0.008	0.00785	-116.514	1.18	0.00454
7041	193.369	0.008	0.00871	-111.606	1.12	0.00504
7043	192.237	0.008	0.00845	-113.643	1.11	0.00489
7045	191.306	0.008	0.00847	-115.319	1.13	0.00490
7047	190.571	0.008	0.00858	-116.642	1.14	0.00496
7049	193.425	0.007	0.00807	-111.505	0.96	0.00467
7051	192.273	0.007	0.00799	-113.579	0.96	0.00462
7053	191.357	0.007	0.00803	-115.227	0.97	0.00464
7055	190.508	0.007	0.00802	-116.756	0.97	0.00464
7057	193.563	0.004	0.00657	-111.257	0.61	0.00380
7059	192.393	0.004	0.00633	-113.363	0.57	0.00366
7061	191.419	0.004	0.00622	-115.116	0.56	0.00360
7063	190.592	0.004	0.00620	-116.604	0.56	0.00358
7065	193.732	0.003	0.00626	-110.952	0.41	0.00362
7067	192.496	0.003	0.00621	-113.177	0.39	0.00359
7069	191.459	0.003	0.00619	-115.044	0.40	0.00358
7071	190.686	0.003	0.00618	-116.435	0.41	0.00357
7073	194.065	0.001	0.00666	-110.353	0.18	0.00385
7075	192.726	0.001	0.00664	-112.763	0.17	0.00384
7077	191.603	0.001	0.00663	-114.785	0.18	0.00383
7079	190.654	0.001	0.00658	-116.493	0.20	0.00380
8001	223.281	0.060	0.00839	-57.764	8.70	0.00485
8003	222.146	0.060	0.00826	-59.807	8.69	0.00478
8005	221.223	0.060	0.00817	-61.469	8.67	0.00472
8007	220.470	0.060	0.00811	-62.824	8.66	0.00469
8009	223.348	0.050	0.00863	-57.644	7.26	0.00499
8011	222.186	0.050	0.00853	-59.735	7.26	0.00493
8013	221.237	0.050	0.00848	-61.443	7.24	0.00490
8015	220.495	0.050	0.00839	-62.779	7.23	0.00485
8017	223.724	0.018	0.00918	-56.967	2.65	0.00531
8019	222.440	0.018	0.00907	-59.278	2.62	0.00524
8021	221.390	0.018	0.00903	-61.168	2.63	0.00522
8023	220.620	0.018	0.00929	-62.554	2.63	0.00537
9001	253.147	0.259	0.01040	-4.005	37.63	0.00601
9003	252.143	0.258	0.01025	-5.813	37.44	0.00593
9005	251.316	0.257	0.01016	-7.301	37.26	0.00587
9007	250.632	0.256	0.01010	-8.532	37.07	0.00584
9009	253.209	0.223	0.01057	-3.894	32.37	0.00611
9011	252.184	0.222	0.01048	-5.739	32.24	0.00606

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
9013	251.336	0.221	0.01035	-7.265	32.10	0.00598
9015	250.668	0.221	0.01050	-8.468	32.00	0.00607
9017	252.848	0.158	0.01049	-4.544	22.86	0.00607
9019	252.021	0.157	0.01037	-6.032	22.76	0.00600
9021	251.316	0.156	0.01034	-7.301	22.69	0.00598
9023	250.738	0.156	0.01039	-8.342	22.66	0.00601
9025	253.173	0.055	0.01090	-3.959	7.97	0.00630
9027	252.247	0.054	0.01079	-5.625	7.87	0.00624
9029	251.460	0.054	0.01065	-7.042	7.79	0.00616
9031	250.781	0.053	0.01083	-8.264	7.75	0.00626
10001	282.952	0.741	0.01334	49.644	107.41	0.00771
10003	282.069	0.738	0.01318	48.054	106.98	0.00762
10005	281.344	0.734	0.01332	46.749	106.48	0.00770
10007	280.744	0.729	0.01340	45.669	105.80	0.00775
10009	283.109	0.587	0.01336	49.926	85.15	0.00772
10011	282.176	0.586	0.01330	48.247	85.02	0.00769
10013	281.384	0.582	0.01333	46.821	84.47	0.00771
10015	280.756	0.579	0.01331	45.691	84.04	0.00770
10017	283.416	0.342	0.01317	50.479	49.61	0.00761
10019	282.399	0.340	0.01303	48.648	49.25	0.00753
10021	281.539	0.338	0.01317	47.100	48.96	0.00761
10023	280.849	0.336	0.01319	45.858	48.68	0.00763
10025	283.218	0.154	0.01317	50.122	22.31	0.00761
10027	282.189	0.151	0.01317	48.270	21.91	0.00761
10029	281.337	0.149	0.01318	46.737	21.58	0.00762
10031	280.670	0.147	0.01316	45.536	21.34	0.00761
10033	282.925	0.060	0.01379	49.595	8.76	0.00797
10035	282.055	0.060	0.01375	48.029	8.71	0.00795
10037	281.307	0.060	0.01378	46.683	8.69	0.00797
10039	280.675	0.060	0.01377	45.545	8.67	0.00796
11001	313.214	1.656	0.01770	104.115	240.18	0.01023
11003	312.277	1.655	0.01774	102.429	240.10	0.01026
11005	311.491	1.656	0.01776	101.014	240.11	0.01027
11007	310.858	1.655	0.01758	99.874	240.10	0.01016
11009	312.988	1.455	0.01719	103.708	211.01	0.00994
11011	312.176	1.454	0.01713	102.247	210.95	0.00990
11013	311.485	1.454	0.01712	101.003	210.95	0.00990
11015	310.898	1.454	0.01690	99.946	210.94	0.00977
11017	313.049	1.383	0.01695	103.818	200.61	0.00980
11019	312.233	1.377	0.01706	102.349	199.72	0.00986
11021	311.539	1.378	0.01698	101.100	199.82	0.00982
11023	310.927	1.379	0.01669	99.999	200.01	0.00965
11025	313.233	1.208	0.01667	104.149	175.19	0.00964
11027	312.227	1.208	0.01661	102.339	175.18	0.00960
11029	311.398	1.208	0.01654	100.846	175.18	0.00956
11031	310.737	1.208	0.01604	99.657	175.20	0.00927
11033	313.364	1.027	0.01643	104.385	148.97	0.00950
11035	312.312	1.027	0.01631	102.492	148.97	0.00943
11037	311.442	1.027	0.01625	100.926	148.95	0.00940

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
11039	310.744	1.027	0.01620	99.669	148.95	0.00937
11041	313.039	0.830	0.01614	103.800	120.39	0.00933
11043	312.156	0.830	0.01606	102.211	120.39	0.00929
11045	311.409	0.830	0.01596	100.866	120.39	0.00923
11047	310.804	0.830	0.01600	99.777	120.37	0.00925
11050	313.193	0.616	0.01595	104.077	89.40	0.00922
11052	312.261	0.616	0.01585	102.400	89.40	0.00916
11054	311.469	0.616	0.01583	100.974	89.41	0.00915
11056	310.838	0.616	0.01579	99.838	89.41	0.00913
11058	313.077	0.387	0.01588	103.869	56.12	0.00918
11060	312.144	0.387	0.01581	102.189	56.12	0.00914
11062	311.344	0.387	0.01570	100.749	56.10	0.00908
11064	310.717	0.387	0.01581	99.621	56.09	0.00914
11066	313.433	0.140	0.01613	104.509	20.30	0.00933
11068	312.388	0.140	0.01603	102.628	20.29	0.00927
11070	311.512	0.140	0.01591	101.052	20.28	0.00920
11072	310.780	0.140	0.01607	99.734	20.28	0.00929
11074	313.046	0.077	0.01699	103.813	11.21	0.00982
11076	312.190	0.077	0.01689	102.272	11.20	0.00977
11078	311.454	0.077	0.01676	100.947	11.20	0.00969
11080	310.849	0.077	0.01679	99.858	11.20	0.00971
13003	341.408	3.221	0.03293	154.864	467.10	0.01904
13004	340.802	3.222	0.03156	153.774	467.25	0.01825
13012	340.890	3.124	0.03332	153.932	453.04	0.01927
13014	342.625	3.063	0.02979	157.055	444.24	0.01722
13015	341.688	3.062	0.02770	155.368	444.09	0.01602
13016	340.981	3.062	0.02928	154.096	444.06	0.01693
13017	343.908	2.993	0.02525	159.364	434.11	0.01460
13018	342.747	2.993	0.02492	157.275	434.09	0.01441
13019	341.780	2.993	0.02503	155.534	434.06	0.01447
13020	341.019	2.993	0.02539	154.164	434.07	0.01468
13021	343.203	2.886	0.02398	158.095	418.65	0.01387
13022	342.240	2.886	0.02404	156.362	418.63	0.01390
13023	341.449	2.886	0.02427	154.938	418.60	0.01403
13024	340.833	2.886	0.02409	153.829	418.61	0.01393
13025	343.254	2.830	0.02361	158.187	410.48	0.01365
13026	342.274	2.830	0.02359	156.423	410.41	0.01364
13027	341.459	2.829	0.02388	154.956	410.37	0.01381
13028	340.807	2.829	0.02370	153.783	410.31	0.01370
13029	343.408	2.698	0.02271	158.464	391.32	0.01313
13030	342.374	2.698	0.02272	156.603	391.26	0.01314
13031	341.515	2.697	0.02299	155.057	391.19	0.01329
13032	340.835	2.697	0.02293	153.833	391.15	0.01326
13033	343.523	2.624	0.02232	158.671	380.51	0.01291
13034	342.467	2.623	0.02237	156.771	380.46	0.01293
13035	341.590	2.623	0.02259	155.192	380.40	0.01306
13036	340.890	2.622	0.02258	153.932	380.34	0.01306
13037	343.403	2.495	0.02195	158.455	361.85	0.01269
13038	342.337	2.495	0.02192	156.537	361.85	0.01267

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
13039	341.461	2.495	0.02194	154.960	361.85	0.01269
13040	340.764	2.495	0.02208	153.705	361.88	0.01277
13041	343.525	2.364	0.02137	158.675	342.85	0.01236
13042	342.436	2.365	0.02142	156.715	342.96	0.01239
13043	341.524	2.364	0.02144	155.073	342.85	0.01240
13044	340.792	2.363	0.02139	153.756	342.73	0.01237
13045	343.240	2.229	0.02113	158.162	323.30	0.01222
13046	342.278	2.229	0.02109	156.430	323.22	0.01219
13047	341.471	2.228	0.02121	154.978	323.14	0.01226
13048	340.823	2.236	0.02161	153.811	324.33	0.01249
13049	343.361	2.166	0.02115	158.380	314.17	0.01223
13050	342.388	2.171	0.02142	156.628	314.82	0.01239
13051	343.269	2.198	0.02108	158.214	318.83	0.01219
13052	342.296	2.199	0.02101	156.463	319.01	0.01215
13053	341.484	2.201	0.02109	155.001	319.22	0.01219
13054	340.834	2.202	0.02095	153.831	319.40	0.01211
13055	343.467	1.927	0.02034	158.571	279.52	0.01176
13056	342.442	1.927	0.02032	156.726	279.48	0.01175
13057	341.584	1.927	0.02040	155.181	279.45	0.01180
13058	340.879	1.927	0.02000	153.912	279.42	0.01156
13059	343.578	1.748	0.02014	158.770	253.59	0.01164
13060	342.550	1.748	0.01996	156.920	253.51	0.01154
13061	341.659	1.747	0.02002	155.316	253.41	0.01158
13062	340.943	1.747	0.01990	154.027	253.35	0.01151
13063	343.332	1.595	0.01978	158.328	231.33	0.01144
13064	342.301	1.595	0.01976	156.472	231.30	0.01143
13065	341.459	1.594	0.01961	154.956	231.24	0.01134
13066	340.752	1.594	0.01972	153.684	231.19	0.01140
13067	343.443	1.387	0.01958	158.527	201.16	0.01132
13068	342.368	1.387	0.01950	156.592	201.11	0.01127
13069	341.482	1.386	0.01936	154.998	201.02	0.01119
13070	340.759	1.386	0.01955	153.696	201.00	0.01130
13072	343.533	1.270	0.01947	158.689	184.18	0.01126
13073	342.437	1.270	0.01932	156.717	184.16	0.01117
13074	341.531	1.270	0.01921	155.086	184.18	0.01111
13075	340.798	1.270	0.01937	153.766	184.18	0.01120
13077	343.203	1.043	0.01895	158.095	151.26	0.01096
13078	342.259	1.043	0.01901	156.396	151.27	0.01099
13079	341.470	1.043	0.01897	154.976	151.28	0.01097
13080	340.835	1.043	0.01917	153.833	151.27	0.01108
13082	343.370	0.802	0.01885	158.396	116.32	0.01090
13084	342.390	0.802	0.01892	156.632	116.33	0.01094
13086	341.558	0.802	0.01889	155.134	116.33	0.01092
13088	340.873	0.802	0.01899	153.901	116.34	0.01098
13090	343.537	0.573	0.01883	158.697	83.18	0.01089
13092	342.509	0.573	0.01886	156.846	83.18	0.01090
13094	341.648	0.574	0.01877	155.296	83.19	0.01085
13096	340.927	0.573	0.01889	153.999	83.18	0.01092
13098	342.979	0.319	0.01906	157.692	46.27	0.01102

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
13100	342.133	0.319	0.01904	156.169	46.29	0.01101
13102	341.404	0.319	0.01888	154.857	46.27	0.01092
13104	340.804	0.319	0.01889	153.777	46.28	0.01092
13106	343.599	0.041	0.01864	158.808	5.93	0.01078
13108	342.582	0.041	0.01872	156.978	5.94	0.01082
13110	341.719	0.041	0.01868	155.424	5.96	0.01080
13112	341.018	0.041	0.01861	154.162	5.95	0.01076
12001	370.913	65.777	0.08724	207.973	9540.14	0.05044
12003	371.090	65.777	0.08823	208.292	9540.14	0.05101
12005	371.279	65.777	0.08748	208.632	9540.21	0.05058
12007	371.475	65.778	0.08819	208.985	9540.33	0.05099
12009	371.690	65.779	0.08738	209.372	9540.40	0.05052
12011	371.909	65.780	0.08717	209.766	9540.60	0.05040
12013	372.141	65.782	0.08720	210.184	9540.89	0.05042
12015	372.394	65.783	0.08695	210.639	9541.11	0.05027
12017	372.649	65.783	0.08691	211.098	9541.06	0.05025
12019	372.922	65.783	0.08666	211.590	9541.10	0.05011
12021	370.915	58.572	0.08496	207.977	8495.18	0.04912
12022	371.115	58.574	0.08431	208.337	8495.43	0.04875
12023	371.317	58.572	0.08457	208.701	8495.24	0.04890
12024	371.521	58.572	0.08391	209.068	8495.21	0.04852
12025	371.748	58.573	0.08412	209.476	8495.37	0.04864
12026	371.975	58.574	0.08376	209.885	8495.49	0.04843
12027	372.222	58.575	0.08382	210.330	8495.61	0.04846
12028	372.473	58.576	0.08370	210.781	8495.71	0.04840
12029	372.742	58.577	0.08331	211.266	8495.85	0.04817
12030	373.023	58.578	0.08332	211.771	8496.02	0.04818
12031	370.952	51.697	0.08139	208.044	7497.99	0.04706
12032	371.168	51.697	0.08129	208.432	7497.98	0.04700
12033	371.374	51.698	0.08142	208.803	7498.14	0.04708
12034	371.588	51.694	0.08078	209.188	7497.59	0.04671
12035	371.813	51.696	0.08122	209.593	7497.92	0.04696
12036	372.061	51.699	0.08135	210.040	7498.33	0.04704
12037	372.312	51.700	0.08097	210.492	7498.52	0.04682
12038	372.574	51.700	0.08028	210.963	7498.44	0.04642
12039	372.857	51.701	0.08021	211.473	7498.64	0.04638
12040	373.141	51.702	0.07986	211.984	7498.80	0.04618
12041	371.001	46.383	0.08002	208.132	6727.24	0.04627
12042	371.221	46.383	0.07888	208.528	6727.29	0.04561
12043	371.426	46.383	0.07914	208.897	6727.24	0.04576
12044	371.652	46.383	0.07861	209.304	6727.36	0.04545
12045	371.877	46.384	0.07759	209.709	6727.51	0.04486
12046	372.139	46.384	0.07785	210.180	6727.51	0.04501
12047	372.400	46.386	0.07809	210.650	6727.75	0.04515
12048	372.656	46.387	0.07783	211.111	6727.89	0.04500
12049	372.954	46.387	0.07811	211.647	6727.91	0.04516
12050	373.252	46.388	0.07778	212.184	6728.05	0.04497
12051	371.057	41.603	0.07667	208.233	6033.99	0.04433
12052	371.259	41.603	0.07661	208.596	6034.05	0.04430

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12053	371.488	41.604	0.07573	209.008	6034.13	0.04379
12054	371.715	41.603	0.07609	209.417	6034.09	0.04400
12055	371.957	41.605	0.07608	209.853	6034.26	0.04399
12056	372.218	41.605	0.07587	210.322	6034.26	0.04387
12057	372.480	41.605	0.07590	210.794	6034.33	0.04389
12058	372.758	41.606	0.07546	211.294	6034.46	0.04363
12059	373.061	41.607	0.07515	211.840	6034.56	0.04345
12060	373.360	41.607	0.07523	212.378	6034.65	0.04350
12061	371.111	37.404	0.07431	208.330	5425.08	0.04297
12062	371.321	37.405	0.07399	208.708	5425.15	0.04278
12063	371.547	37.405	0.07351	209.115	5425.14	0.04250
12064	371.787	37.406	0.07380	209.547	5425.24	0.04267
12065	372.039	37.408	0.07360	210.000	5425.52	0.04256
12066	372.297	37.409	0.07365	210.465	5425.72	0.04258
12067	372.583	37.410	0.07307	210.979	5425.84	0.04225
12068	372.874	37.410	0.07313	211.503	5425.95	0.04228
12069	373.163	37.412	0.07310	212.023	5426.20	0.04227
12070	373.489	37.412	0.07334	212.610	5426.14	0.04241
12071	371.108	33.692	0.07231	208.324	4886.65	0.04181
12072	371.325	33.693	0.07193	208.715	4886.72	0.04159
12073	371.561	33.692	0.07157	209.140	4886.69	0.04138
12074	371.814	33.693	0.07164	209.595	4886.73	0.04142
12075	372.068	33.693	0.07160	210.052	4886.79	0.04140
12076	372.335	33.694	0.07152	210.533	4886.88	0.04135
12077	372.616	33.694	0.07103	211.039	4886.98	0.04107
12078	372.912	33.695	0.07113	211.572	4887.10	0.04113
12079	373.217	33.696	0.07085	212.121	4887.16	0.04097
12080	373.553	33.696	0.07067	212.725	4887.23	0.04086
12081	370.949	30.254	0.07008	208.038	4388.00	0.04052
12082	371.163	30.254	0.07000	208.423	4388.04	0.04047
12083	371.389	30.255	0.06982	208.830	4388.08	0.04037
12084	371.621	30.255	0.06942	209.248	4388.11	0.04014
12085	371.871	30.255	0.06963	209.698	4388.20	0.04026
12086	372.131	30.256	0.06942	210.166	4388.27	0.04014
12087	372.409	30.257	0.06941	210.666	4388.44	0.04013
12088	372.696	30.257	0.06911	211.183	4388.42	0.03996
12089	372.998	30.257	0.06902	211.726	4388.48	0.03991
12090	373.322	30.258	0.06895	212.310	4388.52	0.03987
12091	370.981	26.705	0.06768	208.096	3873.30	0.03913
12092	371.196	26.705	0.06761	208.483	3873.28	0.03909
12093	371.431	26.706	0.06764	208.906	3873.36	0.03911
12094	371.670	26.707	0.06757	209.336	3873.48	0.03907
12095	371.931	26.708	0.06741	209.806	3873.71	0.03898
12096	372.197	26.709	0.06734	210.285	3873.80	0.03894
12097	372.482	26.710	0.06725	210.798	3873.97	0.03888
12098	372.791	26.710	0.06690	211.354	3874.02	0.03868
12099	373.115	26.711	0.06676	211.937	3874.11	0.03860
12100	373.434	26.712	0.06657	212.511	3874.21	0.03849
12101	371.014	24.085	0.06558	208.155	3493.31	0.03792

