T-404A (HP62)—SI

DuPont™ Suva®
refrigerants

Thermodynamic Properties of DuPont™ Suva® 404A (HP62) Refrigerant

(R-404A)

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Thermodynamic Properties of Suva® 404A (HP62) Refrigerant
SI Units

New tables of the thermodynamic properties of Suva® 404A (HP62) refrigerant [ASHRAE designation: R-404A (44/52/4)], a near azeotropic blend of HFC-125/HFC-143a/HFC-134a, have been developed and are presented here. These tables are based on extensive experimental measurements. Equations have been developed, based on the Peng-Robinson-Stryjek-Vera (PRSV) equation of state, which represent the data with accuracy and consistency throughout the entire range of temperature, pressure, and density presented in these tables.

Physical Properties

Chemical Formula	$CHF_2CF_3/CH_3CF_3/CH_2FCF_3$ (44/52/4% by weight)	
Molecular Weight	97.60	
Boiling Point at One Atmosphere	–46.45°C	(–51.62°F)
Critical Temperature, T_c	72.07°C 345.22 K	(161.73°F) (621.40°R)
Critical Pressure, P_c	3731.5 kPa (abs)	(541.2 psia)
Critical Density, D_c	484.5 kg/m^3	(30.23 lb/ft^3)
Critical Volume, V_c	0.00206 m^3/kg	(0.0331 ft^3/lb)

Units and Factors

t = temperature in °C
T = temperature in K = °C + 273.15
p_f = pressure of saturated liquid (bubble point) in kPa (abs)
p_g = pressure of saturated vapor (dew point) in kPa (abs)
v_f = volume of saturated liquid in m^3/kg
v_g = volume of saturated vapor in m^3/kg
V = volume of superheated vapor in m^3/kg
$d_f = 1/v_f$ = density of saturated liquid in kg/m^3
$d_g = 1/v_g$ = density of saturated vapor in kg/m^3
h_f = enthalpy of saturated liquid in kJ/kg
h_{fg} = enthalpy of vaporization in kJ/kg
h_g = enthalpy of saturated vapor in kJ/kg
H = enthalpy of superheated vapor in kJ/kg
s_f = entropy of saturated liquid in kJ/(kg) (K)
s_g = entropy of saturated vapor in kJ/(kg) (K)
S = entropy of superheated vapor in kJ/(kg) (K)
C_p = heat capacity at constant pressure in kJ/(kg) (K)
C_v = heat capacity at constant volume in kJ/(kg) (K)

The gas constant, R = 8.314 J/(mole) (K)
for Suva® 404A (HP62), R = 0.0852 kJ/kg • K
One atmosphere = 101.325 kPa

Reference point for enthalpy and entropy:
h_f = 200 kJ/kg at 0°C
s_f = 1 kJ/kg • K at 0°C

Equations

The Peng-Robinson-Stryjek-Vera (PRSV) equation of state was used to calculate the tables of thermodynamic properties. It was chosen as the preferred equation of state because it provided an accurate fit of the thermodynamic data over the entire range of temperatures and pressures presented in these tables.

The constants for the PRSV equation of state were calculated in SI units. For conversion of thermodynamic properties to Engineering (I/P) units, conversion factors are provided for each property derived from the PRSV equation of state.

1. Equation of State (PRSV)

$$\mathbf{P = RT/(V - b) - a/(V^2 + 2bV - b^2)}$$

where P is in kPa, T is in K, V is in m^3/mole, and R = 0.008314 kJ/(mole) (K). The constants a and b are calculated as follows:

$$\mathbf{a = \sum_{i=1}^{3}\sum_{j=1}^{3} x_i x_j a_{ij}} \qquad \mathbf{b = \sum_{i=1}^{3} x_i b_i}$$

where

$a_{ij} = (a_i\, a_j)^{0.5}\,(1 - k_{ij})$ $\qquad b_i = 0.077796\, RT_{c_i}/P_{c_i}$

x_i = mole fraction of component i

x_j = mole fraction of component j

$a_i = (0.457235\, R^2\, T_{c_i}^2/P_{c_i})\,\alpha_i$

$a_j = (0.457235\, R^2\, T_{c_j}^2/P_{c_j})\,\alpha_j$

k_{ij} = binary interaction parameter for components i and j

$\alpha_i = [1 + \kappa_i\,(1 - T_{r_i}^{0.5})]^2$

$\kappa_i = \kappa_{0_i} + \kappa_{1_i}\,[(1 + T_{r_i}^{0.5})\,(0.7 - T_{r_i})]$
(Note: $\kappa_i = \kappa_{0_i}$ for $T_r > 0.7$)

$\kappa_{0_i} = 0.378893 + 1.4897153\omega_i - 0.17131848\omega_i^2 + 0.0196554\omega_i^3$

κ_{1_i} = adjustable parameter for component i

$T_{r_i} = T_i/T_{c_i}$ for component i

Values for R, T_{ci}, P_{ci}, ω_i, κ_{1i}, x_i, and k_{ij} are needed to calculate constants a and b. R = 0.008314 kJ/(mole) (K). The remaining constants for Suva® 404A (HP62) are summarized below:

Component	T_{ci}	P_{ci}	ω_i	κ_{1i}	x_i
HFC-125 (i = 1)	339.19	3595.0	0.3023	0.0310	0.35782
HFC-143a (i = 2)	346.25	3758.1	0.2529	0.0450	0.60392
HFC-134a (i = 3)	374.20	4056.0	0.3266	–0.0060	0.03826

The binary interaction parameters, k_{ij}, for Suva® 404A (HP62) are:

k_{11} = 0.0000 k_{12} = –0.0111 k_{13} = –0.0024
k_{21} = –0.0111 k_{22} = 0.0000 k_{23} = 0.0013
k_{31} = –0.0024 k_{32} = 0.0013 k_{33} = 0.0000

Ideal Gas Heat Capacity Equation (at constant pressure):

$$C_p^o \text{ (mixture)} = \sum_{i=1}^{3} x_i C_{pi}^o$$

$$C_{pi}^o = 4.184 (A_i + B_i T + C_i T^2 + D_i T^3 + E_i T^4 + F_i T^5)$$

where C_p^o and C_{pi}^o are in J/(mole) (K) and T is in K.

x_i is the mole fraction of component i in the mixture [use same values listed in PRSV constants for Suva® 404A (HP62)].

A_i, B_i, C_i, D_i, E_i, and F_i are constants:

A_1 = 1.170144 E+01 B_1 = 0.216411 E–01
A_2 = 1.372849 E+00 B_2 = 0.750717 E–01
A_3 = 4.636855 E+00 B_3 = 0.617904 E–01
C_1 = 8.685258 E–05 D_1 = –1.127756 E–07
C_2 = –6.206979 E–05 D_2 = 2.011233 E–08
C_3 = –3.099070 E–05 D_3 = 0.000000 E+00
E_1 = 0.000000 E+00 F_1 = 0.000000 E+00
E_2 = 0.000000 E+00 F_2 = 0.000000 E+00
E_3 = 0.000000 E+00 F_3 = 0.000000 E+00

Properties calculated in SI units from the equations and constants listed above can be converted to I/P units using the conversion factors shown below. Please note that in converting enthalpy and entropy from SI to I/P units, a change in reference states must be included (from H = 200 and S = 1 at 0°C for SI units to H = 0 and S = 0 at –40°F for I/P units). In the conversion equations below, H (ref) and S (ref) are the saturated liquid enthalpy and entropy at –40°C. For Suva® 404A (HP62): H (ref) = 145.6 kJ/kg and S (ref) = 0.7862 kJ/kg · K.

Conversion Factors (SI units to I/P units):

P (psia) = P (kPa) · 0.14504
T (°F) = (T [°C] · 1.8) + 32
D (lb/ft^3) = D (kg/m^3) · 0.062428
V (ft^3/lb) = V (m^3/kg) · 16.018
H (Btu/lb) = [H (kJ/kg) – H (ref)] · 0.43021
S (Btu/lb · °R) = [S (kJ/kg · K) – S (ref)] · 0.23901
C_p (Btu/lb · °F) = C_p (kJ/kg · K) · 0.23901
C_v (Btu/lb · °F) = C_v (kJ/kg · K) · 0.23901

2. Vapor Pressure

$\log_n P = A + B/T + C \log_n T + D T^2$

For SI units

T is in K and P is in kPa (abs)

A, B, C and D are constants.

Constants for vapor pressure of saturated liquid (bubble point), p_f:

A = 5.56487 E+01 C = –6.58061 E+00
B = –3.62385 E+03 D = 1.27711 E–05

Constants for vapor pressure of saturated vapor (dew point), p_g:

A = 6.89227 E+01 C = –8.71773 E+00
B = –4.06171 E+03 D = 1.68264 E–05

For I/P units

T is in °R and P is in psia

A, B, C and D are constants.

Constants for vapor pressure of saturated liquid (bubble point), p_f:

A = 5.75859 E+01 C = –6.58061 E+00
B = –6.52292 E+03 D = 3.94176 E–06

Constants for vapor pressure of saturated vapor (dew point), p_g:

A = 7.21161 E+01 C = –8.71773 E+00
B = –7.31107 E+03 D = 5.19336 E–06

3. Density of the Saturated Liquid

$$\mathbf{d_f/D_c = a_0 + a_1\, z + a_2\, z^2 + a_3\, z^3 + a_4\, z^4}$$

where $z = (1 - T/T_c)^{1/3} - t_0$

Because both density and temperature appear in the reduced form in the equation, the same constants can be used for either SI or I/P units.

d_f and D_c are in kg/m^3 in SI units and lb/ft^3 in I/P units; T and T_c are in K in SI units and °R in I/P units; a_0, a_1, a_2, a_3, a_4, and t_0 are constants:

a_0 =	1.0002	E+00	a_3 =	–1.3781	E+01
a_1 =	1.9300	E–01	a_4 =	7.6142	E+00
a_2 =	9.0829	E+00	t_0 =	0.0000	

Table 1
Suva® 404A (HP62) Saturation Properties—Temperature Table

TEMP.	PRESSURE kPa		VOLUME m^3/kg		DENSITY kg/m^3		ENTHALPY kJ/kg			ENTROPY kJ/(kg)(K)		TEMP.
°C	LIQUID p_f	VAPOR p_g	LIQUID v_f	VAPOR v_g	LIQUID $1/v_f$	VAPOR $1/v_g$	LIQUID h_f	LATENT h_{fg}	VAPOR h_g	LIQUID s_f	VAPOR s_g	°C
–100	3.0	2.7	0.0007	5.3706	1436.6	0.186	75.6	229.6	305.2	0.4409	1.7728	–100
–99	3.3	3.0	0.0007	4.9310	1435.2	0.203	76.7	229.2	305.8	0.4472	1.7685	–99
–98	3.6	3.3	0.0007	4.5310	1433.7	0.221	77.8	228.7	306.5	0.4534	1.7644	–98
–97	3.9	3.6	0.0007	4.1701	1432.1	0.240	78.9	228.2	307.1	0.4596	1.7604	–97
–96	4.3	3.9	0.0007	3.8432	1430.4	0.260	80.0	227.7	307.7	0.4658	1.7565	–96
–95	4.6	4.3	0.0007	3.5448	1428.8	0.282	81.1	227.3	308.3	0.4719	1.7527	–95
–94	5.1	4.6	0.0007	3.2733	1427.0	0.306	82.1	226.8	308.9	0.4781	1.7489	–94
–93	5.5	5.1	0.0007	3.0257	1425.2	0.331	83.2	226.3	309.6	0.4842	1.7452	–93
–92	5.9	5.5	0.0007	2.7996	1423.3	0.357	84.4	225.8	310.2	0.4903	1.7417	–92
–91	6.4	6.0	0.0007	2.5934	1421.4	0.386	85.5	225.4	310.8	0.4963	1.7382	–91
–90	7.0	6.5	0.0007	2.4044	1419.5	0.416	86.6	224.9	311.4	0.5024	1.7347	–90
–89	7.5	7.0	0.0007	2.2321	1417.5	0.448	87.7	224.4	312.1	0.5084	1.7314	–89
–88	8.1	7.6	0.0007	2.0738	1415.4	0.482	88.8	223.9	312.7	0.5145	1.7281	–88
–87	8.8	8.2	0.0007	1.9286	1413.3	0.519	89.9	223.4	313.3	0.5205	1.7250	–87
–86	9.5	8.8	0.0007	1.7953	1411.2	0.557	91.0	222.9	314.0	0.5264	1.7219	–86
–85	10.2	9.5	0.0007	1.6728	1409.0	0.598	92.1	222.5	314.6	0.5324	1.7188	–85
–84	11.0	10.3	0.0007	1.5598	1406.8	0.641	93.3	222.0	315.2	0.5383	1.7159	–84
–83	11.8	11.1	0.0007	1.4560	1404.5	0.687	94.4	221.5	315.9	0.5443	1.7130	–83
–82	12.7	11.9	0.0007	1.3602	1402.2	0.735	95.5	221.0	316.5	0.5502	1.7101	–82
–81	13.6	12.8	0.0007	1.2718	1399.8	0.786	96.6	220.5	317.1	0.5561	1.7074	–81
–80	14.6	13.7	0.0007	1.1902	1397.4	0.840	97.8	220.0	317.8	0.5620	1.7047	–80
–79	15.7	14.7	0.0007	1.1147	1395.0	0.897	98.9	219.5	318.4	0.5678	1.7021	–79
–78	16.8	15.8	0.0007	1.0448	1392.6	0.957	100.0	219.0	319.1	0.5737	1.6995	–78
–77	17.9	16.9	0.0007	0.9801	1390.1	1.020	101.2	218.5	319.7	0.5795	1.6970	–77
–76	19.2	18.1	0.0007	0.9201	1387.6	1.087	102.3	218.0	320.4	0.5853	1.6945	–76
–75	20.5	19.3	0.0007	0.8645	1385.0	1.157	103.5	217.5	321.0	0.5911	1.6922	–75
–74	21.9	20.7	0.0007	0.8128	1382.4	1.230	104.6	217.0	321.6	0.5969	1.6898	–74
–73	23.3	22.1	0.0007	0.7648	1379.8	1.308	105.8	216.5	322.3	0.6027	1.6876	–73
–72	24.8	23.5	0.0007	0.7201	1377.2	1.389	106.9	216.0	322.9	0.6084	1.6854	–72
–71	26.5	25.1	0.0007	0.6785	1374.5	1.474	108.1	215.5	323.6	0.6142	1.6832	–71
–70	28.2	26.7	0.0007	0.6398	1371.9	1.563	109.3	215.0	324.2	0.6199	1.6811	–70
–69	29.9	28.4	0.0007	0.6036	1369.1	1.657	110.4	214.5	324.9	0.6256	1.6790	–69
–68	31.8	30.2	0.0007	0.5700	1366.4	1.755	111.6	214.0	325.5	0.6313	1.6770	–68
–67	33.8	32.1	0.0007	0.5385	1363.6	1.857	112.8	213.4	326.2	0.6370	1.6751	–67
–66	35.8	34.1	0.0007	0.5091	1360.9	1.964	113.9	212.9	326.8	0.6427	1.6732	–66
–65	38.0	36.2	0.0007	0.4816	1358.1	2.076	115.1	212.4	327.5	0.6483	1.6713	–65
–64	40.3	38.4	0.0007	0.4559	1355.2	2.193	116.3	211.9	328.2	0.6540	1.6695	–64
–63	42.7	40.7	0.0007	0.4319	1352.4	2.316	117.5	211.3	328.8	0.6596	1.6678	–63
–62	45.2	43.1	0.0007	0.4093	1349.6	2.443	118.7	210.8	329.5	0.6652	1.6661	–62
–61	47.8	45.7	0.0007	0.3881	1346.7	2.577	119.8	210.3	330.1	0.6708	1.6644	–61
–60	50.5	48.3	0.0007	0.3683	1343.8	2.715	121.0	209.7	330.8	0.6764	1.6628	–60
–59	53.3	51.1	0.0007	0.3497	1340.9	2.860	122.2	209.2	331.4	0.6820	1.6612	–59
–58	56.3	54.0	0.0007	0.3321	1337.9	3.011	123.4	208.6	332.1	0.6876	1.6596	–58
–57	59.4	57.0	0.0007	0.3157	1335.0	3.168	124.6	208.1	332.7	0.6931	1.6581	–57
–56	62.7	60.2	0.0008	0.3002	1332.1	3.331	125.8	207.5	333.4	0.6987	1.6567	–56
–55	66.1	63.4	0.0008	0.2856	1329.1	3.501	127.1	207.0	334.0	0.7042	1.6552	–55
–54	69.6	66.9	0.0008	0.2719	1326.1	3.678	128.3	206.4	334.7	0.7098	1.6539	–54
–53	73.3	70.5	0.0008	0.2590	1323.1	3.861	129.5	205.9	335.3	0.7153	1.6525	–53
–52	77.1	74.2	0.0008	0.2468	1320.1	4.052	130.7	205.3	336.0	0.7208	1.6512	–52
–51	81.1	78.1	0.0008	0.2353	1317.1	4.250	131.9	204.7	336.7	0.7263	1.6499	–51
–50	85.2	82.1	0.0008	0.2244	1314.1	4.456	133.1	204.2	337.3	0.7318	1.6487	–50
–49	89.5	86.4	0.0008	0.2142	1311.0	4.670	134.4	203.6	338.0	0.7373	1.6475	–49
–48	94.0	90.7	0.0008	0.2045	1308.0	4.891	135.6	203.0	338.6	0.7427	1.6463	–48
–47	98.7	95.3	0.0008	0.1953	1304.9	5.121	136.8	202.4	339.3	0.7482	1.6451	–47
–46	103.5	100.0	0.0008	0.1866	1301.8	5.359	138.1	201.8	339.9	0.7537	1.6440	–46
–45	108.6	104.9	0.0008	0.1784	1298.8	5.605	139.3	201.2	340.6	0.7591	1.6430	–45
–44	113.8	110.1	0.0008	0.1706	1295.7	5.861	140.6	200.6	341.2	0.7645	1.6419	–44
–43	119.2	115.4	0.0008	0.1633	1292.6	6.125	141.8	200.0	341.9	0.7700	1.6409	–43
–42	124.8	120.9	0.0008	0.1563	1289.5	6.399	143.1	199.4	342.5	0.7754	1.6399	–42
–41	130.6	126.6	0.0008	0.1496	1286.4	6.682	144.3	198.8	343.2	0.7808	1.6389	–41

Table 1 (continued)
Suva® 404A (HP62) Saturation Properties—Temperature Table

TEMP.	PRESSURE kPa		VOLUME m^3/kg		DENSITY kg/m^3		ENTHALPY kJ/kg			ENTROPY kJ/(kg)(K)		TEMP.
°C	LIQUID p_f	VAPOR p_g	LIQUID v_f	VAPOR v_g	LIQUID $1/v_f$	VAPOR $1/v_g$	LIQUID h_f	LATENT h_{fg}	VAPOR h_g	LIQUID s_f	VAPOR s_g	°C
–40	136.7	132.5	0.0008	0.1434	1283.2	6.975	145.6	198.2	343.8	0.7862	1.6380	–40
–39	142.9	138.6	0.0008	0.1374	1280.1	7.278	146.9	197.6	344.5	0.7916	1.6371	–39
–38	149.4	144.9	0.0008	0.1317	1277.0	7.592	148.1	197.0	345.1	0.7970	1.6362	–38
–37	156.1	151.5	0.0008	0.1263	1273.8	7.916	149.4	196.3	345.8	0.8024	1.6353	–37
–36	163.0	158.3	0.0008	0.1212	1270.7	8.250	150.7	195.7	346.4	0.8077	1.6345	–36
–35	170.1	165.3	0.0008	0.1163	1267.5	8.595	152.4	194.6	347.0	0.8150	1.6337	–35
–34	177.5	172.6	0.0008	0.1117	1264.4	8.951	153.7	194.0	347.7	0.8203	1.6330	–34
–33	185.2	180.1	0.0008	0.1073	1261.2	9.319	155.0	193.4	348.3	0.8256	1.6322	–33
–32	193.0	187.8	0.0008	0.1031	1258.0	9.698	156.3	192.7	349.0	0.8309	1.6315	–32
–31	201.2	195.8	0.0008	0.0991	1254.9	10.090	157.5	192.1	349.6	0.8362	1.6308	–31
–30	209.5	204.1	0.0008	0.0953	1251.7	10.492	159.9	190.3	350.3	0.8460	1.6301	–30
–29	218.2	212.5	0.0008	0.0917	1248.5	10.906	161.2	189.7	350.9	0.8512	1.6295	–29
–28	227.0	221.3	0.0008	0.0882	1245.3	11.332	162.5	189.1	351.5	0.8563	1.6289	–28
–27	236.2	230.3	0.0008	0.0849	1242.2	11.772	163.7	188.4	352.2	0.8615	1.6283	–27
–26	245.7	239.7	0.0008	0.0818	1239.0	12.225	165.0	187.8	352.8	0.8667	1.6277	–26
–25	255.4	249.3	0.0008	0.0788	1235.8	12.692	166.3	187.1	353.4	0.8718	1.6271	–25
–24	265.4	259.2	0.0008	0.0759	1232.5	13.174	167.6	186.5	354.0	0.8769	1.6265	–24
–23	275.8	269.4	0.0008	0.0732	1229.3	13.669	168.9	185.8	354.7	0.8821	1.6260	–23
–22	286.4	279.9	0.0008	0.0705	1226.1	14.180	170.2	185.1	355.3	0.8872	1.6255	–22
–21	297.4	290.7	0.0008	0.0680	1222.8	14.705	171.5	184.4	355.9	0.8924	1.6250	–21
–20	308.7	301.8	0.0008	0.0656	1219.6	15.246	172.8	183.8	356.5	0.8975	1.6245	–20
–19	320.3	313.3	0.0008	0.0633	1216.3	15.803	174.1	183.1	357.1	0.9026	1.6240	–19
–18	332.2	325.1	0.0008	0.0611	1213.1	16.376	175.4	182.4	357.8	0.9078	1.6235	–18
–17	344.5	337.2	0.0008	0.0589	1209.8	16.966	176.7	181.7	358.4	0.9129	1.6231	–17
–16	357.1	349.7	0.0008	0.0569	1206.5	17.572	178.0	180.9	359.0	0.9180	1.6226	–16
–15	370.1	362.5	0.0008	0.0550	1203.2	18.196	179.4	180.2	359.6	0.9231	1.6222	–15
–14	383.4	375.7	0.0008	0.0531	1199.8	18.838	180.7	179.5	360.2	0.9282	1.6218	–14
–13	397.1	389.2	0.0008	0.0513	1196.5	19.498	182.1	178.7	360.8	0.9334	1.6214	–13
–12	411.1	403.1	0.0008	0.0496	1193.2	20.177	183.4	178.0	361.4	0.9385	1.6210	–12
–11	425.6	417.4	0.0008	0.0479	1189.8	20.875	184.7	177.2	362.0	0.9436	1.6206	–11
–10	440.4	432.1	0.0008	0.0463	1186.4	21.593	186.1	176.5	362.6	0.9487	1.6202	–10
–9	455.6	447.2	0.0008	0.0448	1183.0	22.331	187.5	175.7	363.2	0.9538	1.6198	–9
–8	471.2	462.6	0.0008	0.0433	1179.6	23.089	188.8	174.9	363.8	0.9589	1.6195	–8
–7	487.2	478.5	0.0009	0.0419	1176.1	23.868	190.2	174.1	364.3	0.9641	1.6191	–7
–6	503.6	494.7	0.0009	0.0405	1172.7	24.669	191.6	173.3	364.9	0.9692	1.6188	–6
–5	520.5	511.4	0.0009	0.0392	1169.2	25.492	193.0	172.5	365.5	0.9743	1.6184	–5
–4	537.7	528.5	0.0009	0.0380	1165.7	26.338	194.4	171.7	366.1	0.9794	1.6181	–4
–3	555.4	546.1	0.0009	0.0368	1162.2	27.207	195.8	170.9	366.6	0.9846	1.6178	–3
–2	573.5	564.1	0.0009	0.0356	1158.6	28.100	197.2	170.0	367.2	0.9897	1.6175	–2
–1	592.1	582.5	0.0009	0.0345	1155.1	29.018	198.6	169.2	367.7	0.9948	1.6171	–1
0	611.1	601.3	0.0009	0.0334	1151.5	29.960	200.0	168.3	368.3	1.0000	1.6168	0
1	630.6	620.7	0.0009	0.0323	1147.8	30.928	201.4	167.4	368.9	1.0051	1.6165	1
2	650.6	640.5	0.0009	0.0313	1144.2	31.923	202.9	166.5	369.4	1.0102	1.6162	2
3	671.0	660.7	0.0009	0.0304	1140.5	32.944	204.3	165.7	369.9	1.0154	1.6159	3
4	691.9	681.5	0.0009	0.0294	1136.8	33.994	205.7	164.7	370.5	1.0205	1.6156	4
5	713.3	702.7	0.0009	0.0285	1133.0	35.072	207.2	163.8	371.0	1.0257	1.6153	5
6	735.1	724.5	0.0009	0.0276	1129.2	36.179	208.6	162.9	371.5	1.0308	1.6150	6
7	757.5	746.7	0.0009	0.0268	1125.4	37.316	210.1	162.0	372.1	1.0360	1.6147	7
8	780.4	769.5	0.0009	0.0260	1121.6	38.485	211.6	161.0	372.6	1.0412	1.6144	8
9	803.8	792.7	0.0009	0.0252	1117.7	39.685	213.1	160.0	373.1	1.0464	1.6141	9
10	827.8	816.5	0.0009	0.0244	1113.7	40.917	214.5	159.1	373.6	1.0515	1.6138	10
11	852.2	840.8	0.0009	0.0237	1109.8	42.184	216.0	158.1	374.1	1.0567	1.6135	11
12	877.2	865.7	0.0009	0.0230	1105.7	43.485	217.5	157.0	374.6	1.0619	1.6132	12
13	902.8	891.1	0.0009	0.0223	1101.7	44.821	219.1	156.0	375.1	1.0671	1.6129	13
14	928.9	917.1	0.0009	0.0216	1097.5	46.194	220.6	155.0	375.6	1.0723	1.6126	14
15	955.6	943.6	0.0009	0.0210	1093.4	47.605	222.1	153.9	376.0	1.0776	1.6123	15
16	982.8	970.7	0.0009	0.0204	1089.1	49.055	223.6	152.9	376.5	1.0828	1.6120	16
17	1010.6	998.4	0.0009	0.0198	1084.9	50.545	225.2	151.8	377.0	1.0880	1.6116	17
18	1039.0	1026.7	0.0009	0.0192	1080.5	52.076	226.7	150.7	377.4	1.0933	1.6113	18
19	1068.1	1055.6	0.0009	0.0186	1076.1	53.650	228.3	149.6	377.9	1.0985	1.6110	19

Table 1 (continued)
Suva® 404A (HP62) Saturation Properties—Temperature Table

TEMP. °C	PRESSURE kPa		VOLUME m^3/kg		DENSITY kg/m^3		ENTHALPY kJ/kg			ENTROPY kJ/(kg)(K)		TEMP. °C
	LIQUID p_f	VAPOR p_g	LIQUID v_f	VAPOR v_g	LIQUID $1/v_f$	VAPOR $1/v_g$	LIQUID h_f	LATENT h_{fg}	VAPOR h_g	LIQUID s_f	VAPOR s_g	
20	1097.7	1085.1	0.0009	0.0181	1071.7	55.267	229.9	148.4	378.3	1.1038	1.6106	20
21	1127.9	1115.2	0.0009	0.0176	1067.2	56.930	231.5	147.3	378.7	1.1091	1.6103	21
22	1158.7	1145.9	0.0009	0.0171	1062.6	58.640	233.0	146.1	379.2	1.1144	1.6099	22
23	1190.2	1177.2	0.0009	0.0166	1057.9	60.398	234.6	144.9	379.6	1.1197	1.6095	23
24	1222.3	1209.2	0.0009	0.0161	1053.2	62.206	236.3	143.7	380.0	1.1250	1.6091	24
25	1255.0	1241.8	0.0010	0.0156	1048.4	64.066	237.9	142.5	380.4	1.1304	1.6087	25
26	1288.4	1275.1	0.0010	0.0152	1043.5	65.980	239.5	141.3	380.8	1.1357	1.6083	26
27	1322.5	1309.1	0.0010	0.0147	1038.5	67.949	241.2	140.0	381.1	1.1411	1.6079	27
28	1357.2	1343.7	0.0010	0.0143	1033.5	69.975	242.8	138.7	381.5	1.1465	1.6075	28
29	1392.6	1379.0	0.0010	0.0139	1028.3	72.062	244.5	137.4	381.9	1.1519	1.6070	29
30	1428.7	1415.0	0.0010	0.0135	1023.1	74.210	246.2	136.1	382.2	1.1574	1.6065	30
31	1465.4	1451.7	0.0010	0.0131	1017.8	76.422	247.9	134.7	382.6	1.1628	1.6060	31
32	1502.9	1489.1	0.0010	0.0127	1012.3	78.702	249.6	133.3	382.9	1.1683	1.6055	32
33	1541.1	1527.2	0.0010	0.0123	1006.8	81.050	251.3	131.9	383.2	1.1738	1.6050	33
34	1580.0	1566.0	0.0010	0.0120	1001.1	83.472	253.0	130.5	383.5	1.1793	1.6044	34
35	1619.7	1605.6	0.0010	0.0116	995.4	85.968	254.8	129.0	383.8	1.1848	1.6038	35
36	1660.1	1645.9	0.0010	0.0113	989.5	88.543	256.5	127.5	384.1	1.1904	1.6032	36
37	1701.2	1687.0	0.0010	0.0110	983.5	91.201	258.3	126.0	384.3	1.1960	1.6026	37
38	1743.1	1728.8	0.0010	0.0106	977.4	93.944	260.1	124.5	384.6	1.2016	1.6019	38
39	1785.8	1771.4	0.0010	0.0103	971.1	96.777	261.9	122.9	384.8	1.2073	1.6012	39
40	1829.2	1814.8	0.0010	0.0100	964.7	99.704	263.8	121.3	385.0	1.2130	1.6005	40
41	1873.4	1859.0	0.0010	0.0097	958.2	102.730	265.6	119.6	385.2	1.2187	1.5998	41
42	1918.4	1904.0	0.0011	0.0094	951.5	105.860	267.5	117.9	385.4	1.2245	1.5990	42
43	1964.2	1949.8	0.0011	0.0092	944.6	109.098	269.4	116.2	385.6	1.2303	1.5981	43
44	2010.8	1996.4	0.0011	0.0089	937.6	112.452	271.3	114.4	385.7	1.2362	1.5973	44
45	2058.3	2043.9	0.0011	0.0086	930.4	115.926	273.2	112.6	385.8	1.2421	1.5964	45
46	2106.6	2092.2	0.0011	0.0084	923.0	119.529	275.1	110.8	385.9	1.2480	1.5954	46
47	2155.7	2141.3	0.0011	0.0081	915.5	123.267	277.1	108.9	386.0	1.2540	1.5944	47
48	2205.6	2191.3	0.0011	0.0079	907.7	127.150	279.1	107.0	386.1	1.2600	1.5933	48
49	2256.5	2242.2	0.0011	0.0076	899.7	131.185	281.1	105.0	386.1	1.2662	1.5922	49
50	2308.2	2294.0	0.0011	0.0074	891.5	135.384	283.2	102.9	386.1	1.2723	1.5910	50
51	2360.7	2346.6	0.0011	0.0072	883.0	139.757	285.3	100.8	386.1	1.2786	1.5897	51
52	2414.2	2400.2	0.0011	0.0069	874.3	144.317	287.4	98.6	386.0	1.2849	1.5884	52
53	2468.6	2454.6	0.0012	0.0067	865.3	149.078	289.6	96.4	385.9	1.2913	1.5870	53
54	2523.8	2510.0	0.0012	0.0065	856.0	154.056	291.7	94.1	385.8	1.2977	1.5855	54
55	2580.0	2566.4	0.0012	0.0063	846.4	159.270	294.0	91.7	385.7	1.3043	1.5839	55
56	2637.1	2623.7	0.0012	0.0061	836.5	164.738	296.2	89.2	385.5	1.3110	1.5822	56
57	2695.2	2681.9	0.0012	0.0059	826.2	170.486	298.5	86.7	385.2	1.3178	1.5804	57
58	2754.2	2741.1	0.0012	0.0057	815.6	176.541	300.9	84.0	384.9	1.3247	1.5785	58
59	2814.2	2801.4	0.0012	0.0055	804.5	182.935	303.3	81.2	384.6	1.3317	1.5764	59
60	2875.1	2862.6	0.0013	0.0053	792.9	189.706	305.8	78.3	384.2	1.3389	1.5742	60
61	2937.0	2924.8	0.0013	0.0051	780.9	196.901	308.4	75.3	383.7	1.3463	1.5718	61
62	2999.9	2988.0	0.0013	0.0049	768.3	204.575	311.0	72.1	383.1	1.3539	1.5692	62
63	3063.8	3052.3	0.0013	0.0047	755.0	212.799	313.7	68.8	382.5	1.3617	1.5664	63
64	3128.7	3117.6	0.0013	0.0045	741.0	221.659	316.5	65.2	381.8	1.3697	1.5633	64
65	3194.6	3184.0	0.0014	0.0043	726.2	231.271	319.5	61.5	380.9	1.3781	1.5599	65