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12102	371.245	24.087	0.06570	208.571	3493.53	0.03799
12103	371.476	24.087	0.06582	208.987	3493.59	0.03806
12104	371.729	24.088	0.06548	209.442	3493.68	0.03786
12105	371.990	24.088	0.06558	209.912	3493.75	0.03792
12106	372.269	24.090	0.06538	210.414	3493.91	0.03780
12107	372.563	24.091	0.06536	210.943	3494.09	0.03779
12108	372.875	24.092	0.06514	211.505	3494.26	0.03766
12109	373.195	24.092	0.06504	212.081	3494.32	0.03761
12110	373.533	24.094	0.06493	212.689	3494.57	0.03754
12111	371.054	21.641	0.06370	208.227	3138.79	0.03683
12112	371.290	21.640	0.06384	208.652	3138.66	0.03691
12113	371.524	21.640	0.06384	209.073	3138.61	0.03691
12114	371.786	21.639	0.06375	209.545	3138.42	0.03686
12115	372.057	21.638	0.06379	210.033	3138.27	0.03688
12116	372.342	21.637	0.06358	210.546	3138.14	0.03676
12117	372.646	21.637	0.06367	211.093	3138.13	0.03681
12118	372.958	21.636	0.06343	211.654	3138.08	0.03668
12119	373.299	21.637	0.06341	212.268	3138.24	0.03666
12120	373.634	21.635	0.06328	212.871	3137.89	0.03659
12121	371.093	19.556	0.06220	208.297	2836.40	0.03596
12122	371.339	19.557	0.06188	208.740	2836.57	0.03578
12123	371.587	19.562	0.06193	209.187	2837.29	0.03581
12124	371.842	19.559	0.06218	209.646	2836.83	0.03595
12125	372.121	19.558	0.06189	210.148	2836.67	0.03578
12126	372.412	19.560	0.06222	210.672	2836.90	0.03598
12127	372.722	19.559	0.06183	211.230	2836.82	0.03575
12128	373.044	19.557	0.06182	211.809	2836.49	0.03574
12129	373.380	19.556	0.06182	212.414	2836.40	0.03574
12130	373.743	19.556	0.06179	213.067	2836.42	0.03573
12131	371.158	17.576	0.06057	208.414	2549.13	0.03502
12132	371.397	17.575	0.06066	208.845	2549.03	0.03507
12133	371.651	17.575	0.06018	209.302	2549.00	0.03480
12134	371.921	17.573	0.06047	209.788	2548.80	0.03496
12135	372.209	17.573	0.06044	210.306	2548.69	0.03495
12136	372.495	17.572	0.06038	210.821	2548.65	0.03491
12137	372.818	17.571	0.06011	211.402	2548.49	0.03476
12138	373.142	17.572	0.06022	211.986	2548.56	0.03482
12139	373.502	17.571	0.06017	212.634	2548.44	0.03479
12140	373.874	17.570	0.06000	213.303	2548.38	0.03469
12141	370.980	15.978	0.05902	208.094	2317.48	0.03413
12142	371.211	15.978	0.05930	208.510	2317.41	0.03429
12143	371.449	15.978	0.05905	208.938	2317.41	0.03414
12144	371.712	15.978	0.05874	209.412	2317.43	0.03396
12145	371.975	15.977	0.05889	209.885	2317.33	0.03405
12146	372.276	15.978	0.05898	210.427	2317.39	0.03410
12147	372.576	15.977	0.05892	210.967	2317.34	0.03407
12148	372.902	15.978	0.05868	211.554	2317.40	0.03393
12149	373.234	15.978	0.05881	212.151	2317.35	0.03400
12150	373.595	15.978	0.05886	212.801	2317.47	0.03403

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12151	370.810	14.490	0.05766	207.788	2101.57	0.03334
12152	371.032	14.490	0.05786	208.188	2101.55	0.03345
12153	371.261	14.489	0.05775	208.600	2101.52	0.03339
12154	371.513	14.489	0.05763	209.053	2101.50	0.03332
12155	371.760	14.490	0.05740	209.498	2101.67	0.03319
12156	372.051	14.490	0.05755	210.022	2101.56	0.03328
12157	372.339	14.490	0.05756	210.540	2101.57	0.03328
12158	372.654	14.491	0.05763	211.107	2101.70	0.03332
12159	372.979	14.490	0.05737	211.692	2101.67	0.03317
12160	373.332	14.490	0.05744	212.328	2101.65	0.03321
12161	370.854	13.056	0.05627	207.867	1893.56	0.03254
12162	371.076	13.055	0.05620	208.267	1893.54	0.03249
12163	371.308	13.055	0.05601	208.684	1893.42	0.03239
12164	371.558	13.055	0.05594	209.134	1893.43	0.03234
12165	371.836	13.054	0.05581	209.635	1893.40	0.03227
12166	372.118	13.056	0.05606	210.142	1893.69	0.03241
12167	372.414	13.056	0.05602	210.675	1893.63	0.03239
12168	372.745	13.055	0.05593	211.271	1893.53	0.03234
12169	373.070	13.055	0.05615	211.856	1893.49	0.03247
12170	373.433	13.057	0.05624	212.509	1893.72	0.03252
12171	370.695	11.961	0.05491	207.581	1734.84	0.03175
12172	370.861	11.961	0.05508	207.880	1734.78	0.03185
12173	371.038	11.962	0.05464	208.198	1734.95	0.03159
12174	371.232	11.962	0.05476	208.548	1734.94	0.03166
12175	371.416	11.961	0.05475	208.879	1734.85	0.03166
12176	371.624	11.960	0.05496	209.253	1734.65	0.03178
12177	371.835	11.960	0.05460	209.633	1734.64	0.03157
12178	372.062	11.960	0.05486	210.042	1734.61	0.03172
12179	372.308	11.960	0.05471	210.484	1734.59	0.03163
12180	372.550	11.959	0.05493	210.920	1734.47	0.03176
12181	370.708	11.086	0.05367	207.604	1607.96	0.03103
12182	370.894	11.086	0.05391	207.939	1607.92	0.03117
12183	371.069	11.086	0.05371	208.254	1607.92	0.03106
12184	371.251	11.086	0.05369	208.582	1607.93	0.03104
12185	371.449	11.086	0.05354	208.938	1607.91	0.03096
12186	371.667	11.086	0.05385	209.331	1607.86	0.03114
12187	371.884	11.086	0.05382	209.721	1607.95	0.03112
12188	372.112	11.085	0.05381	210.132	1607.80	0.03111
12189	372.359	11.085	0.05377	210.576	1607.82	0.03109
12190	372.614	11.085	0.05395	211.035	1607.77	0.03119
12191	370.517	10.226	0.05185	207.261	1483.23	0.02998
12192	370.683	10.226	0.05239	207.559	1483.20	0.03029
12193	370.851	10.226	0.05270	207.862	1483.18	0.03047
12194	371.018	10.226	0.05210	208.162	1483.21	0.03012
12195	371.205	10.226	0.05260	208.499	1483.14	0.03041
12196	371.414	10.226	0.05251	208.875	1483.17	0.03036
12197	371.615	10.226	0.05252	209.237	1483.22	0.03037
12198	371.844	10.227	0.05261	209.649	1483.26	0.03042
12199	372.074	10.227	0.05272	210.063	1483.24	0.03048

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12200	372.309	10.227	0.05288	210.486	1483.31	0.03058
12201	370.602	9.536	0.05166	207.414	1383.08	0.02987
12202	370.775	9.535	0.05156	207.725	1383.00	0.02981
12203	370.936	9.535	0.05147	208.015	1382.93	0.02976
12204	371.113	9.535	0.05138	208.333	1382.98	0.02971
12205	371.303	9.535	0.05143	208.675	1382.97	0.02974
12206	371.502	9.535	0.05165	209.034	1383.00	0.02986
12207	371.712	9.535	0.05179	209.412	1383.00	0.02995
12208	371.940	9.536	0.05177	209.822	1383.06	0.02993
12209	372.174	9.536	0.05189	210.243	1383.08	0.03000
12210	372.424	9.536	0.05210	210.693	1383.09	0.03012
12211	370.431	8.940	0.05055	207.106	1296.67	0.02923
12212	370.547	8.940	0.05020	207.315	1296.71	0.02903
12213	370.670	8.940	0.05022	207.536	1296.71	0.02904
12214	370.777	8.941	0.05097	207.729	1296.76	0.02947
12215	370.905	8.941	0.05072	207.959	1296.78	0.02933
12216	371.038	8.941	0.05016	208.198	1296.80	0.02900
12217	371.175	8.941	0.05053	208.445	1296.83	0.02922
12218	371.317	8.942	0.05047	208.701	1296.87	0.02918
12219	371.476	8.942	0.05023	208.987	1296.87	0.02904
12220	371.631	8.942	0.05083	209.266	1296.90	0.02939
12221	370.437	8.446	0.04976	207.117	1225.04	0.02877
12222	370.553	8.446	0.04904	207.325	1225.06	0.02836
12223	370.666	8.447	0.04970	207.529	1225.07	0.02874
12224	370.790	8.446	0.05002	207.752	1225.06	0.02892
12225	370.911	8.446	0.04990	207.970	1225.06	0.02885
12226	371.044	8.447	0.04942	208.209	1225.10	0.02857
12227	371.185	8.447	0.04996	208.463	1225.14	0.02889
12228	371.332	8.447	0.04993	208.728	1225.16	0.02887
12229	371.481	8.447	0.05003	208.996	1225.15	0.02893
12230	371.635	8.447	0.05009	209.273	1225.17	0.02896
12231	370.450	7.994	0.04888	207.140	1159.38	0.02826
12232	370.561	7.994	0.04837	207.340	1159.40	0.02797
12233	370.671	7.994	0.04858	207.538	1159.44	0.02809
12234	370.786	7.994	0.04896	207.745	1159.49	0.02831
12235	370.927	7.995	0.04899	207.999	1159.53	0.02833
12236	371.056	7.995	0.04868	208.231	1159.54	0.02815
12237	371.202	7.995	0.04904	208.494	1159.57	0.02836
12238	371.353	7.995	0.04931	208.765	1159.61	0.02851
12239	371.505	7.996	0.04930	209.039	1159.67	0.02851
12240	371.656	7.996	0.04957	209.311	1159.70	0.02866
12241	370.410	7.605	0.04769	207.068	1102.95	0.02757
12242	370.526	7.604	0.04787	207.277	1102.94	0.02768
12243	370.644	7.604	0.04780	207.489	1102.93	0.02764
12244	370.765	7.604	0.04844	207.707	1102.94	0.02801
12245	370.395	7.604	0.04811	207.041	1102.94	0.02782
12246	370.528	7.605	0.04790	207.280	1102.97	0.02770
12247	370.639	7.605	0.04783	207.480	1102.99	0.02766
12248	370.757	7.605	0.04830	207.693	1102.97	0.02793

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12249	370.888	7.605	0.04836	207.928	1102.99	0.02796
12250	371.026	7.605	0.04807	208.177	1102.97	0.02779
12251	371.164	7.605	0.04863	208.425	1103.00	0.02812
12252	371.311	7.605	0.04909	208.690	1103.03	0.02838
12253	371.471	7.605	0.04897	208.978	1103.02	0.02831
12254	371.632	7.605	0.04935	209.268	1103.01	0.02853
12255	370.280	7.319	0.04727	206.834	1061.58	0.02733
12256	370.389	7.319	0.04744	207.030	1061.59	0.02743
12257	370.505	7.319	0.04769	207.239	1061.59	0.02757
12258	370.620	7.319	0.04708	207.446	1061.57	0.02722
12259	370.755	7.319	0.04785	207.689	1061.55	0.02767
12260	370.886	7.319	0.04793	207.925	1061.58	0.02771
12261	371.017	7.319	0.04771	208.161	1061.56	0.02759
12262	371.153	7.319	0.04845	208.405	1061.58	0.02801
12263	371.313	7.319	0.04829	208.693	1061.59	0.02792
12264	371.464	7.319	0.04867	208.965	1061.60	0.02814
12265	370.327	7.035	0.04688	206.919	1020.40	0.02711
12266	370.424	7.035	0.04658	207.093	1020.40	0.02693
12267	370.538	7.035	0.04655	207.298	1020.41	0.02692
12268	370.663	7.036	0.04653	207.523	1020.45	0.02690
12269	370.782	7.036	0.04695	207.738	1020.45	0.02715
12270	370.920	7.036	0.04728	207.986	1020.46	0.02734
12271	371.055	7.036	0.04713	208.229	1020.48	0.02725
12272	371.197	7.036	0.04776	208.485	1020.49	0.02761
12273	371.350	7.036	0.04826	208.760	1020.49	0.02790
12274	371.496	7.036	0.04868	209.023	1020.52	0.02815
12275	370.309	6.786	0.04605	206.886	984.25	0.02663
12276	370.426	6.786	0.04628	207.097	984.22	0.02676
12277	370.533	6.786	0.04576	207.289	984.22	0.02646
12278	370.654	6.786	0.04598	207.507	984.21	0.02659
12279	370.791	6.786	0.04650	207.754	984.20	0.02689
12280	370.913	6.786	0.04693	207.973	984.18	0.02714
12281	371.046	6.786	0.04683	208.213	984.17	0.02708
12282	371.200	6.785	0.04776	208.490	984.15	0.02761
12283	371.351	6.785	0.04821	208.762	984.15	0.02788
12284	371.508	6.785	0.04858	209.044	984.12	0.02809
12285	370.324	6.606	0.04565	206.913	958.14	0.02639
12286	370.390	6.607	0.04573	207.032	958.23	0.02644
12287	370.478	6.607	0.04566	207.190	958.23	0.02640
12288	370.544	6.607	0.04599	207.309	958.25	0.02659
12289	370.628	6.607	0.04541	207.460	958.26	0.02626
12290	370.711	6.607	0.04563	207.610	958.28	0.02638
12291	370.788	6.607	0.04607	207.748	958.30	0.02664
12292	370.878	6.607	0.04630	207.910	958.31	0.02677
12293	370.967	6.607	0.04650	208.071	958.31	0.02689
12294	371.050	6.607	0.04714	208.220	958.32	0.02726
12295	370.332	6.455	0.04509	206.928	936.17	0.02607
12296	370.392	6.454	0.04518	207.036	936.12	0.02612
12297	370.470	6.454	0.04514	207.176	936.10	0.02610

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12298	370.555	6.454	0.04551	207.329	936.14	0.02631
12299	370.624	6.454	0.04514	207.453	936.14	0.02610
12300	370.712	6.455	0.04524	207.612	936.15	0.02616
12301	370.800	6.455	0.04575	207.770	936.16	0.02645
12302	370.874	6.455	0.04583	207.903	936.15	0.02650
12303	370.977	6.455	0.04646	208.089	936.16	0.02686
12304	371.059	6.455	0.04672	208.236	936.20	0.02701
12305	370.262	6.313	0.04309	206.802	915.66	0.02491
12306	370.339	6.313	0.04507	206.940	915.68	0.02606
12307	370.419	6.314	0.04494	207.084	915.70	0.02598
12308	370.494	6.314	0.04471	207.219	915.76	0.02585
12309	370.565	6.314	0.04524	207.347	915.75	0.02616
12310	370.652	6.314	0.04484	207.504	915.77	0.02593
12311	370.717	6.314	0.04493	207.621	915.78	0.02598
12312	370.802	6.314	0.04568	207.774	915.81	0.02641
12313	370.887	6.314	0.04602	207.927	915.83	0.02661
12314	370.993	6.314	0.04638	208.117	915.84	0.02682
12315	370.295	6.160	0.04304	206.861	893.48	0.02489
12316	370.349	6.161	0.04445	206.958	893.51	0.02570
12317	370.437	6.161	0.04472	207.117	893.54	0.02586
12318	370.505	6.161	0.04425	207.239	893.54	0.02559
12319	370.582	6.161	0.04487	207.378	893.54	0.02594
12320	370.655	6.161	0.04474	207.509	893.59	0.02587
12321	370.733	6.161	0.04489	207.649	893.58	0.02596
12322	370.814	6.161	0.04571	207.795	893.60	0.02643
12323	370.908	6.161	0.04579	207.964	893.61	0.02648
12324	370.985	6.161	0.04634	208.103	893.64	0.02679
12325	370.233	6.052	0.04341	206.749	877.73	0.02510
12326	370.280	6.052	0.04243	206.834	877.73	0.02453
12327	370.353	6.052	0.04383	206.965	877.75	0.02534
12328	370.428	6.052	0.04399	207.100	877.75	0.02544
12329	370.494	6.052	0.04387	207.219	877.76	0.02537
12330	370.567	6.052	0.04447	207.351	877.76	0.02571
12331	370.646	6.052	0.04426	207.493	877.76	0.02559
12332	370.720	6.052	0.04472	207.626	877.77	0.02586
12333	370.803	6.052	0.04551	207.775	877.78	0.02631
12334	370.894	6.052	0.04578	207.939	877.79	0.02647
12335	370.192	5.982	0.04267	206.676	867.62	0.02467
12336	370.251	5.982	0.04295	206.782	867.62	0.02483
12337	370.321	5.982	0.04306	206.908	867.64	0.02490
12338	370.394	5.982	0.04354	207.039	867.66	0.02517
12339	370.469	5.982	0.04364	207.174	867.67	0.02523
12340	370.542	5.982	0.04421	207.306	867.65	0.02556
12341	370.630	5.982	0.04388	207.464	867.65	0.02537
12342	370.691	5.982	0.04468	207.574	867.67	0.02583
12343	370.787	5.982	0.04524	207.747	867.67	0.02616
12344	370.865	5.983	0.04558	207.887	867.70	0.02635
12345	370.095	5.896	0.04279	206.501	855.16	0.02474
12346	370.232	5.896	0.04168	206.748	855.17	0.02410

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12347	370.257	5.896	0.04272	206.793	855.17	0.02470
12348	370.331	5.896	0.04328	206.926	855.17	0.02502
12349	370.397	5.896	0.04339	207.045	855.19	0.02509
12350	370.475	5.896	0.04320	207.185	855.17	0.02498
12351	370.546	5.896	0.04395	207.313	855.18	0.02541
12352	370.621	5.896	0.04362	207.448	855.19	0.02522
12353	370.695	5.896	0.04445	207.581	855.20	0.02570
12354	370.787	5.896	0.04526	207.747	855.20	0.02617
12355	370.140	5.806	0.04148	206.582	842.03	0.02398
12356	370.212	5.806	0.04256	206.712	842.06	0.02461
12357	370.273	5.806	0.04177	206.821	842.06	0.02415
12358	370.362	5.806	0.04245	206.982	842.05	0.02454
12359	370.434	5.806	0.04267	207.111	842.07	0.02467
12360	370.508	5.806	0.04307	207.244	842.08	0.02490
12361	370.576	5.806	0.04283	207.367	842.09	0.02476
12362	370.654	5.806	0.04341	207.507	842.08	0.02510
12363	370.738	5.806	0.04399	207.658	842.08	0.02544
12364	370.822	5.806	0.04492	207.810	842.09	0.02597
12365	370.129	5.730	0.04134	206.562	831.13	0.02390
12366	370.214	5.730	0.04173	206.715	831.14	0.02413
12367	370.282	5.730	0.04134	206.838	831.12	0.02390
12368	370.348	5.730	0.04216	206.956	831.14	0.02438
12369	370.415	5.731	0.04224	207.077	831.16	0.02442
12370	370.502	5.731	0.04303	207.234	831.15	0.02488
12371	370.566	5.731	0.04277	207.349	831.15	0.02473
12372	370.656	5.731	0.04330	207.511	831.16	0.02504
12373	370.740	5.731	0.04404	207.662	831.17	0.02546
12374	370.821	5.731	0.04466	207.808	831.16	0.02582
12375	370.122	5.659	0.04028	206.550	820.80	0.02329
12376	370.196	5.659	0.04166	206.683	820.80	0.02409
12377	370.276	5.659	0.04078	206.827	820.80	0.02358
12378	370.339	5.659	0.04167	206.940	820.79	0.02409
12379	370.416	5.659	0.04170	207.079	820.79	0.02411
12380	370.491	5.659	0.04267	207.214	820.82	0.02467
12381	370.569	5.659	0.04281	207.354	820.81	0.02475
12382	370.654	5.659	0.04299	207.507	820.82	0.02486
12383	370.729	5.659	0.04376	207.642	820.79	0.02530
12384	370.815	5.659	0.04463	207.797	820.80	0.02581
12385	370.155	5.585	0.04038	206.609	810.10	0.02335
12386	370.237	5.585	0.04095	206.757	810.10	0.02368
12387	370.306	5.585	0.04090	206.881	810.10	0.02365
12388	370.369	5.586	0.04130	206.994	810.13	0.02388
12389	370.434	5.585	0.04118	207.111	810.11	0.02381
12390	370.523	5.586	0.04210	207.271	810.14	0.02434
12391	370.605	5.585	0.04166	207.419	810.11	0.02409
12392	370.691	5.585	0.04266	207.574	810.11	0.02467
12393	370.779	5.586	0.04349	207.732	810.12	0.02515
12394	370.867	5.585	0.04405	207.891	810.11	0.02547
12395	370.080	5.509	0.04025	206.474	799.08	0.02327

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12396	370.157	5.510	0.03924	206.613	799.09	0.02269
12397	370.211	5.510	0.04042	206.710	799.10	0.02337
12398	370.308	5.509	0.04035	206.884	799.07	0.02333
12399	370.380	5.509	0.04069	207.014	799.08	0.02353
12400	370.443	5.509	0.04080	207.127	799.07	0.02359
12401	370.523	5.509	0.04124	207.271	799.08	0.02385
12402	370.602	5.510	0.04118	207.414	799.09	0.02381
12403	370.701	5.509	0.04219	207.592	799.08	0.02439
12404	370.774	5.510	0.04310	207.723	799.09	0.02492
12405	370.051	5.429	0.03912	206.422	787.40	0.02262
12406	370.135	5.429	0.03863	206.573	787.39	0.02234
12407	370.206	5.429	0.03962	206.701	787.38	0.02291
12408	370.299	5.429	0.03968	206.868	787.38	0.02294
12409	370.366	5.429	0.04003	206.989	787.37	0.02315
12410	370.436	5.429	0.04008	207.115	787.38	0.02317
12411	370.525	5.429	0.04081	207.275	787.38	0.02360
12412	370.617	5.429	0.04086	207.441	787.40	0.02363
12413	370.699	5.429	0.04137	207.588	787.39	0.02392
12414	370.794	5.429	0.04236	207.759	787.39	0.02449
12415	370.087	5.353	0.03876	206.487	776.38	0.02241
12416	370.158	5.353	0.03925	206.614	776.40	0.02269
12417	370.237	5.353	0.03801	206.757	776.38	0.02198
12418	370.306	5.353	0.03896	206.881	776.41	0.02253
12419	370.400	5.353	0.03969	207.050	776.39	0.02295
12420	370.495	5.353	0.03974	207.221	776.40	0.02298
12421	370.567	5.353	0.04005	207.351	776.41	0.02316
12422	370.652	5.353	0.04005	207.504	776.41	0.02316
12423	370.761	5.353	0.04082	207.700	776.39	0.02360
12424	370.859	5.353	0.04210	207.876	776.41	0.02434
12425	370.127	5.268	0.03731	206.559	764.11	0.02157
12426	370.223	5.268	0.03826	206.731	764.09	0.02212
12427	370.307	5.268	0.03719	206.883	764.10	0.02150
12428	370.367	5.268	0.03804	206.991	764.10	0.02199
12429	370.463	5.268	0.03787	207.163	764.11	0.02190
12430	370.552	5.268	0.03879	207.324	764.12	0.02243
12431	370.641	5.268	0.03840	207.484	764.11	0.02220
12432	370.728	5.268	0.03942	207.640	764.13	0.02279
12433	370.820	5.268	0.04002	207.806	764.13	0.02314
12434	370.927	5.269	0.04059	207.999	764.14	0.02347
12435	370.236	5.161	0.03624	206.755	748.52	0.02095
12436	370.312	5.161	0.03690	206.892	748.53	0.02134
12437	370.387	5.161	0.03559	207.027	748.53	0.02058
12438	370.456	5.161	0.03670	207.151	748.54	0.02122
12439	370.553	5.161	0.03723	207.325	748.53	0.02153
12440	370.633	5.161	0.03717	207.469	748.52	0.02149
12441	370.713	5.161	0.03726	207.613	748.55	0.02154
12442	370.805	5.161	0.03774	207.779	748.55	0.02182
12443	370.920	5.161	0.03791	207.986	748.52	0.02192
12444	371.015	5.161	0.03875	208.157	748.53	0.02241