Table 2
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	10.0 (–84.36°C)			20.0 (–74.49°C)			30.0 (–68.13°C)			40.0 (–63.31°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(1.5992)	(315.0)	(1.7169)	(0.8378)	(321.3)	(1.6910)	(0.5742)	(325.5)	(1.6773)	(0.4392)	(328.6)	(1.6683)	
–70	1.7225	324.6	1.7659	0.8572	324.4	1.7062	—	—	—	—	—	—	–70
–65	1.7654	328.0	1.7826	0.8788	327.8	1.7230	0.5833	327.6	1.6878	—	—	—	–65
–60	1.8083	331.5	1.7992	0.9004	331.3	1.7396	0.5978	331.1	1.7045	0.4464	330.9	1.6794	–60
–55	1.8512	335.1	1.8157	0.9220	334.9	1.7561	0.6123	334.7	1.7210	0.4574	334.5	1.6959	–55
–50	1.8940	338.7	1.8320	0.9436	338.5	1.7724	0.6267	338.3	1.7373	0.4683	338.1	1.7123	–50
–45	1.9369	342.3	1.8481	0.9651	342.1	1.7886	0.6412	342.0	1.7535	0.4792	341.8	1.7285	–45
–40	1.9797	346.0	1.8642	0.9867	345.9	1.8047	0.6556	345.7	1.7696	0.4901	345.5	1.7446	–40
–35	2.0225	349.8	1.8801	1.0082	349.6	1.8206	0.6701	349.4	1.7856	0.5010	349.3	1.7606	–35
–30	2.0653	353.6	1.8959	1.0297	353.4	1.8364	0.6845	353.3	1.8014	0.5119	353.1	1.7765	–30
–25	2.1081	357.4	1.9115	1.0512	357.3	1.8521	0.6989	357.1	1.8171	0.5227	357.0	1.7922	–25
–20	2.1509	361.3	1.9271	1.0727	361.2	1.8677	0.7133	361.0	1.8327	0.5336	360.9	1.8078	–20
–15	2.1937	365.3	1.9425	1.0942	365.1	1.8831	0.7277	365.0	1.8482	0.5444	364.8	1.8233	–15
–10	2.2365	369.3	1.9579	1.1157	369.1	1.8985	0.7421	369.0	1.8636	0.5553	368.8	1.8387	–10
–5	2.2793	373.3	1.9731	1.1371	373.2	1.9137	0.7564	373.0	1.8788	0.5661	372.9	1.8540	–5
0	2.3220	377.4	1.9882	1.1586	377.3	1.9289	0.7708	377.1	1.8940	0.5769	377.0	1.8692	0
5	2.3648	381.6	2.0033	1.1801	381.4	1.9439	0.7852	381.3	1.9091	0.5877	381.2	1.8842	5
10	2.4075	385.7	2.0182	1.2015	385.6	1.9589	0.7995	385.5	1.9240	0.5985	385.4	1.8992	10
15	2.4502	390.0	2.0330	1.2230	389.9	1.9737	0.8139	389.7	1.9389	0.6093	389.6	1.9141	15
20	2.4930	394.3	2.0478	1.2444	394.1	1.9885	0.8282	394.0	1.9536	0.6201	393.9	1.9289	20
25	2.5357	398.6	2.0624	1.2658	398.5	2.0031	0.8425	398.4	1.9683	0.6309	398.2	1.9435	25
30	2.5784	403.0	2.0770	1.2872	402.9	2.0177	0.8569	402.7	1.9829	0.6417	402.6	1.9581	30
35	2.6211	407.4	2.0915	1.3087	407.3	2.0322	0.8712	407.2	1.9974	0.6524	407.1	1.9726	35
40	2.6639	411.9	2.1058	1.3301	411.8	2.0466	0.8855	411.6	2.0118	0.6632	411.5	1.9870	40
45	2.7066	416.4	2.1202	1.3515	416.3	2.0609	0.8998	416.2	2.0261	0.6740	416.1	2.0014	45
50	2.7493	420.9	2.1344	1.3729	420.8	2.0751	0.9141	420.7	2.0403	0.6847	420.6	2.0156	50
55	2.7920	425.5	2.1485	1.3943	425.4	2.0893	0.9284	425.3	2.0545	0.6955	425.2	2.0298	55
60	2.8347	430.2	2.1626	1.4157	430.1	2.1033	0.9427	430.0	2.0686	0.7062	429.9	2.0439	60
65	2.8774	434.9	2.1765	1.4371	434.8	2.1173	0.9570	434.7	2.0826	0.7170	434.6	2.0579	65
70	2.9200	439.6	2.1905	1.4585	439.5	2.1312	0.9713	439.4	2.0965	0.7277	439.3	2.0718	70
75	2.9627	444.4	2.2043	1.4799	444.3	2.1450	0.9856	444.2	2.1103	0.7385	444.1	2.0856	75
80	3.0054	449.2	2.2180	1.5013	449.1	2.1588	0.9999	449.0	2.1241	0.7492	448.9	2.0994	80
85	—	—	—	—	—	—	1.0142	453.9	2.1378	0.7599	453.8	2.1131	85
90	—	—	—	—	—	—	—	—	—	0.7707	458.7	2.1267	90

TEMP. °C	50.0 (–59.39°C)			60.0 (–56.05°C)			70.0 (–53.13°C)			80.0 (–50.52°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.3567)	(331.2)	(1.6618)	(0.3009)	(333.4)	(1.6567)	(0.2606)	(335.3)	(1.6527)	(0.2300)	(337.0)	(1.6493)	
–55	0.3644	334.3	1.6763	0.3025	334.1	1.6602	—	—	—	—	—	—	–55
–50	0.3732	337.9	1.6927	0.3099	337.7	1.6767	0.2646	337.5	1.6630	0.2306	337.4	1.6510	–50
–45	0.3820	341.6	1.7090	0.3172	341.4	1.6930	0.2709	341.2	1.6793	0.2362	341.0	1.6674	–45
–40	0.3908	345.3	1.7252	0.3246	345.1	1.7091	0.2773	345.0	1.6955	0.2418	344.8	1.6836	–40
–35	0.3995	349.1	1.7412	0.3319	348.9	1.7252	0.2836	348.8	1.7116	0.2474	348.6	1.6997	–35
–30	0.4083	352.9	1.7571	0.3392	352.8	1.7411	0.2899	352.6	1.7275	0.2529	352.4	1.7157	–30
–25	0.4170	356.8	1.7728	0.3466	356.6	1.7569	0.2962	356.5	1.7433	0.2584	356.3	1.7315	–25
–20	0.4257	360.7	1.7884	0.3539	360.6	1.7725	0.3025	360.4	1.7590	0.2640	360.2	1.7472	–20
–15	0.4345	364.7	1.8040	0.3611	364.5	1.7880	0.3088	364.4	1.7745	0.2695	364.2	1.7628	–15
–10	0.4432	368.7	1.8194	0.3684	368.5	1.8035	0.3151	368.4	1.7900	0.2750	368.2	1.7782	–10
–5	0.4519	372.8	1.8346	0.3757	372.6	1.8188	0.3213	372.5	1.8053	0.2805	372.3	1.7936	–5
0	0.4605	376.9	1.8498	0.3830	376.7	1.8340	0.3276	376.6	1.8205	0.2860	376.4	1.8088	0
5	0.4692	381.0	1.8649	0.3902	380.9	1.8491	0.3338	380.7	1.8356	0.2915	380.6	1.8239	5
10	0.4779	385.2	1.8799	0.3975	385.1	1.8641	0.3401	385.0	1.8506	0.2970	384.8	1.8389	10
15	0.4866	389.5	1.8948	0.4047	389.3	1.8790	0.3463	389.2	1.8655	0.3025	389.1	1.8539	15
20	0.4952	393.8	1.9096	0.4120	393.6	1.8938	0.3525	393.5	1.8803	0.3079	393.4	1.8687	20
25	0.5039	398.1	1.9243	0.4192	398.0	1.9085	0.3587	397.9	1.8951	0.3134	397.8	1.8834	25
30	0.5125	402.5	1.9389	0.4264	402.4	1.9231	0.3650	402.3	1.9097	0.3188	402.2	1.8981	30
35	0.5212	406.9	1.9534	0.4337	406.8	1.9376	0.3712	406.7	1.9242	0.3243	406.6	1.9126	35
40	0.5298	411.4	1.9678	0.4409	411.3	1.9520	0.3774	411.2	1.9387	0.3297	411.1	1.9270	40
45	0.5384	415.9	1.9821	0.4481	415.8	1.9664	0.3836	415.7	1.9530	0.3352	415.6	1.9414	45
50	0.5471	420.5	1.9964	0.4553	420.4	1.9806	0.3898	420.3	1.9673	0.3406	420.2	1.9557	50
55	0.5557	425.1	2.0106	0.4625	425.0	1.9948	0.3960	424.9	1.9815	0.3461	424.8	1.9699	55
60	0.5643	429.8	2.0247	0.4697	429.7	2.0089	0.4022	429.6	1.9956	0.3515	429.5	1.9840	60
65	0.5729	434.5	2.0387	0.4769	434.4	2.0229	0.4083	434.3	2.0096	0.3569	434.2	1.9980	65
70	0.5816	439.2	2.0526	0.4841	439.1	2.0369	0.4145	439.0	2.0235	0.3623	439.0	2.0120	70
75	0.5902	444.0	2.0664	0.4913	443.9	2.0507	0.4207	443.8	2.0374	0.3677	443.7	2.0259	75
80	0.5988	448.9	2.0802	0.4985	448.8	2.0645	0.4269	448.7	2.0512	0.3732	448.6	2.0396	80
85	0.6074	453.7	2.0939	0.5057	453.6	2.0782	0.4331	453.6	2.0649	0.3786	453.5	2.0534	85
90	0.6160	458.6	2.1075	0.5129	458.6	2.0918	0.4392	458.5	2.0785	0.3840	458.4	2.0670	90
95	0.6246	463.6	2.1211	0.5201	463.5	2.1054	0.4454	463.4	2.0921	0.3894	463.3	2.0806	95
100	—	—	—	—	—	—	0.4516	468.4	2.1056	0.3948	468.3	2.0941	100

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	90.0 (–48.17°C)			100.0 (–46.01°C)			101.325 (–45.73°C)			110.0 (–44.01°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.2060)	(338.5)	(1.6465)	(0.1867)	(339.9)	(1.6441)	(0.1844)	(340.1)	(1.6438)	(0.1707)	(341.2)	(1.6419)	
–45	0.2092	340.9	1.6569	0.1876	340.7	1.6473	0.1850	340.6	1.6462	—	—	—	–45
–40	0.2142	344.6	1.6731	0.1921	344.4	1.6636	0.1895	344.4	1.6624	0.1740	344.2	1.6550	–40
–35	0.2192	348.4	1.6892	0.1966	348.2	1.6798	0.1940	348.2	1.6786	0.1781	348.0	1.6712	–35
–30	0.2241	352.3	1.7052	0.2011	352.1	1.6958	0.1984	352.1	1.6946	0.1823	351.9	1.6872	–30
–25	0.2291	356.1	1.7211	0.2056	356.0	1.7116	0.2028	356.0	1.7105	0.1863	355.8	1.7031	–25
–20	0.2340	360.1	1.7368	0.2100	359.9	1.7274	0.2072	359.9	1.7262	0.1904	359.8	1.7189	–20
–15	0.2389	364.1	1.7524	0.2145	363.9	1.7430	0.2116	363.9	1.7418	0.1945	363.8	1.7345	–15
–10	0.2439	368.1	1.7678	0.2190	367.9	1.7585	0.2160	367.9	1.7573	0.1986	367.8	1.7500	–10
–5	0.2488	372.2	1.7832	0.2234	372.0	1.7739	0.2204	372.0	1.7727	0.2026	371.9	1.7654	–5
0	0.2537	376.3	1.7984	0.2278	376.2	1.7891	0.2248	376.1	1.7880	0.2067	376.0	1.7807	0
5	0.2586	380.5	1.8136	0.2323	380.3	1.8043	0.2292	380.3	1.8031	0.2107	380.2	1.7958	5
10	0.2635	384.7	1.8286	0.2367	384.6	1.8193	0.2335	384.5	1.8182	0.2147	384.4	1.8109	10
15	0.2684	389.0	1.8435	0.2411	388.8	1.8343	0.2379	388.8	1.8331	0.2188	388.7	1.8259	15
20	0.2732	393.3	1.8584	0.2455	393.1	1.8491	0.2422	393.1	1.8480	0.2228	393.0	1.8407	20
25	0.2781	397.6	1.8731	0.2499	397.5	1.8639	0.2466	397.5	1.8627	0.2268	397.4	1.8555	25
30	0.2830	402.0	1.8878	0.2543	401.9	1.8785	0.2509	401.9	1.8774	0.2308	401.8	1.8701	30
35	0.2878	406.5	1.9023	0.2587	406.4	1.8931	0.2552	406.4	1.8919	0.2348	406.3	1.8847	35
40	0.2927	411.0	1.9168	0.2630	410.9	1.9076	0.2596	410.8	1.9064	0.2388	410.7	1.8992	40
45	0.2975	415.5	1.9311	0.2674	415.4	1.9219	0.2639	415.4	1.9208	0.2428	415.3	1.9136	45
50	0.3024	420.1	1.9454	0.2718	420.0	1.9362	0.2682	420.0	1.9351	0.2468	419.9	1.9279	50
55	0.3072	424.7	1.9596	0.2762	424.6	1.9504	0.2725	424.6	1.9493	0.2508	424.5	1.9421	55
60	0.3121	429.4	1.9738	0.2805	429.3	1.9646	0.2768	429.3	1.9634	0.2547	429.2	1.9562	60
65	0.3169	434.1	1.9878	0.2849	434.0	1.9786	0.2811	434.0	1.9775	0.2587	433.9	1.9703	65
70	0.3217	438.9	2.0018	0.2892	438.8	1.9926	0.2854	438.7	1.9914	0.2627	438.7	1.9843	70
75	0.3266	443.7	2.0156	0.2936	443.6	2.0065	0.2897	443.5	2.0053	0.2666	443.5	1.9982	75
80	0.3314	448.5	2.0294	0.2980	448.4	2.0203	0.2940	448.4	2.0191	0.2706	448.3	2.0120	80
85	0.3362	453.4	2.0432	0.3023	453.3	2.0340	0.2983	453.3	2.0329	0.2746	453.2	2.0257	85
90	0.3410	458.3	2.0568	0.3066	458.2	2.0477	0.3026	458.2	2.0465	0.2785	458.1	2.0394	90
95	0.3458	463.3	2.0704	0.3110	463.2	2.0612	0.3069	463.2	2.0601	0.2825	463.1	2.0530	95
100	0.3506	468.3	2.0839	0.3153	468.2	2.0747	0.3112	468.2	2.0736	0.2864	468.1	2.0665	100
105	0.3555	473.3	2.0973	0.3197	473.2	2.0882	0.3154	473.2	2.0870	0.2904	473.1	2.0799	105
110	—	—	—	—	—	—	—	—	—	0.2943	478.2	2.0933	110

TEMP. °C	120.0 (–42.15°C)			130.0 (–40.41°C)			140.0 (–38.77°C)			150.0 (–37.23°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1573)	(342.4)	(1.6401)	(0.1459)	(343.6)	(1.6384)	(0.1361)	(344.6)	(1.6369)	(0.1275)	(345.6)	(1.6355)	
–40	0.1590	344.1	1.6471	0.1462	343.9	1.6397	—	—	—	—	—	—	–40
–35	0.1628	347.9	1.6633	0.1497	347.7	1.6560	0.1386	347.5	1.6492	0.1289	347.3	1.6428	–35
–30	0.1665	351.7	1.6794	0.1533	351.6	1.6721	0.1419	351.4	1.6653	0.1320	351.2	1.6590	–30
–25	0.1703	355.6	1.6953	0.1568	355.5	1.6880	0.1451	355.3	1.6812	0.1351	355.1	1.6749	–25
–20	0.1741	359.6	1.7110	0.1602	359.4	1.7038	0.1484	359.3	1.6971	0.1381	359.1	1.6908	–20
–15	0.1778	363.6	1.7267	0.1637	363.4	1.7195	0.1516	363.3	1.7128	0.1412	363.1	1.7065	–15
–10	0.1816	367.6	1.7422	0.1672	367.5	1.7350	0.1549	367.3	1.7283	0.1442	367.2	1.7221	–10
–5	0.1853	371.7	1.7576	0.1707	371.6	1.7504	0.1581	371.4	1.7438	0.1472	371.3	1.7375	–5
0	0.1890	375.9	1.7729	0.1741	375.7	1.7657	0.1613	375.6	1.7591	0.1502	375.5	1.7529	0
5	0.1927	380.1	1.7881	0.1776	379.9	1.7809	0.1645	379.8	1.7743	0.1532	379.6	1.7681	5
10	0.1965	384.3	1.8032	0.1810	384.2	1.7960	0.1677	384.0	1.7894	0.1562	383.9	1.7832	10
15	0.2002	388.6	1.8181	0.1844	388.4	1.8110	0.1709	388.3	1.8044	0.1592	388.2	1.7982	15
20	0.2039	392.9	1.8330	0.1878	392.8	1.8259	0.1741	392.6	1.8193	0.1622	392.5	1.8131	20
25	0.2075	397.3	1.8478	0.1913	397.1	1.8407	0.1773	397.0	1.8341	0.1652	396.9	1.8280	25
30	0.2112	401.7	1.8625	0.1947	401.6	1.8554	0.1805	401.4	1.8488	0.1682	401.3	1.8427	30
35	0.2149	406.1	1.8770	0.1981	406.0	1.8700	0.1837	405.9	1.8634	0.1711	405.8	1.8573	35
40	0.2186	410.6	1.8915	0.2015	410.5	1.8845	0.1868	410.4	1.8779	0.1741	410.3	1.8718	40
45	0.2222	415.2	1.9059	0.2049	415.1	1.8989	0.1900	415.0	1.8923	0.1771	414.9	1.8862	45
50	0.2259	419.8	1.9203	0.2083	419.7	1.9132	0.1931	419.6	1.9067	0.1800	419.4	1.9006	50
55	0.2296	424.4	1.9345	0.2117	424.3	1.9275	0.1963	424.2	1.9209	0.1830	424.1	1.9148	55
60	0.2332	429.1	1.9486	0.2150	429.0	1.9416	0.1994	428.9	1.9351	0.1859	428.8	1.9290	60
65	0.2369	433.8	1.9627	0.2184	433.7	1.9557	0.2026	433.6	1.9492	0.1889	433.5	1.9431	65
70	0.2405	438.6	1.9767	0.2218	438.5	1.9697	0.2057	438.4	1.9632	0.1918	438.3	1.9571	70
75	0.2442	443.4	1.9906	0.2252	443.3	1.9836	0.2089	443.2	1.9771	0.1947	443.1	1.9710	75
80	0.2478	448.2	2.0044	0.2285	448.1	1.9974	0.2120	448.0	1.9909	0.1977	447.9	1.9848	80
85	0.2515	453.1	2.0181	0.2319	453.0	2.0111	0.2151	452.9	2.0047	0.2006	452.8	1.9986	85
90	0.2551	458.0	2.0318	0.2353	457.9	2.0248	0.2183	457.9	2.0183	0.2035	457.8	2.0123	90
95	0.2587	463.0	2.0454	0.2386	462.9	2.0384	0.2214	462.8	2.0319	0.2064	462.7	2.0259	95
100	0.2623	468.0	2.0589	0.2420	467.9	2.0519	0.2245	467.8	2.0455	0.2094	467.8	2.0394	100
105	0.2660	473.1	2.0723	0.2453	473.0	2.0654	0.2276	472.9	2.0589	0.2123	472.8	2.0529	105
110	0.2696	478.1	2.0857	0.2487	478.1	2.0788	0.2307	478.0	2.0723	0.2152	477.9	2.0663	110
115	—	—	—	—	—	—	0.2339	483.1	2.0856	0.2181	483.0	2.0796	115

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	160.0 (–35.75°C)			170.0 (–34.35°C)			180.0 (–33.01°C)			190.0 (–31.72°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1200)	(346.6)	(1.6343)	(0.1133)	(347.5)	(1.6332)	(0.1074)	(348.3)	(1.6322)	(0.1020)	(349.1)	(1.6313)	
–35	0.1204	347.1	1.6368	—	—	—	—	—	—	—	—	—	–35
–30	0.1233	351.0	1.6530	0.1157	350.9	1.6473	0.1089	350.7	1.6420	0.1029	350.5	1.6369	–30
–25	0.1262	355.0	1.6690	0.1184	354.8	1.6634	0.1115	354.6	1.6581	0.1053	354.5	1.6530	–25
–20	0.1291	358.9	1.6848	0.1212	358.8	1.6793	0.1141	358.6	1.6740	0.1078	358.5	1.6689	–20
–15	0.1320	363.0	1.7006	0.1239	362.8	1.6950	0.1167	362.7	1.6897	0.1102	362.5	1.6847	–15
–10	0.1348	367.0	1.7162	0.1266	366.9	1.7106	0.1193	366.7	1.7054	0.1127	366.6	1.7004	–10
–5	0.1377	371.1	1.7317	0.1293	371.0	1.7261	0.1218	370.9	1.7209	0.1151	370.7	1.7159	–5
0	0.1405	375.3	1.7470	0.1320	375.2	1.7415	0.1244	375.0	1.7363	0.1175	374.9	1.7313	0
5	0.1434	379.5	1.7623	0.1346	379.4	1.7568	0.1269	379.2	1.7516	0.1200	379.1	1.7466	5
10	0.1462	383.8	1.7774	0.1373	383.6	1.7719	0.1294	383.5	1.7667	0.1224	383.3	1.7618	10
15	0.1490	388.1	1.7924	0.1400	387.9	1.7870	0.1319	387.8	1.7818	0.1248	387.7	1.7769	15
20	0.1518	392.4	1.8074	0.1426	392.3	1.8019	0.1345	392.1	1.7967	0.1272	392.0	1.7918	20
25	0.1546	396.8	1.8222	0.1453	396.6	1.8167	0.1370	396.5	1.8116	0.1295	396.4	1.8067	25
30	0.1574	401.2	1.8369	0.1479	401.1	1.8315	0.1395	401.0	1.8263	0.1319	400.8	1.8215	30
35	0.1602	405.7	1.8515	0.1506	405.5	1.8461	0.1420	405.4	1.8410	0.1343	405.3	1.8361	35
40	0.1630	410.2	1.8661	0.1532	410.1	1.8606	0.1445	410.0	1.8555	0.1367	409.8	1.8507	40
45	0.1658	414.7	1.8805	0.1558	414.6	1.8751	0.1470	414.5	1.8700	0.1390	414.4	1.8651	45
50	0.1686	419.3	1.8948	0.1584	419.2	1.8895	0.1494	419.1	1.8844	0.1414	419.0	1.8795	50
55	0.1713	424.0	1.9091	0.1610	423.9	1.9037	0.1519	423.8	1.8986	0.1437	423.7	1.8938	55
60	0.1741	428.7	1.9233	0.1637	428.6	1.9179	0.1544	428.5	1.9128	0.1461	428.4	1.9080	60
65	0.1769	433.4	1.9374	0.1663	433.3	1.9320	0.1569	433.2	1.9269	0.1484	433.1	1.9221	65
70	0.1796	438.2	1.9514	0.1689	438.1	1.9460	0.1593	438.0	1.9410	0.1508	437.9	1.9362	70
75	0.1824	443.0	1.9653	0.1715	442.9	1.9600	0.1618	442.8	1.9549	0.1531	442.7	1.9501	75
80	0.1851	447.8	1.9792	0.1741	447.7	1.9738	0.1642	447.7	1.9688	0.1554	447.6	1.9640	80
85	0.1879	452.7	1.9929	0.1767	452.6	1.9876	0.1667	452.6	1.9825	0.1578	452.5	1.9778	85
90	0.1906	457.7	2.0066	0.1793	457.6	2.0013	0.1692	457.5	1.9962	0.1601	457.4	1.9915	90
95	0.1934	462.7	2.0202	0.1818	462.6	2.0149	0.1716	462.5	2.0099	0.1624	462.4	2.0051	95
100	0.1961	467.7	2.0338	0.1844	467.6	2.0284	0.1740	467.5	2.0234	0.1648	467.4	2.0187	100
105	0.1989	472.7	2.0472	0.1870	472.6	2.0419	0.1765	472.6	2.0369	0.1671	472.5	2.0321	105
110	0.2016	477.8	2.0606	0.1896	477.7	2.0553	0.1789	477.7	2.0503	0.1694	477.6	2.0455	110
115	0.2043	483.0	2.0739	0.1922	482.9	2.0686	0.1814	482.8	2.0636	0.1717	482.7	2.0589	115
120	—	—	—	0.1948	488.1	2.0819	0.1838	488.0	2.0769	0.1740	487.9	2.0721	120

TEMP. °C	200.0 (–30.49°C)			210.0 (–29.30°C)			220.0 (–28.15°C)			230.0 (–27.04°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0972)	(349.9)	(1.6305)	(0.0928)	(350.7)	(1.6297)	(0.0887)	(351.4)	(1.6290)	(0.0851)	(352.1)	(1.6283)	
–30	0.0974	350.3	1.6321	—	—	—	—	—	—	—	—	—	–30
–25	0.0998	354.3	1.6482	0.0947	354.1	1.6435	0.0901	353.9	1.6391	0.0859	353.8	1.6349	–25
–20	0.1021	358.3	1.6641	0.0970	358.1	1.6595	0.0923	357.9	1.6551	0.0880	357.8	1.6509	–20
–15	0.1044	362.3	1.6799	0.0992	362.2	1.6754	0.0944	362.0	1.6710	0.0901	361.8	1.6668	–15
–10	0.1068	366.4	1.6956	0.1014	366.3	1.6911	0.0966	366.1	1.6867	0.0921	365.9	1.6825	–10
–5	0.1091	370.5	1.7112	0.1037	370.4	1.7066	0.0987	370.2	1.7023	0.0942	370.1	1.6981	–5
0	0.1114	374.7	1.7266	0.1059	374.6	1.7221	0.1008	374.4	1.7178	0.0962	374.3	1.7136	0
5	0.1137	378.9	1.7419	0.1081	378.8	1.7374	0.1029	378.7	1.7331	0.0982	378.5	1.7290	5
10	0.1160	383.2	1.7571	0.1103	383.1	1.7526	0.1050	382.9	1.7483	0.1003	382.8	1.7442	10
15	0.1183	387.5	1.7722	0.1124	387.4	1.7677	0.1071	387.3	1.7635	0.1023	387.1	1.7594	15
20	0.1206	391.9	1.7872	0.1146	391.7	1.7827	0.1092	391.6	1.7785	0.1043	391.5	1.7744	20
25	0.1229	396.3	1.8020	0.1168	396.1	1.7976	0.1113	396.0	1.7934	0.1063	395.9	1.7893	25
30	0.1251	400.7	1.8168	0.1190	400.6	1.8124	0.1134	400.5	1.8082	0.1083	400.3	1.8041	30
35	0.1274	405.2	1.8315	0.1211	405.1	1.8271	0.1154	405.0	1.8228	0.1102	404.8	1.8188	35
40	0.1296	409.7	1.8461	0.1233	409.6	1.8417	0.1175	409.5	1.8374	0.1122	409.4	1.8334	40
45	0.1319	414.3	1.8605	0.1254	414.2	1.8561	0.1196	414.1	1.8519	0.1142	414.0	1.8479	45
50	0.1341	418.9	1.8749	0.1276	418.8	1.8705	0.1216	418.7	1.8663	0.1162	418.6	1.8623	50
55	0.1364	423.6	1.8892	0.1297	423.5	1.8848	0.1237	423.3	1.8807	0.1181	423.2	1.8767	55
60	0.1386	428.3	1.9034	0.1319	428.2	1.8991	0.1257	428.1	1.8949	0.1201	427.9	1.8909	60
65	0.1408	433.0	1.9176	0.1340	432.9	1.9132	0.1278	432.8	1.9090	0.1221	432.7	1.9050	65
70	0.1431	437.8	1.9316	0.1361	437.7	1.9272	0.1298	437.6	1.9231	0.1240	437.5	1.9191	70
75	0.1453	442.6	1.9455	0.1382	442.5	1.9412	0.1318	442.4	1.9370	0.1260	442.3	1.9331	75
80	0.1475	447.5	1.9594	0.1404	447.4	1.9551	0.1339	447.3	1.9509	0.1279	447.2	1.9470	80
85	0.1497	452.4	1.9732	0.1425	452.3	1.9689	0.1359	452.2	1.9647	0.1298	452.1	1.9608	85
90	0.1520	457.3	1.9869	0.1446	457.2	1.9826	0.1379	457.1	1.9785	0.1318	457.1	1.9745	90
95	0.1542	462.3	2.0006	0.1467	462.2	1.9962	0.1399	462.1	1.9921	0.1337	462.0	1.9882	95
100	0.1564	467.3	2.0141	0.1488	467.2	2.0098	0.1419	467.2	2.0057	0.1357	467.1	2.0017	100
105	0.1586	472.4	2.0276	0.1509	472.3	2.0233	0.1440	472.2	2.0192	0.1376	472.1	2.0152	105
110	0.1608	477.5	2.0410	0.1530	477.4	2.0367	0.1460	477.3	2.0326	0.1395	477.3	2.0287	110
115	0.1630	482.6	2.0544	0.1551	482.6	2.0501	0.1480	482.5	2.0459	0.1414	482.4	2.0420	115
120	0.1652	487.8	2.0676	0.1572	487.8	2.0633	0.1500	487.7	2.0592	0.1434	487.6	2.0553	120
125	—	—	—	0.1593	493.0	2.0765	0.1520	492.9	2.0724	0.1453	492.8	2.0685	125