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12445	370.210	5.052	0.03578	206.708	732.76	0.02069
12446	370.301	5.052	0.03556	206.872	732.76	0.02056
12447	370.385	5.052	0.03421	207.023	732.78	0.01978
12448	370.487	5.052	0.03535	207.207	732.75	0.02044
12449	370.571	5.052	0.03554	207.358	732.74	0.02055
12450	370.667	5.052	0.03596	207.531	732.77	0.02079
12451	370.743	5.052	0.03565	207.667	732.75	0.02061
12452	370.842	5.052	0.03614	207.846	732.68	0.02090
12453	370.941	5.050	0.03675	208.024	732.47	0.02125
12454	371.057	5.051	0.03717	208.233	732.63	0.02149
12455	370.211	4.942	0.03466	206.710	716.84	0.02004
12456	370.318	4.942	0.03438	206.902	716.82	0.01988
12457	370.403	4.942	0.03360	207.055	716.84	0.01943
12458	370.480	4.942	0.03457	207.194	716.83	0.01999
12459	370.589	4.942	0.03428	207.390	716.82	0.01982
12460	370.679	4.942	0.03491	207.552	716.81	0.02019
12461	370.772	4.942	0.03445	207.720	716.81	0.01992
12462	370.880	4.942	0.03513	207.914	716.79	0.02031
12463	370.986	4.942	0.03560	208.105	716.80	0.02058
12464	371.089	4.942	0.03622	208.290	716.80	0.02094
12465	370.234	4.813	0.03281	206.751	698.05	0.01897
12466	370.335	4.813	0.03300	206.933	698.03	0.01908
12467	370.432	4.813	0.03274	207.108	698.03	0.01893
12468	370.524	4.813	0.03319	207.273	698.04	0.01919
12469	370.619	4.812	0.03318	207.444	697.97	0.01918
12470	370.704	4.812	0.03361	207.597	697.99	0.01943
12471	370.820	4.813	0.03316	207.806	698.00	0.01917
12472	370.933	4.812	0.03392	208.009	697.99	0.01961
12473	371.044	4.812	0.03447	208.209	697.98	0.01993
12474	371.164	4.813	0.03477	208.425	698.01	0.02010
12475	370.267	4.679	0.03149	206.811	678.63	0.01821
12476	370.353	4.679	0.03216	206.965	678.64	0.01859
12477	370.460	4.679	0.03191	207.158	678.60	0.01845
12478	370.550	4.679	0.03189	207.320	678.61	0.01844
12479	370.658	4.679	0.03232	207.514	678.61	0.01869
12480	370.756	4.679	0.03201	207.691	678.64	0.01851
12481	370.865	4.679	0.03224	207.887	678.64	0.01864
12482	370.982	4.679	0.03276	208.098	678.67	0.01894
12483	371.096	4.679	0.03293	208.303	678.66	0.01904
12484	371.225	4.679	0.03354	208.535	678.66	0.01939
12485	370.302	4.524	0.03036	206.874	656.12	0.01755
12486	370.403	4.524	0.02989	207.055	656.11	0.01728
12487	370.493	4.524	0.03099	207.217	656.12	0.01792
12488	370.582	4.524	0.03083	207.378	656.10	0.01783
12489	370.703	4.524	0.03086	207.595	656.09	0.01784
12490	370.806	4.524	0.03029	207.781	656.10	0.01751
12491	370.932	4.524	0.03109	208.008	656.10	0.01798
12492	371.053	4.524	0.03132	208.225	656.10	0.01811
12493	371.182	4.523	0.03165	208.458	656.02	0.01830

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12494	371.312	4.523	0.03188	208.692	656.01	0.01843
12495	370.362	4.362	0.02980	206.982	632.64	0.01723
12496	370.462	4.362	0.02958	207.162	632.63	0.01710
12497	370.562	4.362	0.02969	207.342	632.64	0.01717
12498	370.691	4.362	0.02994	207.574	632.65	0.01731
12499	370.788	4.362	0.02970	207.748	632.63	0.01717
12500	370.911	4.362	0.02939	207.970	632.68	0.01699
12501	371.029	4.362	0.03004	208.182	632.64	0.01737
12502	371.152	4.362	0.02989	208.404	632.64	0.01728
12503	371.294	4.362	0.03029	208.659	632.63	0.01751
12504	371.432	4.362	0.03025	208.908	632.61	0.01749
12505	370.416	4.151	0.02812	207.079	602.01	0.01626
12507	370.503	4.150	0.02841	207.235	601.98	0.01643
12509	370.623	4.150	0.02824	207.451	601.87	0.01633
12511	370.746	4.150	0.02818	207.673	601.91	0.01629
12513	370.856	4.150	0.02776	207.871	601.90	0.01605
12515	370.973	4.150	0.02846	208.081	601.90	0.01646
12517	371.113	4.150	0.02873	208.333	601.90	0.01661
12519	371.258	4.150	0.02865	208.594	601.92	0.01657
12521	371.397	4.150	0.02887	208.845	601.92	0.01669
12523	371.550	4.150	0.02866	209.120	601.92	0.01657
12525	370.429	3.970	0.02756	207.102	575.73	0.01594
12527	370.530	3.970	0.02653	207.284	575.73	0.01534
12529	370.664	3.970	0.02732	207.525	575.74	0.01580
12531	370.761	3.970	0.02704	207.700	575.77	0.01563
12533	370.871	3.970	0.02768	207.898	575.77	0.01600
12535	371.015	3.970	0.02700	208.157	575.84	0.01561
12537	371.138	3.970	0.02711	208.378	575.86	0.01568
12539	371.289	3.971	0.02727	208.650	575.90	0.01577
12541	371.429	3.971	0.02761	208.902	575.91	0.01596
12543	371.572	3.970	0.02748	209.160	575.87	0.01589
12545	370.500	3.724	0.02603	207.230	540.14	0.01505
12547	370.598	3.722	0.02624	207.406	539.86	0.01517
12549	370.731	3.721	0.02647	207.646	539.67	0.01531
12551	370.844	3.720	0.02633	207.849	539.60	0.01522
12553	370.968	3.720	0.02591	208.072	539.56	0.01498
12555	371.103	3.720	0.02620	208.315	539.55	0.01515
12557	371.229	3.720	0.02623	208.542	539.51	0.01517
12559	371.380	3.720	0.02628	208.814	539.49	0.01520
12561	371.540	3.720	0.02636	209.102	539.48	0.01524
12563	371.684	3.719	0.02614	209.361	539.47	0.01511
12565	370.476	3.495	0.02539	207.187	506.96	0.01468
12567	370.611	3.495	0.02546	207.430	506.97	0.01472
12569	370.737	3.496	0.02549	207.657	507.02	0.01474
12571	370.862	3.496	0.02548	207.882	507.08	0.01473
12573	371.003	3.497	0.02439	208.135	507.14	0.01410
12575	371.129	3.497	0.02530	208.362	507.19	0.01463
12577	371.272	3.497	0.02535	208.620	507.26	0.01466
12579	371.426	3.498	0.02548	208.897	507.30	0.01473

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12581	371.582	3.498	0.02552	209.178	507.33	0.01476
12583	371.749	3.498	0.02541	209.478	507.40	0.01469
12585	370.510	3.206	0.02472	207.248	465.04	0.01429
12587	370.655	3.205	0.02474	207.509	464.91	0.01430
12589	370.774	3.204	0.02433	207.723	464.76	0.01407
12591	370.914	3.204	0.02447	207.975	464.70	0.01415
12593	371.056	3.204	0.02386	208.231	464.70	0.01380
12595	371.201	3.204	0.02436	208.492	464.68	0.01408
12597	371.348	3.204	0.02416	208.756	464.66	0.01397
12599	371.510	3.204	0.02444	209.048	464.68	0.01413
12601	371.684	3.204	0.02415	209.361	464.73	0.01396
12603	371.857	3.204	0.02467	209.673	464.72	0.01426
12605	370.556	2.936	0.02308	207.331	425.89	0.01334
12607	370.693	2.936	0.02387	207.577	425.79	0.01380
12609	370.821	2.935	0.02368	207.808	425.68	0.01369
12611	370.953	2.935	0.02382	208.045	425.64	0.01377
12613	371.096	2.934	0.02354	208.303	425.60	0.01361
12615	371.253	2.934	0.02365	208.585	425.60	0.01367
12617	371.412	2.935	0.02369	208.872	425.63	0.01370
12619	371.582	2.935	0.02387	209.178	425.62	0.01380
12621	371.763	2.934	0.02359	209.503	425.60	0.01364
12623	371.954	2.934	0.02380	209.847	425.53	0.01376
12625	370.531	2.589	0.02319	207.286	375.53	0.01341
12627	370.670	2.589	0.02298	207.536	375.49	0.01329
12629	370.781	2.588	0.02290	207.736	375.40	0.01324
12631	370.932	2.588	0.02296	208.008	375.37	0.01328
12633	371.092	2.588	0.02291	208.296	375.36	0.01325
12635	371.245	2.588	0.02282	208.571	375.37	0.01319
12637	371.404	2.588	0.02287	208.857	375.32	0.01322
12639	371.581	2.588	0.02289	209.176	375.32	0.01324
12641	371.771	2.588	0.02271	209.518	375.33	0.01313
12643	371.965	2.588	0.02305	209.867	375.36	0.01333
12645	370.565	2.193	0.02214	207.347	318.08	0.01280
12647	370.690	2.193	0.02224	207.572	318.12	0.01286
12649	370.860	2.194	0.02205	207.878	318.23	0.01275
12651	370.994	2.195	0.02173	208.119	318.42	0.01256
12653	371.171	2.196	0.02234	208.438	318.57	0.01292
12655	371.323	2.198	0.02238	208.711	318.79	0.01294
12657	371.500	2.199	0.02221	209.030	318.94	0.01284
12659	371.684	2.201	0.02257	209.361	319.16	0.01305
12661	371.884	2.201	0.02240	209.721	319.29	0.01295
12663	372.093	2.203	0.02229	210.097	319.45	0.01289
12665	370.528	1.776	0.02160	207.280	257.65	0.01249
12667	370.645	1.776	0.02167	207.491	257.53	0.01253
12669	370.796	1.775	0.02191	207.763	257.45	0.01267
12671	370.972	1.775	0.02188	208.080	257.38	0.01265
12673	371.119	1.775	0.02154	208.344	257.39	0.01245
12675	371.283	1.774	0.02157	208.639	257.37	0.01247
12677	371.464	1.775	0.02159	208.965	257.41	0.01248

Table 8. Transient Hot-Wire Thermal Conductivity Data For HFC-143a (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)
12679	371.649	1.775	0.02178	209.298	257.42	0.01259
12681	371.855	1.775	0.02154	209.669	257.42	0.01245
12683	372.043	1.775	0.02189	210.007	257.45	0.01266
12685	370.535	1.335	0.02178	207.293	193.63	0.01259
12687	370.717	1.334	0.02154	207.621	193.48	0.01245
12689	370.856	1.332	0.02112	207.871	193.26	0.01221
12691	371.028	1.330	0.02108	208.180	192.91	0.01219
12693	371.187	1.327	0.02140	208.467	192.50	0.01237
12695	371.374	1.326	0.02135	208.803	192.26	0.01234
12697	371.578	1.325	0.02126	209.170	192.12	0.01229
12699	371.776	1.324	0.02152	209.527	191.97	0.01244
12701	371.989	1.323	0.02133	209.910	191.82	0.01233
12703	372.207	1.321	0.02129	210.303	191.66	0.01231
12705	370.671	0.873	0.02080	207.538	126.57	0.01203
12707	370.838	0.873	0.02120	207.838	126.58	0.01226
12709	370.983	0.873	0.02121	208.099	126.59	0.01226
12711	371.166	0.873	0.02099	208.429	126.60	0.01214
12713	371.340	0.873	0.02134	208.742	126.62	0.01234
12715	371.535	0.873	0.02125	209.093	126.65	0.01229
12717	371.740	0.873	0.02129	209.462	126.66	0.01231
12719	371.955	0.873	0.02097	209.849	126.66	0.01212
12721	372.179	0.873	0.02123	210.252	126.68	0.01228
12723	372.420	0.873	0.02130	210.686	126.67	0.01232
12725	370.785	0.240	0.02210	207.743	34.83	0.01278
12727	370.967	0.240	0.02180	208.071	34.87	0.01260
12729	371.156	0.240	0.02172	208.411	34.88	0.01256
12731	371.353	0.241	0.02163	208.765	34.90	0.01251
12733	371.583	0.241	0.02190	209.179	34.93	0.01266
12735	371.811	0.241	0.02207	209.590	34.95	0.01276
12737	372.049	0.241	0.02163	210.018	34.97	0.01251
12739	372.297	0.241	0.02183	210.465	34.98	0.01262
12741	372.570	0.241	0.02186	210.956	34.99	0.01264
12743	372.854	0.241	0.02176	211.467	35.00	0.01258

Table 9. Coefficients of the MBWR Equation of State for HFC-152a
[Units are K, bar, L, mol, R = 8.3145 J/(mol · K)].

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

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

i	b _i	i	b _i
1	-0.228045823361 x 10 ⁻¹	17	0.214099003128 x 10 ⁻²
2	0.303431958631 x 10	18	0.763280410204
3	-0.823958103384 x 10 ²	19	-0.186248644783 x 10 ⁻¹
4	0.148702974065 x 10 ⁵	20	-0.449227267620 x 10 ⁶
5	-0.230283972846 x 10 ⁷	21	-0.414386750878 x 10 ⁸
6	-0.598555815027 x 10 ⁻³	22	-0.180824754701 x 10 ⁵
7	-0.652180504112	23	0.526311932608 x 10 ⁹
8	0.414998934602 x 10 ³	24	-0.158631034911 x 10 ³
9	0.682705599404 x 10 ⁶	25	0.520191028698 x 10 ⁴
10	-0.105074858872 x 10 ⁻³	26	-0.151001104140 x 10
11	0.524630953619	27	-0.690665865062 x 10 ⁵
12	-0.215263826140 x 10 ³	28	-0.905780922499 x 10 ⁻²
13	-0.143801177834 x 10 ⁻¹	29	0.361488775375 x 10
14	-0.200517809387	30	-0.216252082796 x 10 ⁻⁴
15	-0.223863020885 x 10 ³	31	-0.147563864078 x 10 ⁻¹
16	0.706005017250 x 10 ⁻¹	32	-0.108162704937 x 10

Table 10. Critical Parameters for HFC-152a for Use with the MBWR Equation of State.

T_c	386.441 K
P_c	45.167 bar
ρ_c	5.57145 mol/L

**Table 11. Ideal Gas Heat Capacity Auxiliary Equation and its Coefficients for HFC-152a
[Units are K and J/(mol · K)].**

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

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

Table 12a. Properties of Saturated Liquid and Saturated Vapor HFC-152a (SI Units).

Temp* °C	Pressure MPa	Density kg/m ³ liq	Volume m ³ /kg vap	Enthalpy kJ/kg		Entropy kJ/(kg·K)		Specific Heat, C _p kJ/(kg·K)		C _p /C _v vap	Vel of Sound m/s	
				liq	vap	liq	vap	liq	vap		liq	vap
-118.59a	0.00006	1192.6	303.92867	13.92	419.72	0.1126	2.7381	1.478	0.692	1.223	1388.	154.
-110.00	0.00019	1177.0	107.89658	26.72	425.72	0.1932	2.6387	1.500	0.711	1.216	1335.	158.
-100.00	0.00058	1158.6	37.64346	41.79	432.87	0.2828	2.5414	1.513	0.734	1.209	1278.	162.
-90.00	0.00153	1140.2	15.05408	56.97	440.19	0.3680	2.4604	1.523	0.758	1.202	1224.	166.
-80.00	0.00359	1121.5	6.74139	72.24	447.64	0.4492	2.3927	1.531	0.784	1.197	1172.	170.
-70.00	0.00765	1102.6	3.31741	87.61	455.18	0.5267	2.3361	1.541	0.812	1.193	1121.	173.
-60.00	0.01501	1083.4	1.76667	103.09	462.78	0.6011	2.2886	1.554	0.842	1.191	1070.	177.
-50.00	0.02744	1063.9	1.00549	118.70	470.39	0.6726	2.2486	1.569	0.875	1.190	1020.	180.
-40.00	0.04724	1044.0	0.60529	134.49	477.95	0.7418	2.2149	1.587	0.911	1.191	970.	182.
-30.00	0.07722	1023.7	0.38210	150.49	485.44	0.8088	2.1864	1.609	0.951	1.194	921.	184.
-24.03b	0.10133	1011.3	0.29612	160.14	489.84	0.8479	2.1714	1.623	0.976	1.197	891.	185.
-20.00	0.12072	1002.8	0.25113	166.71	492.79	0.8740	2.1621	1.633	0.994	1.200	872.	186.
-10.00	0.18156	981.3	0.17080	183.20	499.95	0.9377	2.1414	1.661	1.042	1.208	822.	187.
0.00	0.26401	959.1	0.11958	200.00	506.89	1.0000	2.1235	1.693	1.095	1.219	773.	187.
10.00	0.37275	936.0	0.08580	217.14	513.53	1.0612	2.1080	1.729	1.154	1.234	724.	187.
20.00	0.51284	911.9	0.06284	234.67	519.82	1.1215	2.0942	1.771	1.220	1.254	674.	186.
30.00	0.68968	886.5	0.04682	252.64	525.67	1.1811	2.0818	1.820	1.296	1.281	624.	185.
40.00	0.90904	859.6	0.03536	271.13	530.98	1.2403	2.0701	1.879	1.386	1.316	573.	182.
50.00	1.17707	830.7	0.02699	290.24	535.63	1.2994	2.0588	1.953	1.494	1.365	521.	179.
60.00	1.50033	799.3	0.02074	310.07	539.41	1.3586	2.0470	2.047	1.631	1.433	468.	175.
70.00	1.88598	764.6	0.01599	330.83	542.07	1.4185	2.0341	2.176	1.818	1.536	414.	169.
80.00	2.34197	725.2	0.01229	352.79	543.14	1.4799	2.0189	2.369	2.098	1.702	357.	162.
90.00	2.87761	678.6	0.00933	376.51	541.78	1.5439	1.9991	2.702	2.592	2.014	298.	154.
100.00	3.50484	618.9	0.00686	403.22	536.04	1.6139	1.9698	3.488	3.776	2.797	234.	143.
110.00	4.24319	518.6	0.00447	438.74	517.28	1.7043	1.9093	9.129	12.065	8.398	158.	129.
113.26c	4.51670	368.0	0.00272	477.31	477.31	1.7903	1.7903	∞	∞	∞	0.	0.

* temperatures are on the ITS-90 scale

a triple point; b boiling point; c critical point

Table 12b. Properties of Saturated Liquid and Saturated Vapor HFC-152a (PI Units).