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	240.0 (–25.96°C)			250.0 (–24.92°C)			260.0 (–23.92°C)			270.0 (–22.94°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0817)	(352.8)	(1.6276)	(0.0786)	(353.5)	(1.6271)	(0.0757)	(354.1)	(1.6265)	(0.0730)	(354.7)	(1.6260)	
–25	0.0821	353.6	1.6308	—	—	—	—	—	—	—	—	—	–25
–20	0.0841	357.6	1.6468	0.0805	357.4	1.6429	0.0771	357.3	1.6391	0.0741	357.1	1.6354	–20
–15	0.0861	361.7	1.6627	0.0824	361.5	1.6588	0.0790	361.3	1.6551	0.0759	361.2	1.6514	–15
–10	0.0881	365.8	1.6785	0.0843	365.6	1.6746	0.0809	365.5	1.6709	0.0776	365.3	1.6673	–10
–5	0.0900	369.9	1.6941	0.0862	369.8	1.6903	0.0827	369.6	1.6866	0.0794	369.5	1.6829	–5
0	0.0920	374.1	1.7096	0.0881	374.0	1.7058	0.0845	373.8	1.7021	0.0812	373.7	1.6985	0
5	0.0939	378.4	1.7250	0.0900	378.2	1.7212	0.0863	378.1	1.7175	0.0829	377.9	1.7139	5
10	0.0959	382.7	1.7403	0.0919	382.5	1.7365	0.0881	382.4	1.7328	0.0847	382.2	1.7293	10
15	0.0978	387.0	1.7554	0.0937	386.8	1.7516	0.0899	386.7	1.7480	0.0864	386.6	1.7444	15
20	0.0997	391.4	1.7705	0.0956	391.2	1.7667	0.0917	391.1	1.7630	0.0882	391.0	1.7595	20
25	0.1017	395.8	1.7854	0.0974	395.6	1.7816	0.0935	395.5	1.7780	0.0899	395.4	1.7745	25
30	0.1036	400.2	1.8002	0.0993	400.1	1.7964	0.0953	400.0	1.7928	0.0916	399.8	1.7893	30
35	0.1055	404.7	1.8149	0.1011	404.6	1.8112	0.0971	404.5	1.8076	0.0933	404.4	1.8041	35
40	0.1074	409.3	1.8295	0.1029	409.1	1.8258	0.0988	409.0	1.8222	0.0950	408.9	1.8187	40
45	0.1093	413.8	1.8440	0.1048	413.7	1.8403	0.1006	413.6	1.8367	0.0967	413.5	1.8333	45
50	0.1112	418.5	1.8585	0.1066	418.4	1.8548	0.1024	418.2	1.8512	0.0984	418.1	1.8477	50
55	0.1131	423.1	1.8728	0.1084	423.0	1.8691	0.1041	422.9	1.8655	0.1001	422.8	1.8621	55
60	0.1150	427.8	1.8871	0.1102	427.7	1.8834	0.1059	427.6	1.8798	0.1018	427.5	1.8764	60
65	0.1168	432.6	1.9012	0.1120	432.5	1.8975	0.1076	432.4	1.8940	0.1035	432.3	1.8906	65
70	0.1187	437.4	1.9153	0.1138	437.3	1.9116	0.1093	437.2	1.9081	0.1052	437.1	1.9046	70
75	0.1206	442.2	1.9293	0.1156	442.1	1.9256	0.1111	442.0	1.9221	0.1069	441.9	1.9186	75
80	0.1225	447.1	1.9432	0.1174	447.0	1.9395	0.1128	446.9	1.9360	0.1085	446.8	1.9326	80
85	0.1243	452.0	1.9570	0.1192	451.9	1.9533	0.1145	451.8	1.9498	0.1102	451.7	1.9464	85
90	0.1262	457.0	1.9707	0.1210	456.9	1.9671	0.1163	456.8	1.9636	0.1119	456.7	1.9602	90
95	0.1280	462.0	1.9844	0.1228	461.9	1.9807	0.1180	461.8	1.9772	0.1135	461.7	1.9738	95
100	0.1299	467.0	1.9980	0.1246	466.9	1.9943	0.1197	466.8	1.9908	0.1152	466.7	1.9874	100
105	0.1317	472.1	2.0115	0.1264	472.0	2.0078	0.1214	471.9	2.0043	0.1168	471.8	2.0010	105
110	0.1336	477.2	2.0249	0.1282	477.1	2.0213	0.1231	477.0	2.0178	0.1185	476.9	2.0144	110
115	0.1354	482.3	2.0382	0.1299	482.2	2.0346	0.1248	482.2	2.0311	0.1201	482.1	2.0278	115
120	0.1373	487.5	2.0515	0.1317	487.4	2.0479	0.1266	487.4	2.0444	0.1218	487.3	2.0411	120
125	0.1391	492.7	2.0647	0.1335	492.7	2.0611	0.1283	492.6	2.0577	0.1234	492.5	2.0543	125
130	—	—	—	0.1353	497.9	2.0743	0.1300	497.9	2.0708	0.1251	497.8	2.0675	130

TEMP. °C	280.0 (–21.99°C)			290.0 (–21.06°C)			300.0 (–20.16°C)			310.0 (–19.28°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0705)	(355.3)	(1.6255)	(0.0682)	(355.9)	(1.6250)	(0.0660)	(356.4)	(1.6245)	(0.0639)	(357.0)	(1.6241)	
–20	0.0712	356.9	1.6319	0.0685	356.7	1.6284	0.0660	356.6	1.6251	—	—	—	–20
–15	0.0729	361.0	1.6479	0.0702	360.8	1.6445	0.0677	360.7	1.6411	0.0653	360.5	1.6379	–15
–10	0.0747	365.1	1.6637	0.0719	365.0	1.6603	0.0693	364.8	1.6570	0.0669	364.7	1.6538	–10
–5	0.0764	369.3	1.6795	0.0736	369.2	1.6761	0.0709	369.0	1.6728	0.0685	368.8	1.6696	–5
0	0.0781	373.5	1.6950	0.0752	373.4	1.6917	0.0725	373.2	1.6884	0.0700	373.1	1.6853	0
5	0.0798	377.8	1.7105	0.0769	377.6	1.7072	0.0742	377.5	1.7039	0.0716	377.4	1.7008	5
10	0.0815	382.1	1.7258	0.0785	382.0	1.7225	0.0757	381.8	1.7193	0.0731	381.7	1.7161	10
15	0.0832	386.4	1.7410	0.0802	386.3	1.7377	0.0773	386.2	1.7345	0.0747	386.0	1.7314	15
20	0.0849	390.8	1.7561	0.0818	390.7	1.7528	0.0789	390.6	1.7496	0.0762	390.4	1.7465	20
25	0.0865	395.3	1.7711	0.0834	395.1	1.7678	0.0805	395.0	1.7646	0.0777	394.9	1.7615	25
30	0.0882	399.7	1.7860	0.0850	399.6	1.7827	0.0820	399.5	1.7795	0.0793	399.3	1.7765	30
35	0.0899	404.2	1.8007	0.0866	404.1	1.7975	0.0836	404.0	1.7943	0.0808	403.9	1.7913	35
40	0.0915	408.8	1.8154	0.0882	408.7	1.8121	0.0851	408.6	1.8090	0.0823	408.4	1.8059	40
45	0.0931	413.4	1.8299	0.0898	413.3	1.8267	0.0867	413.2	1.8236	0.0838	413.0	1.8205	45
50	0.0948	418.0	1.8444	0.0914	417.9	1.8412	0.0882	417.8	1.8381	0.0853	417.7	1.8350	50
55	0.0964	422.7	1.8588	0.0930	422.6	1.8556	0.0898	422.5	1.8525	0.0868	422.4	1.8494	55
60	0.0981	427.4	1.8731	0.0946	427.3	1.8699	0.0913	427.2	1.8667	0.0882	427.1	1.8637	60
65	0.0997	432.2	1.8872	0.0961	432.1	1.8840	0.0928	432.0	1.8810	0.0897	431.9	1.8780	65
70	0.1013	437.0	1.9013	0.0977	436.9	1.8982	0.0943	436.8	1.8951	0.0912	436.7	1.8921	70
75	0.1029	441.8	1.9154	0.0993	441.7	1.9122	0.0959	441.6	1.9091	0.0927	441.5	1.9061	75
80	0.1045	446.7	1.9293	0.1008	446.6	1.9261	0.0974	446.5	1.9230	0.0941	446.4	1.9201	80
85	0.1062	451.6	1.9431	0.1024	451.5	1.9400	0.0989	451.5	1.9369	0.0956	451.4	1.9339	85
90	0.1078	456.6	1.9569	0.1040	456.5	1.9537	0.1004	456.4	1.9507	0.0971	456.3	1.9477	90
95	0.1094	461.6	1.9706	0.1055	461.5	1.9674	0.1019	461.4	1.9644	0.0985	461.3	1.9614	95
100	0.1110	466.7	1.9842	0.1071	466.6	1.9810	0.1034	466.5	1.9780	0.1000	466.4	1.9750	100
105	0.1126	471.7	1.9977	0.1086	471.6	1.9946	0.1049	471.6	1.9915	0.1014	471.5	1.9886	105
110	0.1142	476.9	2.0112	0.1101	476.8	2.0080	0.1064	476.7	2.0050	0.1029	476.6	2.0020	110
115	0.1158	482.0	2.0245	0.1117	481.9	2.0214	0.1079	481.9	2.0184	0.1043	481.8	2.0154	115
120	0.1174	487.2	2.0378	0.1132	487.1	2.0347	0.1094	487.1	2.0317	0.1058	487.0	2.0287	120
125	0.1189	492.4	2.0511	0.1148	492.4	2.0479	0.1109	492.3	2.0449	0.1072	492.2	2.0420	125
130	0.1205	497.7	2.0642	0.1163	497.6	2.0611	0.1124	497.6	2.0581	0.1087	497.5	2.0552	130
135	—	—	—	—	—	—	—	—	—	0.1101	502.8	2.0683	135

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	320.0 (–18.43°C)			330.0 (–17.59°C)			340.0 (–16.77°C)			350.0 (–15.97°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0620)	(357.5)	(1.6237)	(0.0602)	(358.0)	(1.6233)	(0.0585)	(358.5)	(1.6230)	(0.0569)	(359.0)	(1.6226)	
–15	0.0631	360.3	1.6347	0.0610	360.2	1.6317	0.0590	360.0	1.6287	0.0571	359.8	1.6258	–15
–10	0.0646	364.5	1.6507	0.0625	364.3	1.6477	0.0605	364.2	1.6447	0.0586	364.0	1.6418	–10
–5	0.0662	368.7	1.6665	0.0640	368.5	1.6635	0.0619	368.4	1.6605	0.0600	368.2	1.6577	–5
0	0.0677	372.9	1.6822	0.0655	372.8	1.6792	0.0634	372.6	1.6762	0.0614	372.5	1.6734	0
5	0.0692	377.2	1.6977	0.0669	377.1	1.6947	0.0648	376.9	1.6918	0.0628	376.8	1.6890	5
10	0.0707	381.5	1.7131	0.0684	381.4	1.7101	0.0663	381.2	1.7072	0.0642	381.1	1.7044	10
15	0.0722	385.9	1.7284	0.0699	385.8	1.7254	0.0677	385.6	1.7225	0.0656	385.5	1.7198	15
20	0.0737	390.3	1.7435	0.0713	390.2	1.7406	0.0691	390.0	1.7377	0.0670	389.9	1.7349	20
25	0.0752	394.7	1.7585	0.0728	394.6	1.7556	0.0705	394.5	1.7528	0.0684	394.3	1.7500	25
30	0.0766	399.2	1.7735	0.0742	399.1	1.7706	0.0719	399.0	1.7677	0.0697	398.8	1.7650	30
35	0.0781	403.8	1.7883	0.0756	403.6	1.7854	0.0733	403.5	1.7826	0.0711	403.4	1.7798	35
40	0.0796	408.3	1.8030	0.0771	408.2	1.8001	0.0747	408.1	1.7973	0.0724	408.0	1.7946	40
45	0.0810	412.9	1.8176	0.0785	412.8	1.8147	0.0760	412.7	1.8119	0.0738	412.6	1.8092	45
50	0.0825	417.6	1.8321	0.0799	417.5	1.8292	0.0774	417.4	1.8265	0.0751	417.2	1.8237	50
55	0.0839	422.3	1.8465	0.0813	422.2	1.8437	0.0788	422.1	1.8409	0.0764	421.9	1.8382	55
60	0.0854	427.0	1.8608	0.0827	426.9	1.8580	0.0802	426.8	1.8552	0.0778	426.7	1.8525	60
65	0.0868	431.8	1.8750	0.0841	431.7	1.8722	0.0815	431.6	1.8695	0.0791	431.5	1.8668	65
70	0.0883	436.6	1.8892	0.0855	436.5	1.8863	0.0829	436.4	1.8836	0.0804	436.3	1.8809	70
75	0.0897	441.4	1.9032	0.0869	441.3	1.9004	0.0842	441.2	1.8977	0.0817	441.2	1.8950	75
80	0.0911	446.3	1.9172	0.0883	446.2	1.9144	0.0856	446.1	1.9116	0.0830	446.1	1.9090	80
85	0.0925	451.3	1.9310	0.0896	451.2	1.9282	0.0869	451.1	1.9255	0.0844	451.0	1.9229	85
90	0.0939	456.2	1.9448	0.0910	456.2	1.9420	0.0883	456.1	1.9393	0.0857	456.0	1.9367	90
95	0.0954	461.3	1.9585	0.0924	461.2	1.9557	0.0896	461.1	1.9530	0.0870	461.0	1.9504	95
100	0.0968	466.3	1.9722	0.0938	466.2	1.9694	0.0909	466.1	1.9667	0.0883	466.1	1.9640	100
105	0.0982	471.4	1.9857	0.0951	471.3	1.9829	0.0923	471.2	1.9802	0.0896	471.1	1.9776	105
110	0.0996	476.5	1.9992	0.0965	476.4	1.9964	0.0936	476.4	1.9937	0.0909	476.3	1.9911	110
115	0.1010	481.7	2.0126	0.0979	481.6	2.0098	0.0949	481.5	2.0071	0.0921	481.5	2.0045	115
120	0.1024	486.9	2.0259	0.0992	486.8	2.0231	0.0962	486.7	2.0205	0.0934	486.7	2.0178	120
125	0.1038	492.1	2.0391	0.1006	492.1	2.0364	0.0976	492.0	2.0337	0.0947	491.9	2.0311	125
130	0.1052	497.4	2.0523	0.1020	497.3	2.0496	0.0989	497.3	2.0469	0.0960	497.2	2.0443	130
135	0.1066	502.7	2.0654	0.1033	502.7	2.0627	0.1002	502.6	2.0600	0.0973	502.5	2.0574	135

TEMP. °C	360.0 (–15.19°C)			370.0 (–14.43°C)			380.0 (–13.68°C)			390.0 (–12.94°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0553)	(359.5)	(1.6223)	(0.0539)	(359.9)	(1.6219)	(0.0525)	(360.4)	(1.6216)	(0.0512)	(360.8)	(1.6213)	
–15	0.0554	359.6	1.6229	—	—	—	—	—	—	—	—	—	–15
–10	0.0568	363.8	1.6390	0.0551	363.7	1.6362	0.0535	363.5	1.6335	0.0520	363.3	1.6308	–10
–5	0.0582	368.0	1.6549	0.0565	367.9	1.6521	0.0548	367.7	1.6494	0.0533	367.6	1.6468	–5
0	0.0596	372.3	1.6706	0.0578	372.2	1.6679	0.0561	372.0	1.6652	0.0546	371.8	1.6626	0
5	0.0609	376.6	1.6862	0.0592	376.5	1.6835	0.0575	376.3	1.6809	0.0559	376.2	1.6783	5
10	0.0623	381.0	1.7017	0.0605	380.8	1.6990	0.0588	380.7	1.6964	0.0571	380.5	1.6938	10
15	0.0637	385.3	1.7170	0.0618	385.2	1.7144	0.0601	385.0	1.7118	0.0584	384.9	1.7092	15
20	0.0650	389.8	1.7322	0.0631	389.6	1.7296	0.0613	389.5	1.7270	0.0596	389.3	1.7245	20
25	0.0663	394.2	1.7473	0.0644	394.1	1.7447	0.0626	394.0	1.7421	0.0609	393.8	1.7396	25
30	0.0677	398.7	1.7623	0.0657	398.6	1.7597	0.0639	398.5	1.7571	0.0621	398.3	1.7546	30
35	0.0690	403.3	1.7772	0.0670	403.1	1.7746	0.0651	403.0	1.7720	0.0634	402.9	1.7695	35
40	0.0703	407.8	1.7919	0.0683	407.7	1.7893	0.0664	407.6	1.7868	0.0646	407.5	1.7843	40
45	0.0716	412.5	1.8066	0.0696	412.3	1.8040	0.0676	412.2	1.8015	0.0658	412.1	1.7990	45
50	0.0729	417.1	1.8211	0.0709	417.0	1.8185	0.0689	416.9	1.8160	0.0670	416.8	1.8136	50
55	0.0742	421.8	1.8356	0.0721	421.7	1.8330	0.0701	421.6	1.8305	0.0682	421.5	1.8280	55
60	0.0755	426.6	1.8499	0.0734	426.5	1.8474	0.0714	426.4	1.8449	0.0694	426.3	1.8424	60
65	0.0768	431.4	1.8642	0.0746	431.3	1.8616	0.0726	431.2	1.8591	0.0706	431.1	1.8567	65
70	0.0781	436.2	1.8783	0.0759	436.1	1.8758	0.0738	436.0	1.8733	0.0718	435.9	1.8709	70
75	0.0794	441.1	1.8924	0.0771	441.0	1.8899	0.0750	440.9	1.8874	0.0730	440.8	1.8850	75
80	0.0807	446.0	1.9064	0.0784	445.9	1.9039	0.0763	445.8	1.9014	0.0742	445.7	1.8990	80
85	0.0819	450.9	1.9203	0.0796	450.8	1.9178	0.0775	450.7	1.9153	0.0754	450.6	1.9129	85
90	0.0832	455.9	1.9341	0.0809	455.8	1.9316	0.0787	455.7	1.9291	0.0766	455.6	1.9268	90
95	0.0845	460.9	1.9478	0.0821	460.8	1.9453	0.0799	460.7	1.9429	0.0778	460.6	1.9405	95
100	0.0857	466.0	1.9615	0.0834	465.9	1.9590	0.0811	465.8	1.9566	0.0789	465.7	1.9542	100
105	0.0870	471.1	1.9751	0.0846	471.0	1.9726	0.0823	470.9	1.9701	0.0801	470.8	1.9678	105
110	0.0883	476.2	1.9885	0.0858	476.1	1.9861	0.0835	476.0	1.9836	0.0813	476.0	1.9813	110
115	0.0895	481.4	2.0020	0.0870	481.3	1.9995	0.0847	481.2	1.9971	0.0825	481.1	1.9947	115
120	0.0908	486.6	2.0153	0.0883	486.5	2.0128	0.0859	486.4	2.0104	0.0836	486.3	2.0081	120
125	0.0920	491.8	2.0286	0.0895	491.8	2.0261	0.0871	491.7	2.0237	0.0848	491.6	2.0213	125
130	0.0933	497.1	2.0418	0.0907	497.0	2.0393	0.0883	497.0	2.0369	0.0859	496.9	2.0345	130
135	0.0945	502.4	2.0549	0.0919	502.4	2.0524	0.0894	502.3	2.0500	0.0871	502.2	2.0477	135
140	—	—	—	0.0931	507.7	2.0655	0.0906	507.7	2.0631	0.0883	507.6	2.0607	140

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	400.0 (–12.22°C)			425.0 (–10.48°C)			450.0 (–8.81°C)			475.0 (–7.22°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0499)	(361.3)	(1.6211)	(0.0471)	(362.3)	(1.6204)	(0.0445)	(363.3)	(1.6198)	(0.0422)	(364.2)	(1.6192)	
–10	0.0505	363.1	1.6282	0.0472	362.7	1.6219	—	—	—	—	—	—	–10
–5	0.0518	367.4	1.6442	0.0484	367.0	1.6380	0.0454	366.5	1.6321	0.0427	366.1	1.6264	–5
0	0.0531	371.7	1.6601	0.0496	371.3	1.6539	0.0466	370.9	1.6480	0.0438	370.5	1.6424	0
5	0.0543	376.0	1.6758	0.0508	375.6	1.6697	0.0477	375.2	1.6638	0.0449	374.8	1.6583	5
10	0.0556	380.4	1.6913	0.0520	380.0	1.6852	0.0488	379.6	1.6795	0.0460	379.2	1.6740	10
15	0.0568	384.8	1.7067	0.0532	384.4	1.7007	0.0500	384.0	1.6950	0.0471	383.7	1.6895	15
20	0.0580	389.2	1.7220	0.0544	388.9	1.7160	0.0511	388.5	1.7103	0.0481	388.2	1.7049	20
25	0.0593	393.7	1.7371	0.0555	393.4	1.7312	0.0522	393.0	1.7256	0.0492	392.7	1.7202	25
30	0.0605	398.2	1.7522	0.0567	397.9	1.7463	0.0533	397.6	1.7407	0.0502	397.2	1.7353	30
35	0.0617	402.8	1.7671	0.0578	402.4	1.7612	0.0544	402.1	1.7557	0.0513	401.8	1.7503	35
40	0.0629	407.4	1.7819	0.0589	407.1	1.7761	0.0555	406.8	1.7705	0.0523	406.4	1.7652	40
45	0.0641	412.0	1.7966	0.0601	411.7	1.7908	0.0565	411.4	1.7853	0.0534	411.1	1.7800	45
50	0.0653	416.7	1.8112	0.0612	416.4	1.8054	0.0576	416.1	1.7999	0.0544	415.8	1.7947	50
55	0.0664	421.4	1.8257	0.0623	421.1	1.8199	0.0587	420.8	1.8145	0.0554	420.6	1.8093	55
60	0.0676	426.2	1.8400	0.0634	425.9	1.8343	0.0597	425.6	1.8289	0.0564	425.3	1.8237	60
65	0.0688	430.9	1.8543	0.0646	430.7	1.8486	0.0608	430.4	1.8432	0.0574	430.2	1.8381	65
70	0.0700	435.8	1.8685	0.0657	435.5	1.8629	0.0618	435.3	1.8575	0.0584	435.0	1.8523	70
75	0.0711	440.7	1.8826	0.0668	440.4	1.8770	0.0629	440.2	1.8716	0.0594	439.9	1.8665	75
80	0.0723	445.6	1.8967	0.0679	445.3	1.8910	0.0639	445.1	1.8857	0.0604	444.8	1.8806	80
85	0.0735	450.5	1.9106	0.0690	450.3	1.9050	0.0650	450.1	1.8996	0.0614	449.8	1.8946	85
90	0.0746	455.5	1.9244	0.0701	455.3	1.9188	0.0660	455.1	1.9135	0.0624	454.8	1.9085	90
95	0.0758	460.5	1.9382	0.0711	460.3	1.9326	0.0670	460.1	1.9273	0.0634	459.9	1.9223	95
100	0.0769	465.6	1.9519	0.0722	465.4	1.9463	0.0681	465.2	1.9410	0.0644	465.0	1.9360	100
105	0.0781	470.7	1.9655	0.0733	470.5	1.9599	0.0691	470.3	1.9546	0.0653	470.1	1.9496	105
110	0.0792	475.9	1.9790	0.0744	475.7	1.9734	0.0701	475.5	1.9682	0.0663	475.2	1.9632	110
115	0.0803	481.1	1.9924	0.0755	480.8	1.9869	0.0711	480.6	1.9816	0.0673	480.4	1.9767	115
120	0.0815	486.3	2.0058	0.0765	486.1	2.0002	0.0722	485.9	1.9950	0.0682	485.7	1.9901	120
125	0.0826	491.5	2.0190	0.0776	491.3	2.0135	0.0732	491.1	2.0083	0.0692	490.9	2.0034	125
130	0.0837	496.8	2.0323	0.0787	496.6	2.0268	0.0742	496.4	2.0216	0.0702	496.3	2.0166	130
135	0.0849	502.1	2.0454	0.0798	502.0	2.0399	0.0752	501.8	2.0347	0.0711	501.6	2.0298	135
140	0.0860	507.5	2.0584	0.0808	507.3	2.0530	0.0762	507.2	2.0478	0.0721	507.0	2.0429	140
145	—	—	—	—	—	—	0.0772	512.6	2.0608	0.0731	512.4	2.0559	145

TEMP. °C	500.0 (–5.68°C)			525.0 (–4.20°C)			550.0 (–2.78°C)			575.0 (–1.40°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0401)	(365.1)	(1.6187)	(0.0382)	(365.9)	(1.6182)	(0.0365)	(366.8)	(1.6177)	(0.0349)	(367.5)	(1.6173)	
–5	0.0403	365.7	1.6209	—	—	—	—	—	—	—	—	—	–5
0	0.0413	370.0	1.6370	0.0391	369.6	1.6318	0.0371	369.2	1.6267	0.0352	368.8	1.6218	0
5	0.0424	374.4	1.6529	0.0401	374.0	1.6477	0.0380	373.6	1.6428	0.0361	373.2	1.6379	5
10	0.0434	378.9	1.6687	0.0411	378.5	1.6636	0.0390	378.1	1.6586	0.0371	377.7	1.6539	10
15	0.0445	383.3	1.6843	0.0421	382.9	1.6792	0.0400	382.6	1.6743	0.0380	382.2	1.6696	15
20	0.0455	387.8	1.6997	0.0431	387.4	1.6947	0.0409	387.1	1.6899	0.0389	386.7	1.6853	20
25	0.0465	392.3	1.7150	0.0441	392.0	1.7101	0.0419	391.6	1.7053	0.0398	391.3	1.7007	25
30	0.0475	396.9	1.7302	0.0450	396.6	1.7253	0.0428	396.2	1.7206	0.0407	395.9	1.7160	30
35	0.0485	401.5	1.7453	0.0460	401.2	1.7404	0.0437	400.9	1.7357	0.0416	400.5	1.7312	35
40	0.0495	406.1	1.7602	0.0470	405.8	1.7554	0.0446	405.5	1.7507	0.0425	405.2	1.7462	40
45	0.0505	410.8	1.7750	0.0479	410.5	1.7702	0.0455	410.2	1.7656	0.0434	409.9	1.7611	45
50	0.0515	415.5	1.7897	0.0488	415.2	1.7849	0.0465	414.9	1.7803	0.0443	414.6	1.7759	50
55	0.0524	420.3	1.8043	0.0498	420.0	1.7995	0.0473	419.7	1.7950	0.0451	419.4	1.7906	55
60	0.0534	425.1	1.8188	0.0507	424.8	1.8141	0.0482	424.5	1.8095	0.0460	424.2	1.8052	60
65	0.0544	429.9	1.8332	0.0516	429.6	1.8285	0.0491	429.4	1.8240	0.0468	429.1	1.8196	65
70	0.0553	434.8	1.8475	0.0525	434.5	1.8428	0.0500	434.2	1.8383	0.0477	434.0	1.8340	70
75	0.0563	439.7	1.8616	0.0535	439.4	1.8570	0.0509	439.2	1.8525	0.0485	438.9	1.8482	75
80	0.0572	444.6	1.8757	0.0544	444.4	1.8711	0.0518	444.1	1.8666	0.0494	443.9	1.8624	80
85	0.0582	449.6	1.8897	0.0553	449.3	1.8851	0.0526	449.1	1.8807	0.0502	448.9	1.8764	85
90	0.0591	454.6	1.9036	0.0562	454.4	1.8990	0.0535	454.1	1.8946	0.0511	453.9	1.8904	90
95	0.0601	459.7	1.9175	0.0571	459.4	1.9129	0.0544	459.2	1.9085	0.0519	459.0	1.9043	95
100	0.0610	464.7	1.9312	0.0580	464.5	1.9266	0.0552	464.3	1.9222	0.0527	464.1	1.9180	100
105	0.0619	469.9	1.9449	0.0589	469.7	1.9403	0.0561	469.4	1.9359	0.0535	469.2	1.9317	105
110	0.0629	475.0	1.9584	0.0598	474.8	1.9539	0.0569	474.6	1.9495	0.0544	474.4	1.9454	110
115	0.0638	480.2	1.9719	0.0606	480.0	1.9674	0.0578	479.8	1.9630	0.0552	479.6	1.9589	115
120	0.0647	485.5	1.9853	0.0615	485.3	1.9808	0.0586	485.1	1.9765	0.0560	484.9	1.9723	120
125	0.0656	490.8	1.9987	0.0624	490.6	1.9941	0.0595	490.4	1.9898	0.0568	490.2	1.9857	125
130	0.0666	496.1	2.0119	0.0633	495.9	2.0074	0.0603	495.7	2.0031	0.0576	495.5	1.9990	130
135	0.0675	501.4	2.0251	0.0642	501.2	2.0206	0.0612	501.0	2.0163	0.0584	500.9	2.0122	135
140	0.0684	506.8	2.0382	0.0650	506.6	2.0337	0.0620	506.4	2.0294	0.0592	506.3	2.0253	140
145	0.0693	512.2	2.0512	0.0659	512.0	2.0468	0.0628	511.9	2.0425	0.0600	511.7	2.0384	145
150	—	—	—	0.0668	517.5	2.0597	0.0637	517.3	2.0555	0.0608	517.1	2.0514	150