	Temp* °F	Pressure psia	Density lb/ft ³ liq	Volume ft ³ /lb vap	Enthalpy BTU/lb		Entropy BTU/(lb · °F)		Specific Heat, C _p BTU/(lb · °F)		C _p /C _v vap	Vel of Sound ft/s	
					liq	vap	liq	vap	liq	vap		liq	vap
A-39	-181.46a	0.009	74.45	4868.4700	-51.871	122.707	-0.15038	0.47713	0.3532	0.1654	1.2227	4553.	506.
	-180.00	0.010	74.36	4388.7233	-51.354	122.948	-0.14853	0.47472	0.3539	0.1658	1.2221	4536.	507.
	-160.00	0.041	73.10	1196.4060	-44.211	126.304	-0.12386	0.44515	0.3597	0.1717	1.2134	4315.	523.
	-140.00	0.131	71.82	395.1328	-36.984	129.755	-0.10051	0.42108	0.3627	0.1779	1.2058	4113.	538.
	-120.00	0.361	70.53	152.3834	-29.705	133.286	-0.07843	0.40142	0.3650	0.1845	1.1995	3920.	552.
	-100.00	0.871	69.23	66.6742	-22.380	136.877	-0.05748	0.38530	0.3675	0.1917	1.1946	3732.	565.
	-80.00	1.887	67.90	32.3532	-14.997	140.504	-0.03751	0.37206	0.3707	0.1995	1.1914	3547.	577.
	-60.00	3.734	66.55	17.0969	-7.543	144.141	-0.01839	0.36113	0.3746	0.2082	1.1903	3364.	588.
	-40.00	6.852	65.18	9.6958	0.000	147.760	0.00000	0.35209	0.3794	0.2177	1.1913	3183.	598.
	-20.00	11.795	63.76	5.8309	7.650	151.333	0.01777	0.34457	0.3851	0.2283	1.1949	3003.	605.
	-11.26b	14.696	63.13	4.7434	11.033	152.874	0.02537	0.34169	0.3878	0.2333	1.1974	2925.	608.
	0.00	19.232	62.31	3.6823	15.426	154.833	0.03502	0.33830	0.3917	0.2401	1.2014	2824.	611.
	20.00	29.939	60.81	2.4221	23.349	158.231	0.05182	0.33302	0.3994	0.2532	1.2113	2644.	614.
	40.00	44.788	59.24	1.6481	31.439	161.494	0.06825	0.32853	0.4082	0.2678	1.2253	2465.	615.
	60.00	64.740	57.61	1.1534	39.722	164.589	0.08438	0.32466	0.4186	0.2844	1.2447	2284.	613.
	80.00	90.837	55.88	0.8259	48.228	167.471	0.10028	0.32123	0.4309	0.3035	1.2710	2101.	608.
	100.00	124.198	54.04	0.6023	56.995	170.088	0.11602	0.31809	0.4458	0.3261	1.3073	1916.	600.
	120.00	166.022	52.07	0.4453	66.074	172.365	0.13170	0.31507	0.4646	0.3538	1.3584	1728.	588.
	140.00	217.605	49.90	0.3322	75.535	174.200	0.14743	0.31196	0.4893	0.3898	1.4331	1535.	573.
	160.00	280.360	47.48	0.2488	85.485	175.432	0.16336	0.30851	0.5243	0.4406	1.5501	1337.	552.
	180.00	355.886	44.67	0.1854	96.105	175.781	0.17974	0.30430	0.5798	0.5216	1.7539	1130.	526.
	200.00	446.106	41.24	0.1357	107.758	174.676	0.19707	0.29852	0.6884	0.6833	2.1881	911.	493.
	220.00	553.677	36.44	0.0935	121.532	170.438	0.21687	0.28882	1.0492	1.2275	3.7120	666.	451.
	235.87c	655.092	22.97	0.0435	147.481	147.481	0.24539	0.24539	∞	∞	∞	0.	0.

*temperatures are on the ITS-90 scale

a triple point; b boiling point; c critical point

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a.

Point Number	T _{Exp.} K	P _{Cell} MPa	λ _{Exp.} W/(m·K)	T _{Exp.} °F	P _{Cell} psia	λ _{Exp.} BTU/(ft·hr·°F)
1001	303.586	70.325	0.14093	86.785	10199.88	0.08149
1003	302.594	70.240	0.13976	84.999	10187.47	0.08081
1005	301.772	70.147	0.13941	83.520	10174.03	0.08061
1007	301.114	70.057	0.14211	82.335	10160.92	0.08217
1009	303.275	56.731	0.13493	86.225	8228.17	0.07802
1011	302.340	56.664	0.13405	84.542	8218.49	0.07751
1013	301.568	56.607	0.13412	83.152	8210.17	0.07755
1015	300.977	56.539	0.13737	82.089	8200.39	0.07943
1017	303.182	44.578	0.12782	86.058	6465.52	0.07391
1019	302.210	44.589	0.12799	84.308	6467.05	0.07400
1021	301.414	44.582	0.12826	82.875	6466.06	0.07416
1023	300.786	44.588	0.13162	81.745	6466.92	0.07610
1025	303.232	32.483	0.12239	86.148	4711.32	0.07077
1027	302.215	32.486	0.12206	84.317	4711.78	0.07058
1029	301.373	32.462	0.12224	82.801	4708.26	0.07068
1031	300.735	32.429	0.12476	81.653	4703.47	0.07214
1033	303.243	22.915	0.11675	86.167	3323.61	0.06751
1035	302.212	22.905	0.11640	84.312	3322.04	0.06730
1037	301.380	22.903	0.11718	82.814	3321.76	0.06775
1039	300.728	22.898	0.11939	81.640	3321.03	0.06903
1041	303.287	14.211	0.11132	86.247	2061.08	0.06437
1043	302.283	14.229	0.11116	84.439	2063.74	0.06427
1045	301.464	14.238	0.11154	82.965	2065.05	0.06449
1047	300.828	14.253	0.11352	81.820	2067.18	0.06564
1049	303.275	6.941	0.10638	86.225	1006.67	0.06151
1051	302.257	6.959	0.10602	84.393	1009.38	0.06130
1053	301.426	6.980	0.10645	82.897	1012.43	0.06155
1055	300.743	6.979	0.10845	81.667	1012.26	0.06271
2003	337.420	71.703	0.13294	147.686	10399.68	0.07687
2005	336.757	71.694	0.13178	146.493	10398.36	0.07620
2007	336.199	71.697	0.13169	145.488	10398.75	0.07614
2011	337.209	58.966	0.12434	147.306	8552.32	0.07189
2013	336.388	58.967	0.12581	145.828	8552.42	0.07274
2015	335.747	58.964	0.12773	144.675	8552.03	0.07385
2019	337.349	47.841	0.12087	147.558	6938.71	0.06989
2021	336.488	47.846	0.12029	146.008	6939.45	0.06955
2023	335.817	47.847	0.12142	144.801	6939.62	0.07021
2027	337.221	38.231	0.11620	147.328	5544.91	0.06719
2029	336.411	38.228	0.11489	145.870	5544.52	0.06643
2031	335.772	38.221	0.11677	144.720	5543.57	0.06752
2035	337.234	29.463	0.11166	147.351	4273.19	0.06456
2037	336.452	29.462	0.11025	145.944	4273.16	0.06375
2039	335.834	29.463	0.11099	144.831	4273.26	0.06417
2043	337.292	22.048	0.10708	147.456	3197.77	0.06191
2045	336.478	22.050	0.10541	145.990	3198.07	0.06095
2047	335.816	22.049	0.10610	144.799	3197.96	0.06135
2051	337.242	15.585	0.10233	147.366	2260.35	0.05917
2053	336.427	15.586	0.10032	145.899	2260.62	0.05801
2055	335.761	15.588	0.10132	144.700	2260.82	0.05858

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
2059	337.288	11.013	0.09900	147.448	1597.36	0.05724
2061	336.441	11.012	0.09683	145.924	1597.22	0.05599
2063	335.770	11.016	0.09727	144.716	1597.78	0.05624
2067	337.194	6.907	0.09467	147.279	1001.75	0.05474
2069	336.410	6.904	0.09251	145.868	1001.33	0.05349
2071	335.775	6.903	0.09387	144.725	1001.19	0.05428
2077	336.414	3.587	0.08886	145.875	520.21	0.05138
2079	335.757	3.587	0.08928	144.693	520.24	0.05162
3001	305.800	0.591	0.01486	90.770	85.79	0.00859
3004	304.694	0.592	0.01477	88.779	85.92	0.00854
3007	303.728	0.592	0.01480	87.040	85.85	0.00856
3010	302.967	0.593	0.01467	85.671	86.06	0.00848
3013	305.818	0.449	0.01488	90.802	65.06	0.00860
3016	304.748	0.449	0.01478	88.876	65.07	0.00855
3019	303.822	0.449	0.01469	87.210	65.07	0.00849
3022	303.051	0.449	0.01476	85.822	65.08	0.00853
3025	305.599	0.241	0.01469	90.408	34.95	0.00849
3028	304.683	0.241	0.01458	88.759	34.94	0.00843
3031	303.884	0.241	0.01447	87.321	34.92	0.00837
3034	303.200	0.240	0.01452	86.090	34.86	0.00840
3037	305.630	0.079	0.01497	90.464	11.39	0.00866
3040	304.655	0.079	0.01479	88.709	11.39	0.00855
3043	303.805	0.078	0.01463	87.179	11.38	0.00846
3046	303.095	0.079	0.01489	85.901	11.39	0.00861
4001	328.434	1.166	0.01804	131.511	169.05	0.01043
4003	327.535	1.164	0.01791	129.893	168.83	0.01036
4005	326.764	1.163	0.01785	128.505	168.70	0.01032
4007	326.114	1.162	0.01824	127.335	168.52	0.01055
4011	328.390	1.071	0.01796	131.432	155.39	0.01038
4013	327.498	1.070	0.01785	129.826	155.20	0.01032
4015	326.726	1.067	0.01775	128.437	154.80	0.01026
4017	326.075	1.065	0.01777	127.265	154.41	0.01027
4020	328.387	0.924	0.01774	131.427	134.07	0.01026
4022	327.478	0.925	0.01761	129.790	134.17	0.01018
4024	326.687	0.925	0.01758	128.367	134.22	0.01016
4026	326.030	0.926	0.01769	127.184	134.31	0.01023
4029	328.158	0.926	0.01773	131.014	134.33	0.01025
4031	327.241	0.927	0.01763	129.364	134.39	0.01019
4033	326.460	0.927	0.01753	127.958	134.42	0.01014
4035	325.800	0.927	0.01759	126.770	134.46	0.01017
4037	328.573	0.702	0.01747	131.761	101.76	0.01010
4039	327.598	0.701	0.01725	130.006	101.64	0.00997
4041	326.764	0.700	0.01729	128.505	101.52	0.01000
4043	326.064	0.699	0.01736	127.245	101.43	0.01004
4046	328.276	0.482	0.01720	131.227	69.90	0.00995
4049	327.474	0.482	0.01714	129.783	69.90	0.00991
4052	326.751	0.482	0.01712	128.482	69.94	0.00990
4055	326.139	0.482	0.01720	127.380	69.97	0.00995
4058	328.011	0.265	0.01717	130.750	38.49	0.00993

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
4061	327.354	0.266	0.01699	129.567	38.54	0.00982
4064	326.767	0.266	0.01714	128.511	38.60	0.00991
4067	326.243	0.267	0.01717	127.567	38.66	0.00993
4070	328.246	0.078	0.01793	131.173	11.35	0.01037
4073	327.532	0.079	0.01785	129.888	11.40	0.01032
4076	326.893	0.079	0.01804	128.737	11.46	0.01043
4079	326.333	0.080	0.01814	127.729	11.53	0.01049
5001	198.104	71.263	0.17225	-103.083	10335.82	0.09960
5002	197.702	71.264	0.17250	-103.806	10336.08	0.09974
5004	196.990	71.271	0.17301	-105.088	10337.08	0.10003
5006	196.390	71.271	0.17351	-106.168	10337.06	0.10032
5008	195.903	71.267	0.17363	-107.045	10336.41	0.10039
5010	197.738	63.562	0.17055	-103.742	9218.90	0.09861
5012	197.018	63.555	0.17096	-105.038	9217.86	0.09885
5014	196.403	63.551	0.17152	-106.145	9217.26	0.09917
5016	195.893	63.542	0.17168	-107.063	9215.95	0.09927
5018	197.731	49.048	0.16685	-103.754	7113.85	0.09647
5020	197.002	49.053	0.16714	-105.066	7114.56	0.09664
5022	196.379	49.053	0.16771	-106.188	7114.57	0.09697
5024	195.867	49.049	0.16800	-107.109	7113.99	0.09714
5029	197.843	29.596	0.16114	-103.553	4292.60	0.09317
5031	197.086	29.598	0.16143	-104.915	4292.86	0.09334
5033	196.446	29.607	0.16218	-106.067	4294.09	0.09377
5035	195.915	29.603	0.16239	-107.023	4293.55	0.09389
5038	197.977	7.897	0.15401	-103.311	1145.44	0.08905
5040	197.191	7.904	0.15443	-104.726	1146.32	0.08929
5042	196.528	7.905	0.15509	-105.920	1146.49	0.08967
5044	195.981	7.907	0.15582	-106.904	1146.88	0.09010
6001	233.019	70.149	0.16125	-40.236	10174.31	0.09324
6003	232.183	70.143	0.16153	-41.741	10173.39	0.09340
6005	231.485	70.140	0.16247	-42.997	10173.02	0.09394
6007	230.910	70.158	0.16349	-44.032	10175.56	0.09453
6010	232.925	54.206	0.15628	-40.405	7861.95	0.09036
6012	232.116	54.201	0.15677	-41.861	7861.28	0.09064
6014	231.424	54.194	0.15751	-43.107	7860.15	0.09107
6016	230.901	54.185	0.15864	-44.048	7858.86	0.09173
6019	233.054	36.481	0.15006	-40.173	5291.09	0.08676
6021	232.212	36.469	0.15056	-41.688	5289.44	0.08705
6023	231.500	36.455	0.15130	-42.970	5287.44	0.08748
6025	230.933	36.459	0.15283	-43.991	5288.01	0.08837
6028	233.008	18.777	0.14313	-40.256	2723.31	0.08276
6030	232.183	18.776	0.14369	-41.741	2723.24	0.08308
6032	231.486	18.772	0.14431	-42.995	2722.72	0.08344
6034	230.925	18.769	0.14534	-44.005	2722.26	0.08404
6036	233.031	3.665	0.13651	-40.214	531.60	0.07893
6038	232.224	3.661	0.13718	-41.667	530.92	0.07932
6040	231.537	3.651	0.13773	-42.903	529.58	0.07964
6042	230.977	3.652	0.13816	-43.911	529.68	0.07988
7001	267.807	71.238	0.14975	22.383	10332.30	0.08659

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
7003	266.987	71.236	0.14977	20.907	10331.99	0.08660
7005	266.300	71.229	0.14976	19.670	10330.92	0.08659
7007	265.738	71.222	0.15281	18.658	10329.96	0.08836
7010	267.889	55.211	0.14298	22.530	8007.77	0.08267
7012	267.038	55.211	0.14432	20.998	8007.69	0.08345
7013	267.911	54.855	0.14360	22.570	7956.09	0.08303
7015	267.063	54.855	0.14365	21.043	7956.06	0.08306
7017	266.350	54.856	0.14464	19.760	7956.26	0.08363
7019	265.769	54.855	0.14663	18.714	7956.03	0.08478
7021	268.043	40.344	0.13744	22.807	5851.44	0.07947
7023	267.165	40.346	0.13705	21.227	5851.65	0.07924
7025	266.425	40.345	0.13816	19.895	5851.58	0.07988
7027	265.825	40.343	0.14025	18.815	5851.24	0.08109
7029	267.998	26.107	0.13113	22.726	3786.50	0.07582
7031	267.136	26.117	0.13103	21.175	3788.03	0.07576
7033	266.417	26.129	0.13207	19.881	3789.75	0.07636
7035	265.831	26.134	0.13406	18.826	3790.46	0.07751
7037	268.163	14.191	0.12502	23.023	2058.27	0.07229
7039	267.275	14.186	0.12531	21.425	2057.55	0.07245
7041	266.520	14.184	0.12523	20.066	2057.17	0.07241
7043	265.912	14.178	0.12759	18.972	2056.40	0.07377
7045	267.942	3.533	0.11912	22.626	512.38	0.06888
7047	267.057	3.532	0.11895	21.033	512.26	0.06878
7049	266.308	3.529	0.11989	19.684	511.79	0.06932
7051	265.734	3.528	0.12232	18.651	511.72	0.07073
8001	228.294	0.017	0.00659	-48.741	2.39	0.00381
8004	227.262	0.016	0.00644	-50.598	2.35	0.00372
8007	226.396	0.016	0.00638	-52.157	2.36	0.00369
8010	225.696	0.016	0.00632	-53.417	2.35	0.00365
9001	254.075	0.084	0.00956	-2.335	12.12	0.00553
9004	252.840	0.083	0.00939	-4.558	12.05	0.00543
9007	251.804	0.083	0.00925	-6.423	12.08	0.00535
9010	250.978	0.083	0.00928	-7.910	12.07	0.00537
9013	254.255	0.057	0.00991	-2.011	8.22	0.00573
9016	252.965	0.056	0.00982	-4.333	8.16	0.00568
9019	251.889	0.056	0.00965	-6.270	8.11	0.00558
9022	251.003	0.056	0.00976	-7.865	8.07	0.00564
9025	254.516	0.032	0.00925	-1.541	4.65	0.00535
9028	253.150	0.032	0.00920	-4.000	4.64	0.00532
9031	252.015	0.032	0.00906	-6.043	4.62	0.00524
9034	251.086	0.032	0.00913	-7.715	4.59	0.00528
10001	278.595	0.264	0.01161	41.801	38.28	0.00671
10004	277.523	0.264	0.01129	39.871	38.24	0.00653
10007	276.619	0.263	0.01127	38.244	38.19	0.00652
10010	275.885	0.263	0.01107	36.923	38.11	0.00640
10013	278.360	0.207	0.01212	41.378	30.04	0.00701
10016	277.467	0.207	0.01165	39.771	30.01	0.00674
10019	276.692	0.207	0.01204	38.376	29.98	0.00696

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
10022	276.050	0.207	0.01183	37.220	29.97	0.00684
10025	278.548	0.142	0.01208	41.716	20.64	0.00698
10028	277.609	0.142	0.01198	40.026	20.55	0.00693
10031	276.792	0.141	0.01189	38.556	20.47	0.00687
10034	276.119	0.141	0.01204	37.344	20.42	0.00696
10037	278.553	0.081	0.01207	41.725	11.80	0.00698
10040	277.579	0.081	0.01202	39.972	11.70	0.00695
10043	276.745	0.080	0.01186	38.471	11.60	0.00686
10046	276.043	0.079	0.01184	37.207	11.50	0.00685
10049	278.591	0.077	0.01208	41.794	11.10	0.00698
10052	277.621	0.077	0.01191	40.048	11.10	0.00689
10055	276.776	0.077	0.01206	38.527	11.11	0.00697
10058	276.082	0.077	0.01202	37.278	11.13	0.00695
10061	278.835	0.038	0.01172	42.233	5.56	0.00678
10064	277.797	0.038	0.01159	40.365	5.53	0.00670
10067	276.899	0.038	0.01153	38.748	5.52	0.00667
10070	276.146	0.038	0.01157	37.393	5.50	0.00669
12001	303.087	63.949	0.13677	85.887	9275.08	0.07908
12002	303.085	63.943	0.13713	85.883	9274.23	0.07929
12005	302.877	63.936	0.13842	85.509	9273.10	0.08003
12006	302.928	63.936	0.13710	85.600	9273.13	0.07927
12009	302.720	63.931	0.13757	85.226	9272.37	0.07954
12010	302.722	63.929	0.13711	85.230	9272.14	0.07928
12013	302.529	63.908	0.13888	84.882	9269.05	0.08030
12014	302.525	63.903	0.13892	84.875	9268.31	0.08032
12017	302.348	63.892	0.13859	84.556	9266.84	0.08013
12018	302.351	63.888	0.13911	84.562	9266.19	0.08043
12021	302.168	63.875	0.13892	84.232	9264.34	0.08032
12022	302.179	63.872	0.13864	84.252	9263.83	0.08016
12025	302.004	63.866	0.14044	83.937	9263.04	0.08120
12026	302.008	63.863	0.13981	83.944	9262.52	0.08084
12029	301.839	63.855	0.14101	83.640	9261.44	0.08153
12030	301.846	63.855	0.14018	83.653	9261.46	0.08105
12033	301.751	63.856	0.14025	83.482	9261.49	0.08109
12034	301.740	63.862	0.14112	83.462	9262.49	0.08160
12037	301.600	63.869	0.14274	83.210	9263.47	0.08253
12038	301.597	63.871	0.14242	83.205	9263.80	0.08235
12041	302.937	54.703	0.13351	85.617	7934.05	0.07720
12043	302.755	54.707	0.13395	85.289	7934.58	0.07745
12045	302.568	54.711	0.13376	84.952	7935.13	0.07734
12047	302.394	54.711	0.13399	84.639	7935.24	0.07747
12049	302.225	54.715	0.13477	84.335	7935.71	0.07792
12051	302.063	54.719	0.13571	84.043	7936.34	0.07847
12053	301.902	54.720	0.13613	83.754	7936.48	0.07871
12055	301.750	54.723	0.13707	83.480	7936.90	0.07925
12057	301.603	54.724	0.13820	83.215	7937.09	0.07991
12059	301.464	54.729	0.13746	82.965	7937.81	0.07948
12061	303.051	43.858	0.12809	85.822	6361.10	0.07406
12063	302.870	43.858	0.12847	85.496	6361.04	0.07428
12065	302.674	43.859	0.12907	85.143	6361.29	0.07463