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	600.0 (–0.07°C)			625.0 (1.22°C)			650.0 (2.47°C)			675.0 (3.69°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0335)	(368.3)	(1.6169)	(0.0321)	(369.0)	(1.6165)	(0.0309)	(369.7)	(1.6161)	(0.0297)	(370.3)	(1.6157)	
0	0.0335	368.3	1.6171	—	—	—	—	—	—	—	—	—	0
5	0.0344	372.8	1.6333	0.0328	372.4	1.6287	0.0313	371.9	1.6243	0.0299	371.5	1.6200	5
10	0.0353	377.3	1.6493	0.0337	376.9	1.6448	0.0322	376.5	1.6404	0.0308	376.1	1.6362	10
15	0.0362	381.8	1.6651	0.0346	381.4	1.6607	0.0330	381.0	1.6564	0.0316	380.6	1.6522	15
20	0.0371	386.4	1.6808	0.0354	386.0	1.6764	0.0339	385.6	1.6722	0.0324	385.2	1.6680	20
25	0.0380	390.9	1.6963	0.0363	390.6	1.6919	0.0347	390.2	1.6878	0.0332	389.9	1.6837	25
30	0.0389	395.5	1.7116	0.0371	395.2	1.7073	0.0355	394.9	1.7032	0.0340	394.5	1.6992	30
35	0.0397	400.2	1.7268	0.0380	399.9	1.7226	0.0363	399.5	1.7185	0.0348	399.2	1.7145	35
40	0.0406	404.9	1.7419	0.0388	404.6	1.7377	0.0371	404.2	1.7336	0.0356	403.9	1.7297	40
45	0.0414	409.6	1.7568	0.0396	409.3	1.7527	0.0379	409.0	1.7487	0.0364	408.7	1.7447	45
50	0.0423	414.3	1.7716	0.0404	414.0	1.7675	0.0387	413.7	1.7635	0.0371	413.4	1.7597	50
55	0.0431	419.1	1.7864	0.0412	418.8	1.7823	0.0395	418.6	1.7783	0.0379	418.3	1.7745	55
60	0.0439	424.0	1.8009	0.0420	423.7	1.7969	0.0403	423.4	1.7929	0.0387	423.1	1.7891	60
65	0.0448	428.8	1.8154	0.0428	428.6	1.8114	0.0411	428.3	1.8075	0.0394	428.0	1.8037	65
70	0.0456	433.7	1.8298	0.0436	433.5	1.8258	0.0418	433.2	1.8219	0.0401	432.9	1.8181	70
75	0.0464	438.7	1.8441	0.0444	438.4	1.8401	0.0426	438.1	1.8362	0.0409	437.9	1.8325	75
80	0.0472	443.6	1.8582	0.0452	443.4	1.8543	0.0433	443.1	1.8504	0.0416	442.9	1.8467	80
85	0.0480	448.6	1.8723	0.0460	448.4	1.8684	0.0441	448.1	1.8646	0.0423	447.9	1.8609	85
90	0.0488	453.7	1.8863	0.0467	453.4	1.8824	0.0448	453.2	1.8786	0.0431	453.0	1.8749	90
95	0.0496	458.8	1.9002	0.0475	458.5	1.8963	0.0456	458.3	1.8925	0.0438	458.1	1.8888	95
100	0.0504	463.9	1.9140	0.0483	463.6	1.9101	0.0463	463.4	1.9063	0.0445	463.2	1.9027	100
105	0.0512	469.0	1.9277	0.0490	468.8	1.9238	0.0471	468.6	1.9201	0.0452	468.4	1.9165	105
110	0.0520	474.2	1.9413	0.0498	474.0	1.9375	0.0478	473.8	1.9337	0.0459	473.6	1.9301	110
115	0.0528	479.4	1.9549	0.0506	479.2	1.9510	0.0485	479.0	1.9473	0.0466	478.8	1.9437	115
120	0.0536	484.7	1.9683	0.0513	484.5	1.9645	0.0493	484.3	1.9608	0.0473	484.1	1.9572	120
125	0.0543	490.0	1.9817	0.0521	489.8	1.9779	0.0500	489.6	1.9742	0.0481	489.4	1.9706	125
130	0.0551	495.3	1.9950	0.0528	495.1	1.9912	0.0507	494.9	1.9875	0.0488	494.7	1.9840	130
135	0.0559	500.7	2.0082	0.0536	500.5	2.0044	0.0514	500.3	2.0008	0.0495	500.1	1.9972	135
140	0.0567	506.1	2.0214	0.0543	505.9	2.0176	0.0522	505.7	2.0139	0.0501	505.5	2.0104	140
145	0.0574	511.5	2.0345	0.0551	511.3	2.0307	0.0529	511.1	2.0270	0.0508	511.0	2.0235	145
150	0.0582	517.0	2.0475	0.0558	516.8	2.0437	0.0536	516.6	2.0400	0.0515	516.5	2.0365	150
155	—	—	—	0.0565	522.3	2.0566	0.0543	522.1	2.0530	0.0522	522.0	2.0495	155

TEMP. °C	700.0 (4.87°C)			725.0 (6.02°C)			750.0 (7.15°C)			800.0 (9.31°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0286)	(370.9)	(1.6154)	(0.0276)	(371.6)	(1.6150)	(0.0267)	(372.1)	(1.6147)	(0.0250)	(373.2)	(1.6140)	
5	0.0287	371.1	1.6158	—	—	—	—	—	—	—	—	—	5
10	0.0295	375.6	1.6321	0.0283	375.2	1.6280	0.0271	374.8	1.6240	0.0251	373.9	1.6163	10
15	0.0303	380.2	1.6481	0.0291	379.8	1.6442	0.0279	379.4	1.6403	0.0258	378.6	1.6327	15
20	0.0311	384.8	1.6640	0.0298	384.5	1.6601	0.0287	384.1	1.6563	0.0266	383.3	1.6488	20
25	0.0319	389.5	1.6797	0.0306	389.1	1.6759	0.0294	388.7	1.6721	0.0273	388.0	1.6648	25
30	0.0327	394.2	1.6953	0.0314	393.8	1.6914	0.0302	393.4	1.6877	0.0280	392.7	1.6805	30
35	0.0334	398.9	1.7106	0.0321	398.5	1.7069	0.0309	398.2	1.7032	0.0287	397.5	1.6961	35
40	0.0342	403.6	1.7259	0.0329	403.3	1.7221	0.0316	402.9	1.7185	0.0294	402.3	1.7115	40
45	0.0349	408.3	1.7410	0.0336	408.0	1.7373	0.0323	407.7	1.7337	0.0301	407.1	1.7267	45
50	0.0357	413.1	1.7559	0.0343	412.8	1.7523	0.0330	412.5	1.7487	0.0307	411.9	1.7418	50
55	0.0364	418.0	1.7707	0.0350	417.7	1.7671	0.0337	417.4	1.7636	0.0314	416.8	1.7568	55
60	0.0371	422.8	1.7854	0.0357	422.5	1.7819	0.0344	422.3	1.7784	0.0321	421.7	1.7716	60
65	0.0379	427.7	1.8000	0.0365	427.5	1.7965	0.0351	427.2	1.7930	0.0327	426.6	1.7863	65
70	0.0386	432.7	1.8145	0.0372	432.4	1.8110	0.0358	432.1	1.8075	0.0334	431.6	1.8009	70
75	0.0393	437.6	1.8289	0.0378	437.4	1.8254	0.0365	437.1	1.8219	0.0340	436.6	1.8154	75
80	0.0400	442.6	1.8431	0.0385	442.4	1.8396	0.0371	442.1	1.8362	0.0346	441.6	1.8297	80
85	0.0407	447.7	1.8573	0.0392	447.4	1.8538	0.0378	447.2	1.8504	0.0353	446.7	1.8440	85
90	0.0414	452.7	1.8713	0.0399	452.5	1.8679	0.0385	452.3	1.8645	0.0359	451.8	1.8581	90
95	0.0421	457.8	1.8853	0.0406	457.6	1.8819	0.0391	457.4	1.8785	0.0365	456.9	1.8721	95
100	0.0428	463.0	1.8992	0.0413	462.8	1.8958	0.0398	462.5	1.8924	0.0371	462.1	1.8861	100
105	0.0435	468.2	1.9129	0.0419	467.9	1.9095	0.0404	467.7	1.9062	0.0378	467.3	1.8999	105
110	0.0442	473.4	1.9266	0.0426	473.1	1.9233	0.0411	472.9	1.9200	0.0384	472.5	1.9137	110
115	0.0449	478.6	1.9402	0.0433	478.4	1.9369	0.0417	478.2	1.9336	0.0390	477.8	1.9273	115
120	0.0456	483.9	1.9538	0.0439	483.7	1.9504	0.0424	483.5	1.9471	0.0396	483.1	1.9409	120
125	0.0463	489.2	1.9672	0.0446	489.0	1.9638	0.0430	488.8	1.9606	0.0402	488.4	1.9544	125
130	0.0469	494.5	1.9805	0.0452	494.4	1.9772	0.0437	494.2	1.9740	0.0408	493.8	1.9678	130
135	0.0476	499.9	1.9938	0.0459	499.7	1.9905	0.0443	499.6	1.9873	0.0414	499.2	1.9811	135
140	0.0483	505.3	2.0070	0.0466	505.2	2.0037	0.0449	505.0	2.0005	0.0420	504.6	1.9943	140
145	0.0490	510.8	2.0201	0.0472	510.6	2.0168	0.0456	510.4	2.0136	0.0426	510.1	2.0075	145
150	0.0496	516.3	2.0331	0.0479	516.1	2.0298	0.0462	515.9	2.0267	0.0432	515.6	2.0206	150
155	0.0503	521.8	2.0461	0.0485	521.6	2.0428	0.0468	521.5	2.0396	0.0438	521.1	2.0336	155
160	—	—	—	0.0491	527.2	2.0557	0.0474	527.0	2.0525	0.0444	526.7	2.0465	160

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	850.0 (11.37°C)			900.0 (13.34°C)			950.0 (15.24°C)			1000.0 (17.06°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0234)	(374.3)	(1.6134)	(0.0221)	(375.2)	(1.6128)	(0.0209)	(376.1)	(1.6122)	(0.0198)	(377.0)	(1.6116)	
15	0.0240	377.7	1.6254	0.0223	376.8	1.6183	—	—	—	—	—	—	15
20	0.0247	382.4	1.6417	0.0230	381.6	1.6348	0.0215	380.8	1.6281	0.0201	379.9	1.6215	20
25	0.0254	387.2	1.6578	0.0237	386.4	1.6510	0.0222	385.6	1.6444	0.0208	384.8	1.6380	25
30	0.0261	392.0	1.6736	0.0243	391.2	1.6670	0.0228	390.4	1.6605	0.0214	389.6	1.6543	30
35	0.0267	396.8	1.6893	0.0250	396.0	1.6828	0.0234	395.3	1.6764	0.0220	394.5	1.6703	35
40	0.0274	401.6	1.7048	0.0256	400.9	1.6984	0.0240	400.2	1.6921	0.0226	399.5	1.6861	40
45	0.0280	406.4	1.7201	0.0263	405.7	1.7138	0.0246	405.1	1.7077	0.0232	404.4	1.7017	45
50	0.0287	411.3	1.7353	0.0269	410.6	1.7290	0.0252	410.0	1.7230	0.0238	409.3	1.7172	50
55	0.0293	416.2	1.7503	0.0275	415.6	1.7441	0.0258	414.9	1.7382	0.0243	414.3	1.7324	55
60	0.0300	421.1	1.7652	0.0281	420.5	1.7591	0.0264	419.9	1.7532	0.0249	419.3	1.7475	60
65	0.0306	426.0	1.7800	0.0287	425.5	1.7739	0.0270	424.9	1.7681	0.0255	424.3	1.7625	65
70	0.0312	431.0	1.7946	0.0293	430.5	1.7886	0.0276	429.9	1.7828	0.0260	429.4	1.7773	70
75	0.0318	436.0	1.8091	0.0299	435.5	1.8032	0.0281	435.0	1.7975	0.0265	434.4	1.7920	75
80	0.0324	441.1	1.8235	0.0304	440.6	1.8176	0.0287	440.1	1.8120	0.0271	439.5	1.8065	80
85	0.0330	446.2	1.8378	0.0310	445.7	1.8319	0.0292	445.2	1.8263	0.0276	444.7	1.8210	85
90	0.0336	451.3	1.8520	0.0316	450.8	1.8462	0.0298	450.3	1.8406	0.0281	449.8	1.8353	90
95	0.0342	456.4	1.8661	0.0322	456.0	1.8603	0.0303	455.5	1.8548	0.0287	455.0	1.8495	95
100	0.0348	461.6	1.8800	0.0327	461.2	1.8743	0.0309	460.7	1.8688	0.0292	460.2	1.8635	100
105	0.0354	466.8	1.8939	0.0333	466.4	1.8882	0.0314	465.9	1.8828	0.0297	465.5	1.8775	105
110	0.0360	472.1	1.9077	0.0338	471.6	1.9020	0.0319	471.2	1.8966	0.0302	470.8	1.8914	110
115	0.0366	477.4	1.9214	0.0344	476.9	1.9157	0.0325	476.5	1.9104	0.0307	476.1	1.9052	115
120	0.0371	482.7	1.9350	0.0349	482.3	1.9294	0.0330	481.8	1.9240	0.0312	481.4	1.9189	120
125	0.0377	488.0	1.9485	0.0355	487.6	1.9429	0.0335	487.2	1.9376	0.0317	486.8	1.9325	125
130	0.0383	493.4	1.9619	0.0360	493.0	1.9564	0.0340	492.6	1.9511	0.0322	492.2	1.9460	130
135	0.0388	498.8	1.9753	0.0366	498.4	1.9697	0.0345	498.0	1.9644	0.0327	497.7	1.9594	135
140	0.0394	504.2	1.9885	0.0371	503.9	1.9830	0.0351	503.5	1.9777	0.0332	503.1	1.9727	140
145	0.0400	509.7	2.0017	0.0376	509.4	1.9962	0.0356	509.0	1.9910	0.0337	508.6	1.9860	145
150	0.0405	515.2	2.0148	0.0382	514.9	2.0093	0.0361	514.5	2.0041	0.0342	514.2	1.9991	150
155	0.0411	520.8	2.0278	0.0387	520.4	2.0224	0.0366	520.1	2.0172	0.0347	519.7	2.0122	155
160	0.0417	526.3	2.0407	0.0392	526.0	2.0353	0.0371	525.7	2.0301	0.0351	525.3	2.0252	160
165	0.0422	531.9	2.0536	0.0398	531.6	2.0482	0.0376	531.3	2.0430	0.0356	531.0	2.0381	165
170	—	—	—	—	—	—	0.0381	536.9	2.0559	0.0361	536.6	2.0510	170