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
12067	302.495	43.862	0.13006	84.821	6361.71	0.07520
12069	302.322	43.860	0.12926	84.510	6361.37	0.07474
12071	302.145	43.861	0.13014	84.191	6361.58	0.07525
12073	301.981	43.837	0.13162	83.896	6358.02	0.07610
12075	301.820	43.856	0.13324	83.606	6360.78	0.07704
12077	301.661	43.851	0.13280	83.320	6360.10	0.07679
12079	301.526	43.850	0.13401	83.077	6359.96	0.07748
12081	302.963	32.707	0.12340	85.663	4743.72	0.07135
12083	302.777	32.712	0.12302	85.329	4744.51	0.07113
12085	302.589	32.714	0.12392	84.990	4744.85	0.07165
12087	302.406	32.716	0.12310	84.661	4745.10	0.07118
12089	302.233	32.717	0.12502	84.349	4745.17	0.07229
12091	302.065	32.718	0.12565	84.047	4745.34	0.07265
12093	301.898	32.723	0.12522	83.746	4746.09	0.07240
12095	301.741	32.723	0.12694	83.464	4746.14	0.07340
12097	301.585	32.724	0.12729	83.183	4746.20	0.07360
12099	301.437	32.725	0.12651	82.917	4746.32	0.07315
12101	303.084	23.215	0.11686	85.881	3367.06	0.06757
12103	302.886	23.217	0.11791	85.525	3367.38	0.06818
12105	302.641	23.217	0.12063	85.084	3367.30	0.06975
12107	302.453	23.220	0.11921	84.745	3367.79	0.06893
12109	302.273	23.220	0.11869	84.421	3367.79	0.06863
12111	302.098	23.206	0.11908	84.106	3365.73	0.06885
12113	301.920	23.218	0.12123	83.786	3367.43	0.07010
12115	301.767	23.218	0.12110	83.511	3367.51	0.07002
12117	301.605	23.220	0.12265	83.219	3367.77	0.07092
12119	301.456	23.222	0.12177	82.951	3368.04	0.07041
12121	302.946	14.261	0.11159	85.633	2068.46	0.06452
12122	302.961	14.265	0.11118	85.660	2069.00	0.06428
12125	302.760	14.263	0.11128	85.298	2068.64	0.06434
12126	302.767	14.265	0.11249	85.311	2068.93	0.06504
12129	302.574	14.269	0.11320	84.963	2069.60	0.06545
12130	302.570	14.271	0.11273	84.956	2069.80	0.06518
12133	302.370	14.273	0.11271	84.596	2070.09	0.06517
12134	302.378	14.271	0.11224	84.610	2069.79	0.06490
12137	302.188	14.275	0.11155	84.268	2070.44	0.06450
12138	302.204	14.276	0.11203	84.297	2070.63	0.06478
12141	302.027	14.281	0.11380	83.979	2071.23	0.06580
12142	302.021	14.278	0.11403	83.968	2070.85	0.06593
12145	301.855	14.280	0.11522	83.669	2071.21	0.06662
12146	301.864	14.282	0.11591	83.685	2071.47	0.06702
12149	301.687	14.283	0.11560	83.367	2071.56	0.06684
12150	301.693	14.284	0.11759	83.377	2071.77	0.06799
12153	301.544	14.281	0.11659	83.109	2071.30	0.06741
12154	301.541	14.284	0.11492	83.104	2071.67	0.06645
12157	301.392	14.281	0.11803	82.836	2071.26	0.06825
12158	301.399	14.281	0.11668	82.848	2071.27	0.06746
12161	301.455	8.085	0.11292	82.949	1172.68	0.06529
12162	301.468	8.088	0.11229	82.972	1173.01	0.06493

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
12165	301.616	8.086	0.11219	83.239	1172.75	0.06487
12166	301.632	8.088	0.11193	83.268	1173.10	0.06472
12169	301.792	8.090	0.11102	83.556	1173.39	0.06419
12170	301.797	8.092	0.11123	83.565	1173.64	0.06431
12173	301.973	8.098	0.10977	83.881	1174.54	0.06347
12174	301.962	8.099	0.10986	83.862	1174.69	0.06352
12177	302.150	8.091	0.11009	84.200	1173.50	0.06365
12178	302.150	8.092	0.11069	84.200	1173.67	0.06400
12181	302.319	8.099	0.11016	84.504	1174.70	0.06369
12182	302.322	8.098	0.10880	84.510	1174.48	0.06291
12185	302.507	8.097	0.10809	84.843	1174.42	0.06250
12186	302.527	8.099	0.11003	84.879	1174.67	0.06362
12189	302.711	8.104	0.10849	85.210	1175.40	0.06273
12190	302.711	8.103	0.10848	85.210	1175.30	0.06272
12193	302.921	8.105	0.11004	85.588	1175.49	0.06363
12194	302.915	8.105	0.10961	85.577	1175.57	0.06338
12197	303.135	8.108	0.10743	85.973	1175.93	0.06212
12198	303.138	8.109	0.10721	85.978	1176.12	0.06199
12201	301.476	1.009	0.10519	82.987	146.38	0.06082
12203	301.662	0.977	0.10516	83.322	141.70	0.06080
12205	301.835	0.954	0.10519	83.633	138.37	0.06082
12207	302.001	0.935	0.10331	83.932	135.68	0.05973
12209	302.192	0.898	0.10377	84.276	130.20	0.06000
12211	302.395	0.863	0.10256	84.641	125.21	0.05930
12213	302.591	0.834	0.10402	84.994	120.97	0.06014
12215	302.799	0.816	0.10280	85.368	118.36	0.05944
12217	303.015	0.799	0.10335	85.757	115.89	0.05976
12219	303.255	0.833	0.10063	86.189	120.89	0.05818
13001	337.223	66.808	0.12491	147.331	9689.74	0.07222
13002	337.219	66.810	0.12409	147.324	9690.00	0.07175
13005	336.999	66.809	0.12586	146.928	9689.87	0.07277
13006	337.022	66.809	0.12566	146.970	9689.79	0.07266
13009	336.799	66.811	0.12721	146.568	9690.14	0.07355
13010	336.803	66.811	0.12582	146.575	9690.18	0.07275
13013	336.606	66.813	0.12707	146.221	9690.50	0.07347
13014	336.613	66.813	0.12745	146.233	9690.51	0.07369
13017	336.423	66.814	0.12916	145.891	9690.55	0.07468
13018	336.431	66.816	0.12835	145.906	9690.83	0.07421
13021	336.240	66.816	0.12938	145.562	9690.88	0.07481
13022	336.242	66.816	0.12877	145.566	9690.88	0.07446
13025	336.067	66.815	0.13052	145.251	9690.74	0.07547
13026	336.071	66.817	0.12838	145.258	9690.99	0.07423
13029	335.903	66.818	0.13033	144.955	9691.14	0.07536
13030	335.898	66.817	0.13150	144.946	9691.02	0.07603
13033	335.742	66.820	0.13091	144.666	9691.52	0.07569
13034	335.743	66.822	0.13038	144.667	9691.69	0.07539
13037	335.593	66.811	0.13213	144.397	9690.15	0.07640
13038	335.597	66.801	0.13314	144.405	9688.77	0.07698
13041	335.578	57.446	0.12699	144.370	8331.82	0.07343

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
13043	335.733	57.447	0.12555	144.649	8331.96	0.07259
13045	335.908	57.451	0.12610	144.964	8332.65	0.07291
13047	336.064	57.456	0.12490	145.245	8333.35	0.07222
13049	336.244	57.460	0.12449	145.569	8333.85	0.07198
13051	336.437	57.462	0.12240	145.917	8334.12	0.07077
13053	336.629	57.466	0.12290	146.262	8334.72	0.07106
13055	336.829	57.466	0.12255	146.622	8334.73	0.07086
13057	337.038	57.470	0.12207	146.998	8335.36	0.07058
13059	337.246	57.474	0.12244	147.373	8336.00	0.07080
13061	335.668	46.397	0.12208	144.532	6729.33	0.07059
13063	335.866	46.400	0.12103	144.889	6729.71	0.06998
13065	336.040	46.401	0.11970	145.202	6729.95	0.06921
13067	336.216	46.405	0.11894	145.519	6730.50	0.06877
13069	336.399	46.408	0.11847	145.848	6730.93	0.06850
13071	336.597	46.412	0.11720	146.205	6731.52	0.06777
13073	336.799	46.414	0.11648	146.568	6731.75	0.06735
13075	336.997	46.415	0.11594	146.925	6731.88	0.06704
13077	337.218	46.417	0.11536	147.322	6732.28	0.06670
13079	337.452	46.420	0.11516	147.744	6732.64	0.06659
13081	335.585	37.617	0.11696	144.383	5455.85	0.06763
13083	335.762	37.619	0.11716	144.702	5456.21	0.06774
13085	335.928	37.625	0.11572	145.000	5457.05	0.06691
13087	336.104	37.626	0.11515	145.317	5457.22	0.06658
13089	336.305	37.629	0.11354	145.679	5457.67	0.06565
13091	336.489	37.633	0.11317	146.010	5458.17	0.06544
13093	336.695	37.635	0.11332	146.381	5458.48	0.06552
13095	336.905	37.636	0.11183	146.759	5458.60	0.06466
13097	337.117	37.640	0.11151	147.141	5459.18	0.06448
13099	337.338	37.641	0.11344	147.538	5459.43	0.06559
13101	335.643	29.944	0.11222	144.487	4342.96	0.06489
13103	335.825	29.945	0.11125	144.815	4343.23	0.06432
13105	336.002	29.946	0.11129	145.134	4343.37	0.06435
13107	336.191	29.949	0.11002	145.474	4343.68	0.06361
13109	336.388	29.950	0.10876	145.828	4343.90	0.06289
13111	336.578	29.952	0.10894	146.170	4344.14	0.06299
13113	336.787	29.951	0.10889	146.547	4344.10	0.06296
13115	337.000	29.954	0.10821	146.930	4344.54	0.06257
13117	337.233	29.957	0.10733	147.349	4344.93	0.06206
13119	337.459	29.957	0.10724	147.756	4344.98	0.06201
13121	335.704	22.412	0.10621	144.597	3250.62	0.06141
13123	335.893	22.415	0.10658	144.937	3251.07	0.06162
13125	336.076	22.417	0.10450	145.267	3251.35	0.06042
13127	336.267	22.418	0.10383	145.611	3251.48	0.06003
13129	336.464	22.421	0.10452	145.965	3251.87	0.06043
13131	336.680	22.426	0.10337	146.354	3252.59	0.05977
13133	336.901	22.428	0.10292	146.752	3252.98	0.05951
13135	337.113	22.431	0.10205	147.133	3253.36	0.05901
13137	337.353	22.434	0.10136	147.565	3253.75	0.05861
13139	337.599	22.434	0.10091	148.008	3253.78	0.05835

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
13141	335.587	15.882	0.10314	144.387	2303.45	0.05964
13143	335.780	15.883	0.10061	144.734	2303.70	0.05817
13145	335.953	15.888	0.10061	145.045	2304.40	0.05817
13147	336.133	15.892	0.09943	145.369	2304.88	0.05749
13149	336.342	15.895	0.09966	145.746	2305.33	0.05762
13151	336.551	15.897	0.10050	146.122	2305.64	0.05811
13153	336.769	15.901	0.09863	146.514	2306.23	0.05703
13155	336.996	15.904	0.09832	146.923	2306.67	0.05685
13157	337.231	15.907	0.09787	147.346	2307.08	0.05659
13159	337.455	15.910	0.09758	147.749	2307.60	0.05642
13161	335.636	11.139	0.09760	144.475	1615.64	0.05643
13162	335.646	11.137	0.09699	144.493	1615.26	0.05608
13165	335.831	11.137	0.09630	144.826	1615.27	0.05568
13166	335.831	11.137	0.09613	144.826	1615.27	0.05558
13169	336.024	11.137	0.09661	145.173	1615.25	0.05586
13170	336.025	11.137	0.09518	145.175	1615.26	0.05503
13173	336.215	11.139	0.09547	145.517	1615.52	0.05520
13174	336.211	11.137	0.09538	145.510	1615.30	0.05515
13177	336.420	11.136	0.09492	145.886	1615.16	0.05488
13178	336.423	11.137	0.09543	145.891	1615.26	0.05518
13181	336.634	11.135	0.09620	146.271	1614.99	0.05562
13182	336.631	11.134	0.09543	146.266	1614.89	0.05518
13185	336.850	11.133	0.09414	146.660	1614.70	0.05443
13186	336.855	11.133	0.09457	146.669	1614.67	0.05468
13189	337.082	11.133	0.09363	147.078	1614.69	0.05414
13190	337.068	11.131	0.09485	147.052	1614.39	0.05484
13193	337.319	11.130	0.09371	147.504	1614.28	0.05418
13194	337.326	11.129	0.09376	147.517	1614.11	0.05421
13197	337.572	11.128	0.09272	147.960	1613.95	0.05361
13198	337.572	11.129	0.09568	147.960	1614.16	0.05532
13201	335.433	7.155	0.09311	144.109	1037.78	0.05384
13203	335.622	7.158	0.09256	144.450	1038.25	0.05352
13205	335.881	7.158	0.09129	144.916	1038.19	0.05278
13207	336.064	7.161	0.09147	145.245	1038.58	0.05289
13209	336.261	7.159	0.09132	145.600	1038.36	0.05280
13211	336.470	7.163	0.09150	145.976	1038.85	0.05291
13213	336.698	7.166	0.09030	146.386	1039.32	0.05221
13215	336.919	7.166	0.09023	146.784	1039.38	0.05217
13217	337.159	7.169	0.08970	147.216	1039.71	0.05186
13219	337.407	7.170	0.09013	147.663	1039.93	0.05211
13221	335.534	3.881	0.08967	144.291	562.89	0.05185
13223	335.725	3.882	0.08958	144.635	563.00	0.05180
13225	335.915	3.884	0.08794	144.977	563.34	0.05085
13227	336.111	3.883	0.08791	145.330	563.19	0.05083
13229	336.314	3.883	0.08743	145.695	563.24	0.05055
13231	336.531	3.884	0.08710	146.086	563.30	0.05036
13233	336.758	3.884	0.08760	146.494	563.40	0.05065
13235	336.985	3.886	0.08750	146.903	563.61	0.05059
13237	337.235	3.886	0.08710	147.353	563.58	0.05036

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
13239	337.496	3.885	0.08667	147.823	563.54	0.05011
13241	334.948	2.562	0.09125	143.236	371.61	0.05276
13243	335.108	2.564	0.08937	143.524	371.88	0.05167
13245	335.256	2.565	0.08801	143.791	372.01	0.05089
13247	335.401	2.566	0.08833	144.052	372.12	0.05107
13249	335.572	2.566	0.08804	144.360	372.24	0.05090
13251	335.751	2.568	0.08751	144.682	372.48	0.05060
13253	335.940	2.569	0.08606	145.022	372.66	0.04976
13255	336.131	2.570	0.08658	145.366	372.76	0.05006
13257	336.333	2.572	0.08603	145.729	373.07	0.04974
13259	336.557	2.574	0.08644	146.133	373.27	0.04998
14001	370.361	66.807	0.11616	206.980	9689.56	0.06716
14003	370.523	66.804	0.11585	207.271	9689.15	0.06698
14005	370.748	66.801	0.11555	207.676	9688.65	0.06681
14007	370.910	66.798	0.11485	207.968	9688.28	0.06641
14009	371.133	66.794	0.11368	208.369	9687.66	0.06573
14011	371.297	66.793	0.11325	208.665	9687.49	0.06548
14013	371.502	66.790	0.11358	209.034	9687.17	0.06567
14015	371.702	66.789	0.11235	209.394	9686.97	0.06496
14017	371.924	66.786	0.11163	209.793	9686.52	0.06454
14019	372.139	66.784	0.11133	210.180	9686.26	0.06437
14021	370.395	58.587	0.11328	207.041	8497.33	0.06550
14023	370.579	58.588	0.11225	207.372	8497.43	0.06490
14025	370.741	58.588	0.11151	207.664	8497.52	0.06448
14027	370.919	58.590	0.11038	207.984	8497.84	0.06382
14029	371.117	58.593	0.11020	208.341	8498.16	0.06372
14031	371.308	58.593	0.10952	208.684	8498.16	0.06332
14033	371.514	58.594	0.10951	209.055	8498.31	0.06332
14035	371.733	58.596	0.10766	209.449	8498.71	0.06225
14037	371.958	58.598	0.10810	209.854	8498.93	0.06250
14039	372.193	58.601	0.10717	210.277	8499.33	0.06197
14041	370.304	48.807	0.10808	206.877	7078.89	0.06249
14043	370.478	48.809	0.10788	207.190	7079.21	0.06238
14045	370.650	48.810	0.10623	207.500	7079.31	0.06142
14047	370.820	48.814	0.10677	207.806	7079.95	0.06173
14049	371.009	48.817	0.10553	208.146	7080.32	0.06102
14051	371.208	48.818	0.10493	208.504	7080.49	0.06067
14053	371.416	48.821	0.10448	208.879	7080.98	0.06041
14055	371.618	48.822	0.10429	209.242	7081.09	0.06030
14057	371.843	48.823	0.10380	209.647	7081.21	0.06002
14059	372.086	48.826	0.10301	210.085	7081.59	0.05956
14061	370.336	40.702	0.10402	206.935	5903.37	0.06014
14063	370.517	40.709	0.10303	207.261	5904.40	0.05957
14065	370.699	40.711	0.10204	207.588	5904.70	0.05900
14067	370.879	40.715	0.10152	207.912	5905.16	0.05870
14069	371.072	40.717	0.10118	208.260	5905.56	0.05850
14071	371.267	40.719	0.10050	208.611	5905.80	0.05811
14073	371.483	40.719	0.09928	208.999	5905.82	0.05740
14075	371.705	40.719	0.09944	209.399	5905.77	0.05750

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
14077	371.942	40.717	0.09884	209.826	5905.50	0.05715
14079	372.179	40.715	0.09920	210.252	5905.21	0.05736
14081	370.207	34.116	0.10080	206.703	4948.17	0.05828
14083	370.382	34.115	0.09956	207.018	4947.97	0.05757
14085	370.555	34.115	0.09864	207.329	4948.00	0.05703
14087	370.733	34.114	0.09770	207.649	4947.81	0.05649
14089	370.925	34.113	0.09711	207.995	4947.65	0.05615
14091	371.120	34.111	0.09675	208.346	4947.41	0.05594
14093	371.329	34.110	0.09602	208.722	4947.28	0.05552
14095	371.551	34.108	0.09582	209.122	4946.99	0.05540
14097	371.769	34.097	0.09569	209.514	4945.38	0.05533
14099	372.007	34.092	0.09497	209.943	4944.58	0.05491
14101	370.274	28.087	0.09511	206.823	4073.69	0.05499
14103	370.462	28.089	0.09503	207.162	4074.02	0.05495
14105	370.633	28.091	0.09437	207.469	4074.28	0.05456
14107	370.819	28.093	0.09325	207.804	4074.60	0.05392
14109	371.020	28.094	0.09267	208.166	4074.77	0.05358
14111	371.223	28.095	0.09267	208.531	4074.90	0.05358
14113	371.446	28.098	0.09180	208.933	4075.22	0.05308
14115	371.674	28.099	0.09159	209.343	4075.42	0.05296
14117	371.907	28.101	0.09124	209.763	4075.65	0.05276
14119	372.157	28.101	0.09085	210.213	4075.77	0.05253
14121	370.153	23.164	0.09198	206.605	3359.71	0.05318
14123	370.338	23.164	0.09116	206.938	3359.70	0.05271
14125	370.498	23.168	0.09093	207.226	3360.23	0.05258
14127	370.682	23.170	0.08857	207.558	3360.59	0.05121
14129	370.873	23.172	0.08949	207.901	3360.83	0.05174
14131	371.081	23.173	0.08866	208.276	3360.98	0.05126
14133	371.290	23.174	0.08843	208.652	3361.05	0.05113
14135	371.508	23.175	0.08824	209.044	3361.27	0.05102
14137	371.747	23.175	0.08819	209.475	3361.28	0.05099
14139	371.987	23.178	0.08757	209.907	3361.66	0.05063
14141	370.182	18.841	0.08849	206.658	2732.65	0.05117
14143	370.358	18.842	0.08798	206.974	2732.78	0.05087
14145	370.534	18.843	0.08632	207.291	2732.90	0.04991
14147	370.740	18.844	0.08642	207.662	2733.05	0.04997
14149	370.928	18.844	0.08681	208.000	2733.11	0.05019
14151	371.135	18.844	0.08462	208.373	2733.10	0.04893
14153	371.349	18.846	0.08540	208.758	2733.39	0.04938
14155	371.591	18.846	0.08489	209.194	2733.42	0.04908
14157	371.834	18.845	0.08479	209.631	2733.31	0.04903
14159	372.078	18.847	0.08425	210.070	2733.59	0.04871
14161	370.214	15.052	0.08332	206.715	2183.12	0.04818
14163	370.399	15.052	0.08307	207.048	2183.16	0.04803
14165	370.575	15.052	0.08322	207.365	2183.08	0.04812
14167	370.771	15.052	0.08273	207.718	2183.16	0.04783
14169	370.975	15.054	0.08270	208.085	2183.36	0.04782
14171	371.200	15.055	0.08214	208.490	2183.49	0.04749
14173	371.419	15.055	0.08238	208.884	2183.57	0.04763

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
14175	371.660	15.055	0.08163	209.318	2183.56	0.04720
14177	371.903	15.054	0.08242	209.755	2183.41	0.04766
14179	372.167	15.055	0.08023	210.231	2183.59	0.04639
14181	370.094	12.019	0.08122	206.499	1743.15	0.04696
14183	370.264	12.019	0.08099	206.805	1743.25	0.04683
14185	370.439	12.019	0.07987	207.120	1743.25	0.04618
14187	370.637	12.020	0.07986	207.477	1743.37	0.04618
14189	370.828	12.020	0.07935	207.820	1743.41	0.04588
14191	371.040	12.020	0.07889	208.202	1743.39	0.04561
14193	371.257	12.020	0.07926	208.593	1743.43	0.04583
14195	371.486	12.021	0.07921	209.005	1743.49	0.04580
14197	371.735	12.022	0.07875	209.453	1743.59	0.04553
14199	371.991	12.022	0.07997	209.914	1743.63	0.04624
14201	370.119	9.385	0.07777	206.544	1361.24	0.04497
14203	370.302	9.387	0.07782	206.874	1361.41	0.04500
14205	370.475	9.387	0.07683	207.185	1361.46	0.04442
14207	370.680	9.387	0.07729	207.554	1361.49	0.04469
14209	370.873	9.388	0.07730	207.901	1361.62	0.04469
14211	371.097	9.389	0.07635	208.305	1361.70	0.04415
14213	371.319	9.390	0.07587	208.704	1361.95	0.04387
14215	371.552	9.391	0.07789	209.124	1362.05	0.04504
14217	371.804	9.392	0.07693	209.577	1362.23	0.04448
14219	372.058	9.392	0.07938	210.034	1362.23	0.04590
14221	370.139	7.475	0.07537	206.580	1084.15	0.04358
14223	370.313	7.475	0.07517	206.893	1084.17	0.04346
14225	370.509	7.475	0.07458	207.246	1084.12	0.04312
14227	370.702	7.475	0.07427	207.594	1084.18	0.04294
14229	370.909	7.475	0.07409	207.966	1084.12	0.04284
14231	371.128	7.475	0.07329	208.360	1084.12	0.04238
14233	371.362	7.474	0.07364	208.782	1084.04	0.04258
14235	371.608	7.475	0.07432	209.224	1084.12	0.04297
14237	371.860	7.475	0.07539	209.678	1084.18	0.04359
14239	372.127	7.476	0.07598	210.159	1084.28	0.04393
14241	369.822	5.978	0.07425	206.010	867.03	0.04293
14242	369.814	5.978	0.07349	205.995	866.97	0.04249
14243	369.991	5.977	0.07253	206.314	866.94	0.04194
14244	369.977	5.977	0.07213	206.289	866.94	0.04171
14245	370.144	5.978	0.07275	206.589	866.99	0.04206
14246	370.154	5.973	0.07306	206.607	866.28	0.04224
14247	370.322	5.976	0.07225	206.910	866.73	0.04178
14248	370.325	5.976	0.07221	206.915	866.69	0.04175
14249	370.506	5.976	0.07170	207.241	866.70	0.04146
14250	370.497	5.976	0.07214	207.225	866.68	0.04171
14251	370.700	5.975	0.07231	207.590	866.67	0.04181
14252	370.697	5.975	0.07188	207.585	866.61	0.04156
14253	370.913	5.975	0.07198	207.973	866.59	0.04162
14254	370.907	5.974	0.07183	207.963	866.48	0.04153
14255	371.134	5.975	0.07132	208.371	866.54	0.04124
14256	371.116	5.974	0.07183	208.339	866.50	0.04153

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
14257	371.363	5.974	0.07187	208.783	866.49	0.04156
14258	371.362	5.975	0.07218	208.782	866.56	0.04173
14259	371.604	5.974	0.07363	209.217	866.40	0.04257
14260	371.606	5.974	0.07285	209.221	866.41	0.04212
14261	369.910	5.022	0.06957	206.168	728.38	0.04023
14262	369.919	5.022	0.06961	206.184	728.37	0.04025
14263	370.050	5.021	0.06950	206.420	728.29	0.04019
14264	370.064	5.021	0.06962	206.445	728.26	0.04025
14265	370.217	5.021	0.06991	206.721	728.29	0.04042
14266	370.229	5.021	0.06957	206.742	728.30	0.04023
14267	370.393	5.022	0.06995	207.037	728.32	0.04045
14268	370.384	5.022	0.06963	207.021	728.37	0.04026
14269	370.582	5.022	0.06921	207.378	728.38	0.04002
14270	370.578	5.022	0.06905	207.370	728.35	0.03992
14271	370.785	5.022	0.06945	207.743	728.42	0.04016
14272	370.783	5.023	0.06950	207.739	728.48	0.04019
14273	370.994	5.023	0.06939	208.119	728.52	0.04012
14274	370.992	5.023	0.06944	208.116	728.54	0.04015
14275	371.219	5.024	0.06923	208.524	728.63	0.04003
14276	371.217	5.024	0.06896	208.521	728.72	0.03987
14277	371.466	5.024	0.06924	208.969	728.70	0.04003
14278	371.462	5.025	0.07039	208.962	728.83	0.04070
14279	371.713	5.026	0.07066	209.413	728.95	0.04086
14280	371.718	5.026	0.07049	209.422	728.93	0.04076
14281	369.678	3.987	0.06858	205.750	578.21	0.03965
14282	369.602	3.987	0.06901	205.614	578.20	0.03990
14283	369.809	3.987	0.06856	205.986	578.20	0.03964
14284	369.783	3.987	0.06876	205.939	578.25	0.03976
14285	369.940	3.988	0.06817	206.222	578.34	0.03942
14286	369.942	3.988	0.06797	206.226	578.40	0.03930
14287	370.077	3.988	0.06800	206.469	578.42	0.03932
14288	370.071	3.988	0.06815	206.458	578.45	0.03940
14289	370.256	3.988	0.06716	206.791	578.43	0.03883
14290	370.240	3.988	0.06730	206.762	578.42	0.03891
14291	370.428	3.988	0.06758	207.100	578.46	0.03907
14292	370.407	3.988	0.06790	207.063	578.47	0.03926
14293	370.610	3.988	0.06746	207.428	578.48	0.03901
14294	370.601	3.988	0.06750	207.412	578.47	0.03903
14295	370.811	3.988	0.06732	207.790	578.47	0.03892
14296	370.811	3.989	0.06753	207.790	578.53	0.03905
14297	371.026	3.989	0.06842	208.177	578.50	0.03956
14298	371.021	3.989	0.06794	208.168	578.50	0.03928
14299	371.249	3.989	0.06843	208.578	578.54	0.03957
14300	371.255	3.989	0.06837	208.589	578.55	0.03953
16001	375.785	3.507	0.03207	216.743	508.63	0.01854
16002	375.892	3.507	0.03204	216.936	508.67	0.01853
16003	375.952	3.507	0.03319	217.044	508.68	0.01919
16004	376.074	3.507	0.03301	217.263	508.71	0.01909
16005	376.177	3.507	0.03270	217.449	508.70	0.01891

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (continued).

Point Number	T _{Exp.} K	P _{Cell} MPa	λ _{Exp.} W/(m·K)	T _{Exp.} °F	P _{Cell} psia	λ _{Exp.} BTU/(ft·hr·°F)
16006	376.286	3.507	0.03225	217.645	508.72	0.01865
16007	376.407	3.507	0.03305	217.863	508.71	0.01911
16008	376.525	3.507	0.03323	218.075	508.72	0.01921
16009	376.650	3.507	0.03334	218.300	508.72	0.01928
16010	376.771	3.507	0.03374	218.518	508.72	0.01951
16011	375.787	3.408	0.03031	216.747	494.33	0.01753
16012	375.854	3.408	0.02994	216.867	494.30	0.01731
16013	375.965	3.408	0.03045	217.067	494.29	0.01761
16014	376.071	3.408	0.03048	217.258	494.25	0.01762
16015	376.243	3.408	0.03084	217.567	494.25	0.01783
16016	376.352	3.408	0.03064	217.764	494.23	0.01772
16017	376.473	3.407	0.03093	217.981	494.20	0.01788
16018	376.602	3.407	0.03111	218.214	494.18	0.01799
16019	376.722	3.407	0.03127	218.430	494.20	0.01808
16020	376.866	3.407	0.03146	218.689	494.17	0.01819
16021	375.756	3.307	0.02966	216.691	479.57	0.01715
16022	375.882	3.307	0.02942	216.918	479.57	0.01701
16023	375.978	3.306	0.02962	217.090	479.54	0.01713
16024	376.088	3.306	0.02973	217.288	479.52	0.01719
16025	376.208	3.306	0.02891	217.504	479.51	0.01672
16026	376.327	3.306	0.02977	217.719	479.51	0.01721
16027	376.462	3.306	0.02969	217.962	479.50	0.01717
16028	376.597	3.306	0.02975	218.205	479.50	0.01720
16029	376.728	3.306	0.03001	218.440	479.48	0.01735
16030	376.884	3.306	0.02982	218.721	479.49	0.01724
16031	375.730	3.206	0.02876	216.644	464.93	0.01663
16032	375.841	3.205	0.02793	216.844	464.92	0.01615
16033	375.948	3.205	0.02841	217.036	464.91	0.01643
16034	376.071	3.205	0.02844	217.258	464.89	0.01644
16035	376.307	3.205	0.02830	217.683	464.90	0.01636
16036	376.390	3.205	0.02857	217.832	464.89	0.01652
16037	376.527	3.205	0.02870	218.079	464.89	0.01659
16038	376.670	3.205	0.02887	218.336	464.91	0.01669
16039	376.817	3.205	0.02871	218.601	464.88	0.01660
16040	376.977	3.205	0.02921	218.889	464.88	0.01689
16041	375.785	3.105	0.02692	216.743	450.39	0.01557
16042	375.887	3.105	0.02751	216.927	450.39	0.01591
16043	376.000	3.105	0.02740	217.130	450.38	0.01584
16044	376.132	3.105	0.02786	217.368	450.36	0.01611
16045	376.277	3.105	0.02766	217.629	450.38	0.01599
16046	376.410	3.105	0.02788	217.868	450.37	0.01612
16047	376.555	3.105	0.02759	218.129	450.37	0.01595
16048	376.706	3.105	0.02793	218.401	450.37	0.01615
16049	376.864	3.105	0.02756	218.685	450.36	0.01594
16050	377.024	3.105	0.02826	218.973	450.37	0.01634
16051	375.791	2.985	0.02588	216.754	432.99	0.01496
16053	375.926	2.985	0.02688	216.997	432.96	0.01554
16055	376.050	2.985	0.02687	217.220	432.96	0.01554
16057	376.175	2.985	0.02662	217.445	432.96	0.01539

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
16059	376.311	2.985	0.02662	217.690	432.96	0.01539
16061	376.454	2.985	0.02703	217.947	432.97	0.01563
16063	376.591	2.985	0.02674	218.194	432.95	0.01546
16065	376.757	2.985	0.02725	218.493	432.96	0.01576
16067	376.920	2.985	0.02673	218.786	432.93	0.01546
16069	377.093	2.985	0.02729	219.097	432.91	0.01578
16071	375.847	2.867	0.02647	216.855	415.81	0.01531
16073	375.975	2.867	0.02661	217.085	415.79	0.01539
16075	376.099	2.867	0.02611	217.308	415.77	0.01510
16077	376.234	2.867	0.02541	217.551	415.76	0.01469
16079	376.376	2.866	0.02601	217.807	415.74	0.01504
16081	376.525	2.866	0.02659	218.075	415.74	0.01537
16083	376.698	2.866	0.02630	218.386	415.68	0.01521
16085	376.849	2.866	0.02613	218.658	415.67	0.01511
16087	377.018	2.866	0.02644	218.962	415.66	0.01529
16089	377.202	2.866	0.02641	219.294	415.68	0.01527
16091	375.865	2.748	0.02568	216.887	398.51	0.01485
16093	375.988	2.747	0.02570	217.108	398.48	0.01486
16095	376.136	2.747	0.02588	217.375	398.48	0.01496
16097	376.273	2.747	0.02508	217.621	398.48	0.01450
16099	376.420	2.748	0.02526	217.886	398.50	0.01461
16101	376.569	2.748	0.02553	218.154	398.52	0.01476
16103	376.740	2.748	0.02564	218.462	398.53	0.01483
16105	376.904	2.747	0.02532	218.757	398.45	0.01464
16107	377.082	2.747	0.02573	219.078	398.48	0.01488
16109	377.262	2.747	0.02563	219.402	398.48	0.01482
16111	375.881	2.619	0.02523	216.916	379.80	0.01459
16113	376.016	2.618	0.02464	217.159	379.73	0.01425
16115	376.157	2.618	0.02491	217.413	379.71	0.01440
16117	376.314	2.618	0.02476	217.695	379.68	0.01432
16119	376.460	2.618	0.02515	217.958	379.64	0.01454
16121	376.619	2.618	0.02485	218.244	379.64	0.01437
16123	376.792	2.617	0.02508	218.556	379.59	0.01450
16125	376.964	2.617	0.02472	218.865	379.54	0.01429
16127	377.155	2.617	0.02523	219.209	379.53	0.01459
16129	377.348	2.617	0.02516	219.556	379.52	0.01455
16131	375.995	2.453	0.02446	217.121	355.81	0.01414
16133	376.136	2.453	0.02420	217.375	355.82	0.01399
16135	376.261	2.453	0.02459	217.600	355.80	0.01422
16137	376.427	2.453	0.02459	217.899	355.83	0.01422
16139	376.579	2.453	0.02447	218.172	355.84	0.01415
16141	376.746	2.453	0.02431	218.473	355.84	0.01406
16143	376.921	2.454	0.02446	218.788	355.88	0.01414
16145	377.102	2.454	0.02433	219.114	355.89	0.01407
16147	377.302	2.454	0.02450	219.474	355.91	0.01417
16149	377.499	2.454	0.02467	219.828	355.90	0.01426
16151	376.029	2.321	0.02413	217.182	336.59	0.01395
16153	376.178	2.320	0.02400	217.450	336.53	0.01388
16155	376.335	2.321	0.02330	217.733	336.57	0.01347

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
16157	376.487	2.321	0.02403	218.007	336.57	0.01389
16159	376.647	2.321	0.02387	218.295	336.58	0.01380
16161	376.821	2.321	0.02393	218.608	336.61	0.01384
16163	377.003	2.321	0.02361	218.935	336.65	0.01365
16165	377.193	2.321	0.02412	219.277	336.67	0.01395
16167	377.380	2.322	0.02396	219.614	336.72	0.01385
16169	377.591	2.322	0.02397	219.994	336.74	0.01386
16171	376.064	2.106	0.02350	217.245	305.42	0.01359
16173	376.217	2.106	0.02355	217.521	305.40	0.01362
16175	376.376	2.106	0.02313	217.807	305.41	0.01337
16177	376.537	2.106	0.02320	218.097	305.40	0.01341
16179	376.705	2.106	0.02333	218.399	305.44	0.01349
16181	376.879	2.106	0.02349	218.712	305.46	0.01358
16183	377.071	2.106	0.02302	219.058	305.48	0.01331
16185	377.261	2.106	0.02356	219.400	305.51	0.01362
16187	377.468	2.107	0.02355	219.772	305.56	0.01362
16189	377.683	2.107	0.02340	220.159	305.59	0.01353
16191	376.073	1.919	0.02278	217.261	278.39	0.01317
16193	376.254	1.919	0.02283	217.587	278.31	0.01320
16195	376.402	1.919	0.02297	217.854	278.27	0.01328
16197	376.571	1.918	0.02307	218.158	278.24	0.01334
16199	376.752	1.918	0.02290	218.484	278.24	0.01324
16201	376.941	1.919	0.02319	218.824	278.27	0.01341
16203	377.136	1.918	0.02280	219.175	278.25	0.01318
16205	377.332	1.918	0.02309	219.528	278.25	0.01335
16207	377.544	1.918	0.02315	219.909	278.25	0.01339
16209	377.768	1.918	0.02309	220.312	278.24	0.01335
16211	376.147	1.726	0.02277	217.395	250.40	0.01317
16213	376.309	1.726	0.02176	217.686	250.37	0.01258
16215	376.485	1.726	0.02272	218.003	250.35	0.01314
16217	376.660	1.726	0.02278	218.318	250.35	0.01317
16219	376.835	1.726	0.02284	218.633	250.35	0.01321
16221	377.026	1.726	0.02290	218.977	250.38	0.01324
16223	377.233	1.726	0.02275	219.349	250.40	0.01315
16225	377.440	1.727	0.02278	219.722	250.44	0.01317
16227	377.663	1.727	0.02274	220.123	250.47	0.01315
16229	377.889	1.728	0.02280	220.530	250.56	0.01318
16231	376.168	1.523	0.02260	217.432	220.95	0.01307
16233	376.330	1.523	0.02161	217.724	220.91	0.01249
16235	376.526	1.523	0.02238	218.077	220.89	0.01294
16237	376.693	1.523	0.02250	218.377	220.87	0.01301
16239	376.882	1.523	0.02253	218.718	220.87	0.01303
16241	377.082	1.523	0.02209	219.078	220.94	0.01277
16243	377.289	1.523	0.02248	219.450	220.95	0.01300
16245	377.505	1.524	0.02248	219.839	220.98	0.01300
16247	377.729	1.524	0.02240	220.242	220.98	0.01295
16249	377.969	1.524	0.02246	220.674	221.03	0.01299
16251	376.259	1.210	0.02218	217.596	175.45	0.01282
16254	376.440	1.207	0.02187	217.922	175.09	0.01265

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
16257	376.607	1.206	0.02215	218.223	174.88	0.01281
16260	376.811	1.205	0.02198	218.590	174.72	0.01271
16263	377.006	1.204	0.02215	218.941	174.62	0.01281
16266	377.215	1.203	0.02204	219.317	174.47	0.01274
16269	377.436	1.202	0.02200	219.715	174.36	0.01272
16272	377.655	1.201	0.02216	220.109	174.24	0.01281
16275	377.897	1.201	0.02216	220.545	174.16	0.01281
16278	378.156	1.200	0.02209	221.011	174.06	0.01277
16281	376.290	0.958	0.02155	217.652	138.89	0.01246
16284	376.485	0.956	0.02212	218.003	138.70	0.01279
16287	376.667	0.956	0.02187	218.331	138.66	0.01265
16290	376.867	0.956	0.02180	218.691	138.66	0.01260
16293	377.069	0.956	0.02200	219.054	138.65	0.01272
16296	377.296	0.956	0.02196	219.463	138.61	0.01270
16299	377.526	0.956	0.02184	219.877	138.60	0.01263
16302	377.769	0.956	0.02207	220.314	138.66	0.01276
16305	378.019	0.957	0.02202	220.764	138.74	0.01273
16308	378.250	1.000	0.02207	221.180	145.10	0.01276
16311	376.281	0.890	0.02148	217.636	129.15	0.01242
16314	376.487	0.902	0.02198	218.007	130.86	0.01271
16317	376.667	0.911	0.02170	218.331	132.17	0.01255
16320	376.832	0.923	0.02170	218.628	133.82	0.01255
16323	377.060	0.924	0.02189	219.038	134.05	0.01266
16326	377.276	0.925	0.02195	219.427	134.18	0.01269
16329	377.510	0.925	0.02184	219.848	134.23	0.01263
16332	377.754	0.926	0.02205	220.287	134.33	0.01275
16335	378.004	0.926	0.02201	220.737	134.36	0.01273
16338	378.269	0.927	0.02196	221.214	134.40	0.01270
16341	376.315	0.679	0.02181	217.697	98.52	0.01261
16344	376.503	0.679	0.02192	218.035	98.52	0.01267
16347	376.712	0.680	0.02174	218.412	98.61	0.01257
16350	376.923	0.680	0.02184	218.791	98.66	0.01263
16353	377.133	0.681	0.02199	219.169	98.72	0.01271
16356	377.371	0.681	0.02180	219.598	98.77	0.01260
16359	377.612	0.681	0.02187	220.032	98.84	0.01265
16362	377.861	0.682	0.02185	220.480	98.90	0.01263
16365	378.129	0.682	0.02196	220.962	98.96	0.01270
16368	378.406	0.683	0.02188	221.461	99.02	0.01265
16371	376.327	0.560	0.02202	217.719	81.25	0.01273
16374	376.517	0.565	0.02199	218.061	81.89	0.01271
16377	376.785	0.566	0.02205	218.543	82.14	0.01275
16380	376.986	0.568	0.02187	218.905	82.39	0.01265
16383	377.214	0.569	0.02139	219.315	82.55	0.01237
16386	377.455	0.570	0.02190	219.749	82.73	0.01266
16389	377.699	0.571	0.02196	220.188	82.87	0.01270
16392	377.957	0.572	0.02199	220.653	82.94	0.01271
16395	378.226	0.572	0.02197	221.137	83.03	0.01270
16398	378.503	0.574	0.02172	221.635	83.20	0.01256
16401	376.325	0.585	0.02232	217.715	84.82	0.01291

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (continued).

Point Number	T _{Exp.} K	P _{Cell} MPa	λ _{Exp.} W/(m·K)	T _{Exp.} °F	P _{Cell} psia	λ _{Exp.} BTU/(ft·hr·°F)
16404	376.519	0.584	0.02215	218.064	84.77	0.01281
16407	376.720	0.584	0.02207	218.426	84.71	0.01276
16410	376.925	0.585	0.02215	218.795	84.82	0.01281
16413	377.144	0.584	0.02189	219.189	84.72	0.01266
16416	377.389	0.584	0.02199	219.630	84.74	0.01271
16419	377.628	0.584	0.02200	220.060	84.72	0.01272
16422	377.885	0.585	0.02198	220.523	84.78	0.01271
16425	378.165	0.585	0.02212	221.027	84.83	0.01279
16428	378.451	0.585	0.02184	221.542	84.85	0.01263
16431	376.530	0.233	0.02263	218.084	33.76	0.01308
16434	376.750	0.233	0.02244	218.480	33.76	0.01297
16437	376.979	0.233	0.02223	218.892	33.79	0.01285
16440	377.218	0.233	0.02245	219.322	33.81	0.01298
16443	377.467	0.233	0.02217	219.771	33.83	0.01282
16446	377.728	0.233	0.02234	220.240	33.83	0.01292
16449	378.005	0.233	0.02217	220.739	33.84	0.01282
16452	378.287	0.233	0.02239	221.247	33.85	0.01295
16455	378.596	0.234	0.02221	221.803	33.87	0.01284
16458	378.917	0.234	0.02237	222.381	33.87	0.01293
16461	376.646	0.105	0.02234	218.293	15.20	0.01292
16464	376.868	0.105	0.02221	218.692	15.20	0.01284
16467	377.118	0.105	0.02272	219.142	15.21	0.01314
16470	377.373	0.105	0.02190	219.601	15.22	0.01266
16473	377.639	0.105	0.02248	220.080	15.24	0.01300
16476	377.932	0.105	0.02238	220.608	15.23	0.01294
16479	378.232	0.105	0.02250	221.148	15.24	0.01301
16482	378.540	0.105	0.02257	221.702	15.25	0.01305
16485	378.866	0.105	0.02263	222.289	15.25	0.01308
16488	379.222	0.105	0.02279	222.930	15.26	0.01318
16491	376.682	0.060	0.02143	218.358	8.64	0.01239
16494	376.949	0.059	0.02152	218.838	8.62	0.01244
16497	377.200	0.060	0.02165	219.290	8.66	0.01252
16500	377.535	0.060	0.02148	219.893	8.64	0.01242
16503	377.817	0.060	0.02130	220.401	8.66	0.01232
16506	378.118	0.060	0.02162	220.942	8.66	0.01250
16509	378.442	0.060	0.02157	221.526	8.66	0.01247
16512	378.762	0.060	0.02164	222.102	8.69	0.01251
16515	379.108	0.060	0.02146	222.724	8.68	0.01241
16518	379.480	0.060	0.02149	223.394	8.68	0.01243
15001	412.040	66.467	0.10057	282.002	9640.19	0.05815
15002	412.278	66.468	0.10050	282.430	9640.35	0.05811
15003	412.503	66.467	0.10018	282.835	9640.24	0.05792
15004	412.742	66.468	0.09933	283.266	9640.46	0.05743
15005	412.990	66.469	0.09877	283.712	9640.49	0.05711
15006	413.259	66.469	0.09860	284.196	9640.51	0.05701
15007	413.523	66.469	0.09820	284.671	9640.53	0.05678
15008	413.812	66.467	0.09768	285.192	9640.31	0.05648
15009	414.102	66.468	0.09781	285.714	9640.40	0.05655
15010	414.395	66.467	0.09750	286.241	9640.26	0.05637

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15011	411.878	60.130	0.09906	281.710	8721.17	0.05728
15012	412.097	60.130	0.09748	282.105	8721.13	0.05636
15013	412.324	60.130	0.09798	282.513	8721.18	0.05665
15014	412.553	60.129	0.09693	282.925	8720.99	0.05605
15015	412.810	60.128	0.09595	283.388	8720.86	0.05548
15016	413.061	60.130	0.09640	283.840	8721.09	0.05574
15017	413.333	60.129	0.09486	284.329	8721.02	0.05485
15018	413.607	60.128	0.09509	284.823	8720.90	0.05498
15019	413.899	60.132	0.09502	285.348	8721.40	0.05494
15020	414.198	60.132	0.09453	285.886	8721.37	0.05466
15021	411.952	51.975	0.09469	281.844	7538.43	0.05475
15022	412.176	51.977	0.09358	282.247	7538.63	0.05411
15023	412.417	51.977	0.09379	282.681	7538.66	0.05423
15024	412.657	51.978	0.09272	283.113	7538.81	0.05361
15025	412.909	51.977	0.09264	283.566	7538.69	0.05356
15026	413.184	51.978	0.09181	284.061	7538.82	0.05308
15027	413.460	51.977	0.09111	284.558	7538.66	0.05268
15028	413.749	51.977	0.09125	285.078	7538.66	0.05276
15029	414.045	51.978	0.09112	285.611	7538.80	0.05269
15030	414.366	51.980	0.09074	286.189	7539.13	0.05247
15031	412.028	44.928	0.09127	281.980	6516.33	0.05277
15032	412.265	44.929	0.08988	282.407	6516.42	0.05197
15033	412.509	44.930	0.08990	282.846	6516.52	0.05198
15034	412.770	44.930	0.08906	283.316	6516.55	0.05149
15035	413.023	44.928	0.08790	283.771	6516.27	0.05082
15036	413.304	44.929	0.08767	284.277	6516.48	0.05069
15037	413.588	44.930	0.08788	284.788	6516.58	0.05081
15038	413.892	44.931	0.08703	285.336	6516.74	0.05032
15039	414.190	44.930	0.08733	285.872	6516.62	0.05049
15040	414.513	44.931	0.08635	286.453	6516.67	0.04993
15041	412.047	39.372	0.08794	282.015	5710.46	0.05085
15042	412.284	39.372	0.08560	282.441	5710.43	0.04949
15043	412.538	39.372	0.08602	282.898	5710.48	0.04974
15044	412.791	39.374	0.08612	283.354	5710.76	0.04979
15045	413.076	39.374	0.08523	283.867	5710.71	0.04928
15046	413.352	39.374	0.08487	284.364	5710.80	0.04907
15047	413.643	39.376	0.08468	284.887	5710.97	0.04896
15048	413.956	39.376	0.08449	285.451	5711.03	0.04885
15049	414.281	39.377	0.08423	286.036	5711.22	0.04870
15050	414.600	39.379	0.08552	286.610	5711.47	0.04945
15051	411.887	33.890	0.08558	281.727	4915.30	0.04948
15052	412.129	33.892	0.08338	282.162	4915.59	0.04821
15053	412.378	33.893	0.08298	282.610	4915.72	0.04798
15054	412.631	33.893	0.08327	283.066	4915.83	0.04815
15055	412.899	33.895	0.08283	283.548	4916.12	0.04789
15056	413.174	33.897	0.08202	284.043	4916.43	0.04742
15057	413.477	33.899	0.08116	284.589	4916.63	0.04693
15058	413.794	33.900	0.08128	285.159	4916.81	0.04700
15059	414.091	33.901	0.08267	285.694	4916.94	0.04780

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15060	414.429	33.903	0.08128	286.302	4917.23	0.04700
15061	411.965	29.000	0.08115	281.867	4206.08	0.04692
15062	412.217	29.002	0.07940	282.321	4206.34	0.04591
15063	412.459	29.004	0.07932	282.756	4206.63	0.04586
15064	412.734	29.005	0.07924	283.251	4206.88	0.04582
15065	413.009	29.007	0.07890	283.746	4207.06	0.04562
15066	413.299	29.008	0.07820	284.268	4207.31	0.04522
15067	413.600	29.009	0.07833	284.810	4207.43	0.04529
15068	413.912	29.012	0.07794	285.372	4207.84	0.04507
15069	414.246	29.013	0.07853	285.973	4207.95	0.04541
15070	414.579	29.015	0.07924	286.572	4208.22	0.04582
15071	412.000	25.022	0.07697	281.930	3629.15	0.04450
15072	412.257	25.020	0.07662	282.393	3628.88	0.04430
15073	412.521	25.020	0.07621	282.868	3628.84	0.04406
15074	412.794	25.019	0.07612	283.359	3628.74	0.04401
15075	413.078	25.019	0.07486	283.870	3628.68	0.04328
15076	413.385	25.017	0.07494	284.423	3628.48	0.04333
15077	413.698	25.017	0.07549	284.986	3628.37	0.04365
15078	414.026	25.015	0.07555	285.577	3628.17	0.04368
15079	414.350	25.014	0.07343	286.160	3628.00	0.04246
15080	414.714	25.014	0.07673	286.815	3627.99	0.04437
15081	411.864	22.169	0.07523	281.685	3215.39	0.04350
15082	412.105	22.170	0.07498	282.119	3215.46	0.04335
15083	412.374	22.171	0.07397	282.603	3215.61	0.04277
15084	412.631	22.172	0.07377	283.066	3215.73	0.04265
15085	412.909	22.173	0.07341	283.566	3215.99	0.04245
15086	413.198	22.174	0.07217	284.086	3216.08	0.04173
15087	413.513	22.172	0.07310	284.653	3215.83	0.04227
15088	413.832	22.173	0.07394	285.228	3215.99	0.04275
15089	414.159	22.173	0.07391	285.816	3215.93	0.04273
15090	414.511	22.173	0.07442	286.450	3215.91	0.04303
15091	411.677	19.664	0.07317	281.349	2851.99	0.04231
15092	411.926	19.664	0.07183	281.797	2852.02	0.04153
15093	412.166	19.663	0.07172	282.229	2851.94	0.04147
15094	412.425	19.663	0.07228	282.695	2851.84	0.04179
15095	412.699	19.663	0.07143	283.188	2851.86	0.04130
15096	412.977	19.663	0.07130	283.689	2851.87	0.04123
15097	413.275	19.663	0.07094	284.225	2851.87	0.04102
15098	413.583	19.662	0.07170	284.779	2851.81	0.04146
15099	413.917	19.662	0.07200	285.381	2851.81	0.04163
15100	414.254	19.663	0.07409	285.987	2851.85	0.04284
15101	411.718	17.263	0.07024	281.422	2503.74	0.04061
15102	411.904	17.263	0.06976	281.757	2503.76	0.04034
15103	412.112	17.263	0.07035	282.132	2503.78	0.04068
15104	412.314	17.262	0.06847	282.495	2503.69	0.03959
15105	412.535	17.262	0.06940	282.893	2503.67	0.04013
15106	412.764	17.262	0.06941	283.305	2503.71	0.04013
15107	412.998	17.263	0.06869	283.726	2503.73	0.03972
15108	413.235	17.263	0.06971	284.153	2503.79	0.04031

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15109	413.484	17.264	0.07012	284.601	2503.98	0.04054
15110	413.740	17.264	0.06970	285.062	2503.91	0.04030
15111	411.755	15.223	0.06655	281.489	2207.93	0.03848
15112	411.950	15.223	0.06663	281.840	2207.95	0.03853
15113	412.147	15.223	0.06693	282.195	2207.90	0.03870
15114	412.375	15.224	0.06702	282.605	2208.02	0.03875
15115	412.589	15.224	0.06713	282.990	2208.13	0.03881
15116	412.822	15.224	0.06693	283.410	2208.10	0.03870
15117	413.056	15.224	0.06670	283.831	2208.07	0.03857
15118	413.306	15.224	0.06836	284.281	2208.08	0.03953
15119	413.566	15.224	0.06726	284.749	2208.10	0.03889
15120	413.831	15.224	0.06701	285.226	2208.12	0.03875
15121	411.432	13.508	0.06616	280.908	1959.11	0.03825
15122	411.616	13.503	0.06513	281.239	1958.39	0.03766
15123	411.805	13.505	0.06652	281.579	1958.74	0.03846
15124	411.997	13.505	0.06442	281.925	1958.77	0.03725
15125	412.203	13.505	0.06548	282.295	1958.78	0.03786
15126	411.618	13.507	0.06497	281.242	1959.10	0.03757
15127	411.786	13.508	0.06453	281.545	1959.13	0.03731
15128	411.968	13.508	0.06440	281.872	1959.20	0.03724
15129	412.169	13.508	0.06523	282.234	1959.19	0.03772
15130	412.371	13.508	0.06493	282.598	1959.19	0.03754
15131	412.579	13.509	0.06436	282.972	1959.33	0.03721
15132	412.813	13.509	0.06469	283.393	1959.30	0.03740
15133	413.048	13.509	0.06487	283.816	1959.37	0.03751
15134	413.290	13.510	0.06476	284.252	1959.40	0.03744
15135	413.546	13.510	0.06534	284.713	1959.40	0.03778
15136	411.603	12.371	0.06408	281.215	1794.34	0.03705
15137	411.740	12.371	0.06341	281.462	1794.28	0.03666
15138	411.883	12.371	0.06414	281.719	1794.34	0.03709
15139	412.026	12.372	0.06361	281.977	1794.37	0.03678
15140	412.168	12.372	0.06310	282.232	1794.43	0.03648
15141	412.330	12.372	0.06341	282.524	1794.44	0.03666
15142	412.488	12.372	0.06303	282.808	1794.41	0.03644
15143	412.650	12.372	0.06365	283.100	1794.42	0.03680
15144	412.832	12.372	0.06428	283.428	1794.42	0.03717
15145	413.009	12.372	0.06426	283.746	1794.48	0.03716
15146	411.608	11.191	0.06168	281.224	1623.07	0.03566
15147	411.749	11.191	0.06136	281.478	1623.07	0.03548
15148	411.897	11.190	0.06265	281.745	1623.02	0.03622
15149	412.040	11.190	0.06171	282.002	1623.04	0.03568
15150	412.196	11.190	0.06140	282.283	1623.05	0.03550
15151	412.357	11.190	0.06181	282.573	1623.03	0.03574
15152	412.515	11.191	0.06099	282.857	1623.07	0.03526
15153	412.684	11.191	0.06233	283.161	1623.12	0.03604
15154	412.850	11.191	0.06405	283.460	1623.08	0.03703
15155	413.038	11.191	0.06308	283.798	1623.10	0.03647
15156	411.588	10.336	0.06041	281.188	1499.06	0.03493
15157	411.731	10.336	0.05954	281.446	1499.11	0.03443

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15158	411.871	10.336	0.05962	281.698	1499.08	0.03447
15159	412.009	10.335	0.06054	281.946	1499.01	0.03500
15160	412.165	10.336	0.06053	282.227	1499.10	0.03500
15161	412.328	10.336	0.06016	282.520	1499.06	0.03478
15162	412.482	10.336	0.06049	282.798	1499.05	0.03498
15163	412.653	10.336	0.06139	283.105	1499.10	0.03550
15164	412.831	10.336	0.06153	283.426	1499.10	0.03558
15165	412.998	10.336	0.06136	283.726	1499.07	0.03548
15166	411.601	9.369	0.05853	281.212	1358.84	0.03384
15167	411.724	9.369	0.05793	281.433	1358.84	0.03350
15168	411.879	9.369	0.05841	281.712	1358.84	0.03377
15169	412.033	9.369	0.05815	281.989	1358.88	0.03362
15170	412.179	9.369	0.05872	282.252	1358.82	0.03395
15171	412.333	9.369	0.05948	282.529	1358.84	0.03439
15172	412.505	9.369	0.05946	282.839	1358.85	0.03438
15176	411.467	8.817	0.05701	280.971	1278.85	0.03296
15177	411.608	8.817	0.05698	281.224	1278.82	0.03295
15178	411.749	8.817	0.05726	281.478	1278.79	0.03311
15179	411.896	8.817	0.05663	281.743	1278.86	0.03274
15180	412.038	8.817	0.05831	281.998	1278.83	0.03371
15181	412.196	8.818	0.05747	282.283	1278.88	0.03323
15182	412.356	8.817	0.05994	282.571	1278.84	0.03466
15183	412.519	8.818	0.05921	282.864	1278.90	0.03424
15186	411.466	8.467	0.05573	280.969	1228.10	0.03222
15187	411.603	8.468	0.05651	281.215	1228.13	0.03267
15188	411.731	8.468	0.05551	281.446	1228.13	0.03210
15189	411.886	8.468	0.05752	281.725	1228.12	0.03326
15190	412.025	8.468	0.05652	281.975	1228.13	0.03268
15191	412.192	8.468	0.05743	282.276	1228.17	0.03321
15192	412.351	8.468	0.05896	282.562	1228.19	0.03409
15193	412.516	8.468	0.05962	282.859	1228.21	0.03447
15196	411.345	8.085	0.05587	280.751	1172.68	0.03230
15197	411.428	8.086	0.05543	280.900	1172.72	0.03205
15198	411.531	8.086	0.05538	281.086	1172.71	0.03202
15199	411.609	8.085	0.05545	281.226	1172.70	0.03206
15200	411.706	8.085	0.05476	281.401	1172.62	0.03166
15201	411.802	8.084	0.05555	281.574	1172.54	0.03212
15202	411.900	8.085	0.05685	281.750	1172.62	0.03287
15203	412.000	8.085	0.05656	281.930	1172.63	0.03270
15204	412.099	8.085	0.05671	282.108	1172.64	0.03279
15205	412.204	8.085	0.05623	282.297	1172.65	0.03251
15206	411.360	7.743	0.05500	280.778	1123.01	0.03180
15207	411.452	7.743	0.05417	280.944	1123.03	0.03132
15208	411.540	7.743	0.05564	281.102	1123.02	0.03217
15209	411.637	7.743	0.05509	281.277	1122.99	0.03185
15210	411.726	7.743	0.05436	281.437	1123.02	0.03143
15211	411.822	7.743	0.05466	281.610	1123.03	0.03160
15212	411.919	7.743	0.05557	281.784	1123.05	0.03213
15213	412.021	7.743	0.05632	281.968	1123.04	0.03256

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15214	412.124	7.743	0.05693	282.153	1123.07	0.03292
15215	412.235	7.743	0.05674	282.353	1123.04	0.03281
15216	411.287	7.454	0.05385	280.647	1081.08	0.03114
15217	411.383	7.454	0.05423	280.819	1081.09	0.03136
15218	411.461	7.454	0.05495	280.960	1081.08	0.03177
15219	411.554	7.454	0.05444	281.127	1081.09	0.03148
15220	411.643	7.454	0.05593	281.287	1081.07	0.03234
15221	411.729	7.454	0.05435	281.442	1081.08	0.03143
15222	411.818	7.454	0.05617	281.602	1081.09	0.03248
15223	411.925	7.454	0.05535	281.795	1081.08	0.03200
15224	412.021	7.454	0.05578	281.968	1081.08	0.03225
15225	412.127	7.454	0.05687	282.159	1081.09	0.03288
15226	411.193	7.275	0.05245	280.477	1055.11	0.03033
15227	411.290	7.274	0.05290	280.652	1055.07	0.03059
15228	411.380	7.274	0.05414	280.814	1055.06	0.03130
15229	411.464	7.274	0.05522	280.965	1055.06	0.03193
15230	411.556	7.274	0.05433	281.131	1055.05	0.03141
15231	411.642	7.274	0.05514	281.286	1055.04	0.03188
15232	411.738	7.274	0.05490	281.458	1055.07	0.03174
15233	411.824	7.275	0.05524	281.613	1055.09	0.03194
15234	411.922	7.274	0.05663	281.790	1055.08	0.03274
15235	412.022	7.275	0.05738	281.970	1055.13	0.03318
15236	411.166	7.085	0.05283	280.429	1027.58	0.03055
15237	411.261	7.085	0.05240	280.600	1027.59	0.03030
15238	411.339	7.085	0.05321	280.740	1027.59	0.03077
15239	411.436	7.085	0.05348	280.915	1027.58	0.03092
15240	411.524	7.085	0.05401	281.073	1027.59	0.03123
15241	411.605	7.085	0.05483	281.219	1027.57	0.03170
15242	411.695	7.085	0.05541	281.381	1027.59	0.03204
15243	411.784	7.085	0.05541	281.541	1027.59	0.03204
15244	411.872	7.085	0.05653	281.700	1027.60	0.03269
15245	411.978	7.085	0.05706	281.890	1027.59	0.03299
15246	411.084	6.903	0.05189	280.281	1001.27	0.03000
15247	411.174	6.903	0.05276	280.443	1001.26	0.03051
15248	411.262	6.903	0.05191	280.602	1001.27	0.03001
15249	411.341	6.903	0.05238	280.744	1001.27	0.03029
15250	411.418	6.903	0.05328	280.882	1001.24	0.03081
15251	411.518	6.903	0.05352	281.062	1001.24	0.03095
15252	411.592	6.903	0.05427	281.196	1001.26	0.03138
15253	411.678	6.903	0.05611	281.350	1001.27	0.03244
15254	411.781	6.903	0.05574	281.536	1001.26	0.03223
15255	411.878	6.903	0.05684	281.710	1001.26	0.03286
15256	411.028	6.754	0.05107	280.180	979.52	0.02953
15257	411.105	6.753	0.05166	280.319	979.51	0.02987
15258	411.178	6.753	0.05238	280.450	979.51	0.03029
15259	411.253	6.753	0.05100	280.585	979.48	0.02949
15260	411.348	6.753	0.05230	280.756	979.48	0.03024
15261	411.436	6.753	0.05344	280.915	979.47	0.03090
15262	411.508	6.753	0.05387	281.044	979.46	0.03115

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15263	411.601	6.753	0.05448	281.212	979.46	0.03150
15264	411.688	6.753	0.05540	281.368	979.47	0.03203
15265	411.784	6.753	0.05568	281.541	979.44	0.03219
15266	410.947	6.627	0.04990	280.035	961.12	0.02885
15267	411.028	6.626	0.05089	280.180	961.09	0.02942
15268	411.125	6.627	0.05095	280.355	961.11	0.02946
15269	411.197	6.626	0.05066	280.485	961.09	0.02929
15270	411.280	6.627	0.05079	280.634	961.11	0.02937
15271	411.355	6.627	0.05202	280.769	961.11	0.03008
15272	411.448	6.627	0.05290	280.936	961.12	0.03059
15273	411.530	6.627	0.05309	281.084	961.12	0.03070
15274	411.625	6.627	0.05456	281.255	961.12	0.03155
15275	411.717	6.627	0.05487	281.421	961.13	0.03173
15276	410.918	6.490	0.04769	279.982	941.33	0.02757
15277	410.998	6.490	0.04885	280.126	941.34	0.02825
15278	411.078	6.490	0.04880	280.270	941.33	0.02822
15279	411.154	6.490	0.04976	280.407	941.33	0.02877
15280	411.237	6.490	0.04860	280.557	941.34	0.02810
15281	411.314	6.490	0.05043	280.695	941.33	0.02916
15282	411.415	6.490	0.05114	280.877	941.33	0.02957
15283	411.491	6.490	0.05175	281.014	941.35	0.02992
15284	411.587	6.490	0.05243	281.187	941.34	0.03032
15285	411.683	6.490	0.05363	281.359	941.36	0.03101
15286	410.897	6.379	0.04751	279.945	925.22	0.02747
15287	410.968	6.379	0.04724	280.072	925.22	0.02731
15288	411.039	6.379	0.04791	280.200	925.22	0.02770
15289	411.125	6.379	0.04780	280.355	925.21	0.02764
15290	411.202	6.379	0.04829	280.494	925.22	0.02792
15291	411.287	6.379	0.04735	280.647	925.21	0.02738
15292	411.366	6.379	0.04955	280.789	925.22	0.02865
15293	411.456	6.379	0.04957	280.951	925.22	0.02866
15294	411.543	6.379	0.05011	281.107	925.22	0.02897
15295	411.636	6.379	0.05184	281.275	925.23	0.02997
15296	410.860	6.264	0.04573	279.878	908.51	0.02644
15297	410.937	6.264	0.04493	280.017	908.49	0.02598
15298	411.014	6.264	0.04649	280.155	908.52	0.02688
15299	411.091	6.264	0.04650	280.294	908.53	0.02689
15300	411.169	6.264	0.04651	280.434	908.52	0.02689
15301	411.261	6.264	0.04682	280.600	908.51	0.02707
15302	411.335	6.264	0.04655	280.733	908.54	0.02692
15303	411.432	6.264	0.04755	280.908	908.52	0.02749
15304	411.515	6.264	0.04849	281.057	908.52	0.02804
15305	411.619	6.264	0.04883	281.244	908.52	0.02823
15306	410.832	6.159	0.04448	279.828	893.30	0.02572
15307	410.925	6.159	0.04354	279.995	893.30	0.02517
15308	411.014	6.159	0.04499	280.155	893.29	0.02601
15309	411.100	6.159	0.04453	280.310	893.31	0.02575
15310	411.169	6.159	0.04531	280.434	893.32	0.02620
15311	411.236	6.159	0.04587	280.555	893.31	0.02652

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15312	411.327	6.159	0.04502	280.719	893.32	0.02603
15313	411.420	6.159	0.04605	280.886	893.32	0.02663
15314	411.513	6.159	0.04689	281.053	893.33	0.02711
15315	411.616	6.159	0.04677	281.239	893.33	0.02704
15316	410.801	6.061	0.04450	279.772	879.03	0.02573
15317	410.885	6.061	0.04310	279.923	879.03	0.02492
15318	410.971	6.061	0.04226	280.078	879.01	0.02443
15319	411.031	6.061	0.04375	280.186	879.01	0.02530
15320	411.113	6.061	0.04342	280.333	879.02	0.02511
15321	411.199	6.061	0.04407	280.488	879.03	0.02548
15322	411.293	6.061	0.04391	280.657	879.03	0.02539
15323	411.368	6.061	0.04406	280.792	879.05	0.02548
15324	411.459	6.061	0.04459	280.956	879.04	0.02578
15325	411.566	6.061	0.04562	281.149	879.04	0.02638
15326	410.759	5.962	0.04134	279.696	864.78	0.02390
15327	410.840	5.963	0.04197	279.842	864.79	0.02427
15328	410.914	5.962	0.04272	279.975	864.78	0.02470
15329	410.977	5.963	0.04122	280.089	864.80	0.02383
15330	411.066	5.963	0.04277	280.249	864.79	0.02473
15331	411.125	5.962	0.04196	280.355	864.78	0.02426
15332	411.229	5.963	0.04279	280.542	864.79	0.02474
15333	411.308	5.962	0.04217	280.684	864.77	0.02438
15334	411.405	5.962	0.04331	280.859	864.78	0.02504
15335	411.509	5.962	0.04357	281.046	864.78	0.02519
15336	410.743	5.861	0.04110	279.667	850.14	0.02376
15337	410.831	5.861	0.04039	279.826	850.14	0.02335
15338	410.936	5.861	0.04099	280.015	850.13	0.02370
15339	411.009	5.862	0.04078	280.146	850.15	0.02358
15340	411.102	5.862	0.04128	280.314	850.16	0.02387
15341	411.171	5.861	0.04145	280.438	850.13	0.02397
15342	411.260	5.862	0.04145	280.598	850.15	0.02397
15343	411.362	5.862	0.04058	280.782	850.15	0.02346
15344	411.455	5.861	0.04200	280.949	850.14	0.02428
15345	411.561	5.862	0.04231	281.140	850.15	0.02446
15346	410.758	5.744	0.03980	279.694	833.15	0.02301
15347	410.869	5.744	0.03882	279.894	833.15	0.02245
15348	410.917	5.744	0.03982	279.981	833.14	0.02302
15349	411.008	5.744	0.03902	280.144	833.14	0.02256
15350	411.108	5.744	0.04010	280.324	833.15	0.02319
15351	411.197	5.744	0.03998	280.485	833.15	0.02312
15352	411.292	5.744	0.04027	280.656	833.14	0.02328
15353	411.390	5.744	0.03984	280.832	833.15	0.02304
15354	411.486	5.744	0.04070	281.005	833.15	0.02353
15355	411.588	5.744	0.04100	281.188	833.14	0.02371
15356	410.776	5.631	0.03856	279.727	816.74	0.02230
15357	410.849	5.631	0.03861	279.858	816.74	0.02232
15358	410.951	5.631	0.03913	280.042	816.73	0.02263
15359	411.049	5.631	0.03879	280.218	816.74	0.02243
15360	411.130	5.631	0.03867	280.364	816.73	0.02236

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15361	411.225	5.631	0.03874	280.535	816.72	0.02240
15362	411.314	5.631	0.03916	280.695	816.71	0.02264
15363	411.422	5.631	0.03892	280.890	816.70	0.02250
15364	411.532	5.631	0.03945	281.088	816.68	0.02281
15365	411.647	5.631	0.03968	281.295	816.69	0.02294
15366	410.816	5.524	0.03769	279.799	801.25	0.02179
15367	410.913	5.524	0.03781	279.973	801.25	0.02186
15368	411.028	5.525	0.03668	280.180	801.28	0.02121
15369	411.112	5.525	0.03775	280.332	801.28	0.02183
15370	411.189	5.525	0.03772	280.470	801.28	0.02181
15371	411.298	5.525	0.03811	280.666	801.30	0.02204
15372	411.389	5.525	0.03657	280.830	801.31	0.02114
15373	411.515	5.524	0.03831	281.057	801.20	0.02215
15374	411.622	5.525	0.03800	281.250	801.28	0.02197
15375	411.736	5.525	0.03846	281.455	801.27	0.02224
15376	410.821	5.393	0.03671	279.808	782.17	0.02123
15377	410.919	5.393	0.03695	279.984	782.16	0.02136
15378	411.011	5.393	0.03528	280.150	782.16	0.02040
15379	411.112	5.393	0.03690	280.332	782.16	0.02134
15380	411.232	5.393	0.03643	280.548	782.16	0.02106
15381	411.319	5.393	0.03620	280.704	782.15	0.02093
15382	411.437	5.393	0.03636	280.917	782.16	0.02102
15383	411.539	5.393	0.03715	281.100	782.19	0.02148
15384	411.662	5.393	0.03725	281.322	782.18	0.02154
15385	411.779	5.393	0.03742	281.532	782.17	0.02164
15386	410.896	5.271	0.03524	279.943	764.47	0.02038
15387	410.981	5.271	0.03532	280.096	764.47	0.02042
15388	411.080	5.271	0.03585	280.274	764.49	0.02073
15389	411.189	5.271	0.03599	280.470	764.48	0.02081
15390	411.276	5.271	0.03584	280.627	764.49	0.02072
15391	411.400	5.271	0.03494	280.850	764.50	0.02020
15392	411.511	5.271	0.03586	281.050	764.49	0.02073
15393	411.627	5.271	0.03582	281.259	764.46	0.02071
15394	411.746	5.271	0.03576	281.473	764.49	0.02068
15395	411.870	5.271	0.03639	281.696	764.48	0.02104
15396	410.918	5.012	0.03399	279.982	726.87	0.01965
15397	411.035	5.012	0.03281	280.193	726.91	0.01897
15398	411.127	5.012	0.03411	280.359	726.90	0.01972
15399	411.237	5.012	0.03395	280.557	726.91	0.01963
15400	411.347	5.012	0.03369	280.755	726.89	0.01948
15401	411.454	5.012	0.03317	280.947	726.89	0.01918
15402	411.578	5.012	0.03398	281.170	726.90	0.01965
15403	411.706	5.012	0.03413	281.401	726.89	0.01973
15404	411.834	5.012	0.03405	281.631	726.90	0.01969
15405	411.975	5.012	0.03432	281.885	726.90	0.01984
15406	410.960	4.777	0.03244	280.058	692.91	0.01876
15407	411.055	4.777	0.03155	280.229	692.90	0.01824
15408	411.173	4.777	0.03248	280.441	692.90	0.01878
15409	411.286	4.778	0.03226	280.645	692.93	0.01865

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15410	411.392	4.778	0.03212	280.836	692.93	0.01857
15411	411.531	4.778	0.03241	281.086	692.95	0.01874
15412	411.649	4.778	0.03237	281.298	692.94	0.01872
15413	411.782	4.778	0.03255	281.538	692.97	0.01882
15414	411.928	4.778	0.03274	281.800	692.97	0.01893
15415	412.069	4.778	0.03277	282.054	692.97	0.01895
15416	411.015	4.536	0.03146	280.157	657.93	0.01819
15417	411.134	4.536	0.03097	280.371	657.96	0.01791
15418	411.250	4.536	0.03142	280.580	657.95	0.01817
15419	411.363	4.536	0.03103	280.783	657.95	0.01794
15420	411.489	4.536	0.03107	281.010	657.95	0.01796
15421	411.613	4.537	0.03144	281.233	657.99	0.01818
15422	411.750	4.537	0.03109	281.480	657.98	0.01798
15423	411.889	4.537	0.03128	281.730	657.99	0.01809
15424	412.038	4.537	0.03135	281.998	658.01	0.01813
15425	412.193	4.537	0.03132	282.277	658.01	0.01811
15426	411.063	4.281	0.03015	280.243	620.94	0.01743
15427	411.185	4.281	0.03018	280.463	620.91	0.01745
15428	411.290	4.281	0.02999	280.652	620.93	0.01734
15429	411.417	4.281	0.02985	280.881	620.91	0.01726
15430	411.554	4.281	0.02979	281.127	620.92	0.01722
15431	411.697	4.281	0.03008	281.385	620.91	0.01739
15432	411.834	4.281	0.03046	281.631	620.92	0.01761
15433	411.982	4.281	0.03047	281.898	620.92	0.01762
15434	412.139	4.281	0.03042	282.180	620.96	0.01759
15435	412.301	4.281	0.03041	282.472	620.98	0.01758
15436	411.087	4.021	0.02855	280.287	583.27	0.01651
15437	411.210	4.021	0.02951	280.508	583.23	0.01706
15438	411.320	4.021	0.02898	280.706	583.24	0.01676
15439	411.447	4.021	0.02907	280.935	583.19	0.01681
15440	411.575	4.021	0.02901	281.165	583.17	0.01677
15441	411.723	4.021	0.02922	281.431	583.18	0.01690
15442	411.853	4.021	0.02920	281.665	583.17	0.01688
15443	412.012	4.021	0.02938	281.952	583.15	0.01699
15444	412.160	4.021	0.02938	282.218	583.14	0.01699
15445	412.328	4.021	0.02944	282.520	583.15	0.01702
15446	410.976	3.676	0.02854	280.087	533.20	0.01650
15447	411.122	3.676	0.02845	280.350	533.13	0.01645
15448	411.239	3.675	0.02819	280.560	533.05	0.01630
15449	411.392	3.675	0.02828	280.836	533.02	0.01635
15450	411.521	3.674	0.02790	281.068	532.94	0.01613
15451	411.666	3.674	0.02815	281.329	532.92	0.01628
15452	411.832	3.674	0.02814	281.628	532.91	0.01627
15453	411.999	3.674	0.02817	281.928	532.85	0.01629
15454	412.175	3.674	0.02791	282.245	532.82	0.01614
15455	412.360	3.673	0.02835	282.578	532.76	0.01639
15456	410.998	3.359	0.02770	280.126	487.18	0.01602
15457	411.110	3.358	0.02778	280.328	487.05	0.01606
15458	411.264	3.357	0.02685	280.605	486.96	0.01552

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15459	411.410	3.357	0.02750	280.868	486.88	0.01590
15460	411.544	3.356	0.02707	281.109	486.81	0.01565
15461	411.716	3.356	0.02737	281.419	486.79	0.01583
15462	411.880	3.356	0.02721	281.714	486.72	0.01573
15463	412.056	3.355	0.02761	282.031	486.67	0.01596
15464	412.237	3.355	0.02705	282.357	486.60	0.01564
15465	412.435	3.355	0.02756	282.713	486.58	0.01594
15466	411.155	2.944	0.02702	280.409	426.94	0.01562
15467	411.288	2.944	0.02643	280.648	426.93	0.01528
15468	411.417	2.944	0.02652	280.881	426.92	0.01533
15469	411.592	2.944	0.02665	281.196	426.92	0.01541
15470	411.744	2.944	0.02644	281.469	426.94	0.01529
15471	411.917	2.944	0.02638	281.781	426.93	0.01525
15472	412.095	2.944	0.02662	282.101	426.93	0.01539
15473	412.283	2.943	0.02623	282.439	426.88	0.01517
15474	412.483	2.943	0.02664	282.799	426.90	0.01540
15475	412.682	2.944	0.02658	283.158	426.95	0.01537
15476	411.230	2.623	0.02623	280.544	380.44	0.01517
15478	411.461	2.622	0.02579	280.960	380.31	0.01491
15480	411.698	2.622	0.02624	281.386	380.23	0.01517
15482	411.950	2.621	0.02584	281.840	380.21	0.01494
15484	412.209	2.622	0.02630	282.306	380.22	0.01521
15486	412.520	2.622	0.02614	282.866	380.22	0.01511
15488	412.825	2.622	0.02629	283.415	380.23	0.01520
15490	413.160	2.622	0.02611	284.018	380.26	0.01510
15492	413.519	2.622	0.02585	284.664	380.27	0.01495
15494	413.894	2.622	0.02618	285.339	380.35	0.01514
15496	411.256	2.284	0.02616	280.591	331.28	0.01513
15498	411.495	2.283	0.02591	281.021	331.16	0.01498
15500	411.740	2.283	0.02570	281.462	331.11	0.01486
15502	412.003	2.283	0.02555	281.935	331.14	0.01477
15504	412.287	2.283	0.02527	282.447	331.16	0.01461
15506	412.604	2.284	0.02567	283.017	331.22	0.01484
15508	412.921	2.284	0.02565	283.588	331.31	0.01483
15510	413.274	2.285	0.02567	284.223	331.38	0.01484
15512	413.642	2.285	0.02562	284.886	331.48	0.01481
15514	414.051	2.286	0.02573	285.622	331.56	0.01488
15516	411.345	1.955	0.02543	280.751	283.57	0.01470
15518	411.608	1.955	0.02481	281.224	283.48	0.01435
15520	411.859	1.954	0.02556	281.676	283.43	0.01478
15522	412.140	1.954	0.02525	282.182	283.38	0.01460
15524	412.369	1.954	0.02495	282.594	283.39	0.01443
15526	412.692	1.954	0.02526	283.176	283.40	0.01461
15528	413.031	1.954	0.02527	283.786	283.43	0.01461
15530	413.402	1.955	0.02534	284.454	283.51	0.01465
15532	413.791	1.955	0.02541	285.154	283.54	0.01469
15534	414.203	1.955	0.02541	285.895	283.59	0.01469
15536	411.304	1.642	0.02529	280.677	238.10	0.01462
15538	411.560	1.641	0.02476	281.138	238.00	0.01432

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (continued).

Point Number	T _{Exp.} K	P _{Cell} MPa	λ _{Exp.} W/(m·K)	T _{Exp.} °F	P _{Cell} psia	λ _{Exp.} BTU/(ft·hr·°F)
15540	411.834	1.640	0.02510	281.631	237.93	0.01451
15542	412.121	1.640	0.02525	282.148	237.93	0.01460
15544	412.434	1.641	0.02499	282.711	237.95	0.01445
15546	412.768	1.641	0.02508	283.312	237.95	0.01450
15548	413.127	1.641	0.02506	283.959	238.01	0.01449
15550	413.499	1.641	0.02524	284.628	238.08	0.01459
15552	413.902	1.642	0.02524	285.354	238.14	0.01459
15554	414.332	1.642	0.02523	286.128	238.21	0.01459
15556	411.303	1.278	0.02473	280.675	185.36	0.01430
15558	411.573	1.277	0.02454	281.161	185.22	0.01419
15560	411.833	1.276	0.02499	281.629	185.09	0.01445
15562	412.145	1.275	0.02515	282.191	184.99	0.01454
15564	412.474	1.275	0.02511	282.783	184.86	0.01452
15566	412.819	1.274	0.02511	283.404	184.75	0.01452
15568	413.194	1.273	0.02509	284.079	184.63	0.01451
15570	413.587	1.272	0.02485	284.787	184.51	0.01437
15572	414.019	1.272	0.02509	285.564	184.42	0.01451
15574	414.457	1.271	0.02512	286.353	184.32	0.01452
15586	410.879	1.092	0.02592	279.912	158.40	0.01499
15589	411.046	1.096	0.02528	280.213	159.03	0.01462
15592	411.276	1.101	0.02498	280.627	159.73	0.01444
15595	411.524	1.105	0.02507	281.073	160.33	0.01450
15598	411.780	1.110	0.02519	281.534	160.93	0.01456
15601	412.068	1.113	0.02483	282.052	161.44	0.01436
15604	412.388	1.117	0.02494	282.628	161.97	0.01442
15607	412.726	1.119	0.02510	283.237	162.37	0.01451
15610	413.086	1.123	0.02496	283.885	162.81	0.01443
15613	413.475	1.125	0.02507	284.585	163.22	0.01450
15616	410.797	0.883	0.02472	279.765	128.10	0.01429
15619	411.046	0.883	0.02476	280.213	128.12	0.01432
15622	411.277	0.883	0.02512	280.629	128.14	0.01452
15625	411.511	0.884	0.02512	281.050	128.26	0.01452
15628	411.799	0.885	0.02512	281.568	128.36	0.01452
15631	412.107	0.886	0.02486	282.123	128.46	0.01437
15634	412.425	0.886	0.02455	282.695	128.55	0.01419
15637	412.781	0.887	0.02503	283.336	128.65	0.01447
15640	413.220	0.888	0.02508	284.126	128.77	0.01450
15643	413.617	0.888	0.02520	284.841	128.83	0.01457
15646	410.894	0.683	0.02539	279.939	99.08	0.01468
15649	411.106	0.682	0.02360	280.321	98.96	0.01365
15652	411.337	0.682	0.02554	280.737	98.89	0.01477
15655	411.588	0.682	0.02514	281.188	98.86	0.01454
15658	411.877	0.682	0.02509	281.709	98.85	0.01451
15661	412.191	0.682	0.02532	282.274	98.88	0.01464
15664	412.537	0.682	0.02514	282.897	98.88	0.01454
15667	412.891	0.682	0.02531	283.534	98.89	0.01463
15670	413.274	0.682	0.02524	284.223	98.93	0.01459
15673	413.701	0.682	0.02498	284.992	98.98	0.01444
15676	410.857	0.462	0.02505	279.873	67.00	0.01448

Table 13. Transient Hot-Wire Thermal Conductivity Data For HFC-152a (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)
15678	411.092	0.464	0.02375	280.296	67.26	0.01373
15680	411.340	0.464	0.02587	280.742	67.28	0.01496
15682	411.625	0.464	0.02508	281.255	67.30	0.01450
15684	411.917	0.464	0.02558	281.781	67.30	0.01479
15686	412.235	0.464	0.02550	282.353	67.31	0.01474
15688	412.600	0.464	0.02549	283.010	67.33	0.01474
15690	412.989	0.464	0.02554	283.710	67.34	0.01477
15692	413.391	0.464	0.02554	284.434	67.34	0.01477
15694	413.835	0.464	0.02525	285.233	67.32	0.01460
15696	410.924	0.265	0.02624	279.993	38.47	0.01517
15698	411.155	0.265	0.02466	280.409	38.49	0.01426
15700	411.408	0.265	0.02497	280.864	38.49	0.01444
15702	411.687	0.266	0.02527	281.367	38.51	0.01461
15704	412.011	0.266	0.02620	281.950	38.53	0.01515
15706	412.357	0.266	0.02614	282.573	38.54	0.01511
15708	412.739	0.266	0.02600	283.260	38.53	0.01503
15710	413.134	0.266	0.02607	283.971	38.53	0.01507
15712	413.578	0.266	0.02601	284.770	38.52	0.01504
15714	414.048	0.266	0.02613	285.616	38.56	0.01511
15716	410.996	0.201	0.02658	280.123	29.09	0.01537
15718	411.227	0.201	0.02703	280.539	29.08	0.01563
15720	411.485	0.200	0.02604	281.003	29.06	0.01506
15722	411.797	0.200	0.02692	281.565	29.05	0.01557
15724	412.127	0.200	0.02649	282.159	29.02	0.01532
15726	412.493	0.200	0.02659	282.817	29.00	0.01537
15728	412.874	0.200	0.02673	283.503	28.98	0.01546
15730	413.298	0.200	0.02628	284.266	28.96	0.01520
15732	413.748	0.200	0.02654	285.076	28.96	0.01535
15734	414.222	0.200	0.02653	285.930	28.96	0.01534
15736	410.992	0.134	0.02670	280.116	19.46	0.01544
15738	411.213	0.134	0.02698	280.513	19.48	0.01560
15740	411.528	0.134	0.02705	281.080	19.47	0.01564
15742	411.832	0.134	0.02667	281.628	19.47	0.01542
15744	412.183	0.134	0.02647	282.259	19.49	0.01531
15746	412.543	0.135	0.02594	282.907	19.51	0.01558
15748	412.955	0.135	0.02681	283.649	19.52	0.01550
15750	413.382	0.135	0.02692	284.418	19.56	0.01557
15752	413.864	0.135	0.02705	285.285	19.53	0.01564
15754	414.360	0.135	0.02711	286.178	19.56	0.01568
15756	411.053	0.071	0.02529	280.225	10.27	0.01462
15758	411.316	0.071	0.02640	280.699	10.26	0.01526
15760	411.617	0.071	0.02671	281.241	10.26	0.01544
15762	411.936	0.071	0.02621	281.815	10.26	0.01515
15764	412.303	0.071	0.02653	282.475	10.28	0.01534
15766	412.697	0.071	0.02563	283.185	10.28	0.01482
15768	413.135	0.071	0.02632	283.973	10.28	0.01522
15770	413.598	0.071	0.02623	284.806	10.28	0.01517
15772	414.096	0.071	0.02585	285.703	10.28	0.01495
15774	414.625	0.071	0.02651	286.655	10.28	0.01533

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