TEMP. °C	1100.0 (20.50°C)			1200.0 (23.71°C)			1300.0 (26.73°C)			1400.0 (29.59°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0178)	(378.5)	(1.6105)	(0.0162)	(379.9)	(1.6093)	(0.0148)	(381.0)	(1.6080)	(0.0136)	(382.1)	(1.6067)	
25	0.0184	383.0	1.6257	0.0164	381.2	1.6137	—	—	—	—	—	—	25
30	0.0190	388.0	1.6422	0.0170	386.3	1.6306	0.0152	384.5	1.6193	0.0137	382.5	1.6082	30
35	0.0196	393.0	1.6585	0.0175	391.4	1.6473	0.0158	389.7	1.6364	0.0142	387.9	1.6257	35
40	0.0201	398.0	1.6746	0.0181	396.4	1.6636	0.0163	394.8	1.6530	0.0148	393.2	1.6427	40
45	0.0207	403.0	1.6904	0.0186	401.5	1.6797	0.0168	400.0	1.6694	0.0153	398.4	1.6594	45
50	0.0212	408.0	1.7061	0.0191	406.6	1.6955	0.0173	405.2	1.6855	0.0157	403.7	1.6757	50
55	0.0218	413.0	1.7215	0.0196	411.7	1.7112	0.0178	410.3	1.7013	0.0162	408.9	1.6918	55
60	0.0223	418.1	1.7367	0.0201	416.8	1.7266	0.0183	415.5	1.7169	0.0167	414.1	1.7076	60
65	0.0228	423.1	1.7518	0.0206	421.9	1.7418	0.0187	420.7	1.7323	0.0171	419.4	1.7232	65
70	0.0233	428.2	1.7668	0.0211	427.0	1.7569	0.0192	425.8	1.7476	0.0176	424.6	1.7386	70
75	0.0238	433.3	1.7816	0.0216	432.2	1.7718	0.0196	431.1	1.7626	0.0180	429.9	1.7539	75
80	0.0243	438.5	1.7962	0.0220	437.4	1.7866	0.0201	436.3	1.7775	0.0184	435.2	1.7689	80
85	0.0248	443.6	1.8108	0.0225	442.6	1.8012	0.0205	441.5	1.7923	0.0188	440.4	1.7838	85
90	0.0253	448.8	1.8252	0.0230	447.8	1.8157	0.0210	446.8	1.8069	0.0193	445.7	1.7985	90
95	0.0258	454.1	1.8395	0.0234	453.1	1.8301	0.0214	452.1	1.8214	0.0197	451.1	1.8130	95
100	0.0263	459.3	1.8536	0.0239	458.4	1.8444	0.0218	457.4	1.8357	0.0201	456.4	1.8275	100
105	0.0268	464.6	1.8677	0.0243	463.7	1.8585	0.0222	462.7	1.8499	0.0205	461.8	1.8418	105
110	0.0272	469.9	1.8816	0.0248	469.0	1.8725	0.0227	468.1	1.8640	0.0209	467.2	1.8560	110
115	0.0277	475.2	1.8955	0.0252	474.4	1.8865	0.0231	473.5	1.8780	0.0212	472.6	1.8700	115
120	0.0282	480.6	1.9092	0.0256	479.8	1.9003	0.0235	478.9	1.8919	0.0216	478.1	1.8840	120
125	0.0286	486.0	1.9229	0.0261	485.2	1.9140	0.0239	484.4	1.9057	0.0220	483.5	1.8978	125
130	0.0291	491.4	1.9364	0.0265	490.6	1.9276	0.0243	489.9	1.9193	0.0224	489.0	1.9116	130
135	0.0295	496.9	1.9499	0.0269	496.1	1.9411	0.0247	495.4	1.9329	0.0228	494.6	1.9252	135
140	0.0300	502.4	1.9633	0.0273	501.6	1.9545	0.0251	500.9	1.9464	0.0231	500.1	1.9387	140
145	0.0305	507.9	1.9766	0.0278	507.2	1.9679	0.0255	506.5	1.9598	0.0235	505.7	1.9522	145
150	0.0309	513.5	1.9898	0.0282	512.8	1.9811	0.0259	512.0	1.9731	0.0239	511.3	1.9655	150
155	0.0313	519.1	2.0029	0.0286	518.4	1.9943	0.0262	517.7	1.9863	0.0242	517.0	1.9788	155
160	0.0318	524.7	2.0159	0.0290	524.0	2.0074	0.0266	523.3	1.9994	0.0246	522.6	1.9919	160
165	0.0322	530.3	2.0289	0.0294	529.7	2.0204	0.0270	529.0	2.0124	0.0250	528.3	2.0050	165
170	0.0327	536.0	2.0418	0.0298	535.3	2.0333	0.0274	534.7	2.0254	0.0253	534.1	2.0180	170
175	0.0331	541.7	2.0546	0.0302	541.1	2.0461	0.0278	540.4	2.0382	0.0257	539.8	2.0309	175
180	—	—	—	—	—	—	0.0282	546.2	2.0510	0.0260	545.6	2.0437	180

Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	1500.0 (32.29°C)			1600.0 (34.86°C)			1700.0 (37.31°C)			1800.0 (39.66°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0126)	(383.0)	(1.6054)	(0.0117)	(383.8)	(1.6039)	(0.0109)	(384.4)	(1.6024)	(0.0101)	(385.0)	(1.6008)	
35	0.0129	386.0	1.6151	0.0117	383.9	1.6044	—	—	—	—	—	—	35
40	0.0134	391.4	1.6326	0.0122	389.5	1.6225	0.0111	387.5	1.6124	0.0102	385.4	1.6021	40
45	0.0139	396.8	1.6496	0.0127	395.0	1.6400	0.0116	393.2	1.6304	0.0107	391.3	1.6208	45
50	0.0144	402.1	1.6663	0.0132	400.5	1.6570	0.0121	398.8	1.6479	0.0111	397.0	1.6388	50
55	0.0148	407.4	1.6826	0.0136	405.9	1.6737	0.0126	404.3	1.6649	0.0116	402.7	1.6562	55
60	0.0153	412.8	1.6987	0.0141	411.3	1.6900	0.0130	409.8	1.6815	0.0120	408.3	1.6731	60
65	0.0157	418.1	1.7145	0.0145	416.7	1.7060	0.0134	415.3	1.6978	0.0124	413.9	1.6897	65
70	0.0161	423.4	1.7301	0.0149	422.1	1.7218	0.0138	420.8	1.7138	0.0128	419.4	1.7059	70
75	0.0166	428.7	1.7455	0.0153	427.5	1.7374	0.0142	426.2	1.7295	0.0132	424.9	1.7219	75
80	0.0170	434.0	1.7606	0.0157	432.8	1.7527	0.0146	431.6	1.7450	0.0136	430.4	1.7376	80
85	0.0174	439.3	1.7756	0.0161	438.2	1.7678	0.0149	437.1	1.7603	0.0139	435.9	1.7530	85
90	0.0178	444.7	1.7905	0.0165	443.6	1.7828	0.0153	442.5	1.7754	0.0143	441.4	1.7682	90
95	0.0182	450.1	1.8051	0.0168	449.0	1.7976	0.0157	448.0	1.7903	0.0146	446.9	1.7833	95
100	0.0185	455.4	1.8197	0.0172	454.4	1.8122	0.0160	453.4	1.8051	0.0150	452.4	1.7981	100
105	0.0189	460.8	1.8341	0.0176	459.9	1.8267	0.0164	458.9	1.8196	0.0153	457.9	1.8128	105
110	0.0193	466.3	1.8483	0.0179	465.3	1.8411	0.0167	464.4	1.8341	0.0156	463.5	1.8274	110
115	0.0197	471.7	1.8625	0.0183	470.8	1.8553	0.0171	469.9	1.8484	0.0160	469.0	1.8418	115
120	0.0200	477.2	1.8765	0.0186	476.3	1.8694	0.0174	475.5	1.8626	0.0163	474.6	1.8560	120
125	0.0204	482.7	1.8904	0.0190	481.9	1.8834	0.0177	481.0	1.8766	0.0166	480.2	1.8702	125
130	0.0208	488.2	1.9042	0.0193	487.4	1.8972	0.0181	486.6	1.8905	0.0169	485.8	1.8842	130
135	0.0211	493.8	1.9179	0.0197	493.0	1.9110	0.0184	492.2	1.9044	0.0172	491.4	1.8980	135
140	0.0215	499.4	1.9315	0.0200	498.6	1.9246	0.0187	497.8	1.9181	0.0176	497.1	1.9118	140
145	0.0218	505.0	1.9450	0.0203	504.2	1.9382	0.0190	503.5	1.9317	0.0179	502.7	1.9254	145
150	0.0222	510.6	1.9584	0.0207	509.9	1.9516	0.0193	509.2	1.9451	0.0182	508.4	1.9390	150
155	0.0225	516.3	1.9717	0.0210	515.6	1.9649	0.0197	514.9	1.9585	0.0185	514.1	1.9524	155
160	0.0229	522.0	1.9849	0.0213	521.3	1.9782	0.0200	520.6	1.9718	0.0188	519.9	1.9658	160
165	0.0232	527.7	1.9980	0.0216	527.0	1.9913	0.0203	526.3	1.9850	0.0191	525.7	1.9790	165
170	0.0235	533.4	2.0110	0.0220	532.8	2.0044	0.0206	532.1	1.9981	0.0193	531.5	1.9922	170
175	0.0239	539.2	2.0239	0.0223	538.5	2.0174	0.0209	537.9	2.0112	0.0196	537.3	2.0052	175
180	0.0242	545.0	2.0368	0.0226	544.4	2.0303	0.0212	543.7	2.0241	0.0199	543.1	2.0182	180
185	0.0245	550.8	2.0496	0.0229	550.2	2.0431	0.0215	549.6	2.0369	0.0202	549.0	2.0311	185
190	—	—	—	—	—	—	0.0218	555.5	2.0497	0.0205	554.9	2.0438	190

TEMP. °C	1900.0 (41.91°C)			2000.0 (44.08°C)			2200.0 (48.17°C)			2400.0 (52.00°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0095)	(385.4)	(1.5991)	(0.0089)	(385.7)	(1.5972)	(0.0078)	(386.1)	(1.5931)	(0.0069)	(386.0)	(1.5884)	
45	0.0098	389.2	1.6110	0.0090	386.9	1.6009	—	—	—	—	—	—	45
50	0.0103	395.1	1.6296	0.0095	393.1	1.6203	0.0080	388.6	1.6009	—	—	—	50
55	0.0107	401.0	1.6475	0.0099	399.1	1.6388	0.0085	395.1	1.6210	0.0073	390.4	1.6019	55
60	0.0111	406.7	1.6649	0.0103	405.0	1.6566	0.0089	401.4	1.6400	0.0077	397.3	1.6227	60
65	0.0115	412.4	1.6817	0.0107	410.8	1.6738	0.0093	407.5	1.6581	0.0081	403.9	1.6422	65
70	0.0119	418.0	1.6982	0.0111	416.5	1.6906	0.0097	413.5	1.6757	0.0085	410.2	1.6607	70
75	0.0123	423.6	1.7144	0.0115	422.2	1.7071	0.0101	419.4	1.6927	0.0089	416.3	1.6785	75
80	0.0127	429.1	1.7303	0.0119	427.9	1.7232	0.0104	425.2	1.7093	0.0092	422.3	1.6957	80
85	0.0130	434.7	1.7459	0.0122	433.5	1.7390	0.0108	431.0	1.7255	0.0096	428.3	1.7124	85
90	0.0134	440.3	1.7613	0.0125	439.1	1.7545	0.0111	436.7	1.7414	0.0099	434.2	1.7288	90
95	0.0137	445.8	1.7765	0.0129	444.7	1.7699	0.0114	442.4	1.7571	0.0102	440.1	1.7448	95
100	0.0140	451.4	1.7915	0.0132	450.3	1.7850	0.0117	448.1	1.7725	0.0105	445.9	1.7605	100
105	0.0144	456.9	1.8063	0.0135	455.9	1.7999	0.0120	453.8	1.7877	0.0108	451.7	1.7760	105
110	0.0147	462.5	1.8209	0.0138	461.5	1.8146	0.0123	459.5	1.8026	0.0111	457.5	1.7912	110
115	0.0150	468.1	1.8354	0.0141	467.1	1.8292	0.0126	465.2	1.8174	0.0114	463.3	1.8062	115
120	0.0153	473.7	1.8497	0.0144	472.8	1.8437	0.0129	470.9	1.8320	0.0116	469.1	1.8210	120
125	0.0156	479.3	1.8639	0.0147	478.4	1.8579	0.0132	476.7	1.8465	0.0119	474.9	1.8357	125
130	0.0159	484.9	1.8780	0.0150	484.1	1.8721	0.0135	482.4	1.8608	0.0122	480.7	1.8502	130
135	0.0162	490.6	1.8920	0.0153	489.8	1.8861	0.0137	488.1	1.8750	0.0124	486.5	1.8645	135
140	0.0165	496.3	1.9058	0.0156	495.5	1.9000	0.0140	493.9	1.8890	0.0127	492.3	1.8786	140
145	0.0168	502.0	1.9195	0.0159	501.2	1.9137	0.0143	499.7	1.9029	0.0129	498.1	1.8926	145
150	0.0171	507.7	1.9331	0.0162	506.9	1.9274	0.0145	505.5	1.9166	0.0132	503.9	1.9065	150
155	0.0174	513.4	1.9466	0.0164	512.7	1.9409	0.0148	511.3	1.9303	0.0134	509.8	1.9203	155
160	0.0177	519.2	1.9600	0.0167	518.5	1.9544	0.0150	517.1	1.9438	0.0136	515.7	1.9339	160
165	0.0180	525.0	1.9732	0.0170	524.3	1.9677	0.0153	522.9	1.9572	0.0139	521.6	1.9475	165
170	0.0182	530.8	1.9864	0.0173	530.1	1.9809	0.0155	528.8	1.9706	0.0141	527.5	1.9609	170
175	0.0185	536.6	1.9995	0.0175	536.0	1.9941	0.0158	534.7	1.9838	0.0144	533.4	1.9742	175
180	0.0188	542.5	2.0125	0.0178	541.9	2.0071	0.0160	540.6	1.9969	0.0146	539.4	1.9874	180
185	0.0191	548.4	2.0254	0.0181	547.8	2.0201	0.0163	546.5	2.0099	0.0148	545.3	2.0005	185
190	0.0194	554.3	2.0383	0.0183	553.7	2.0329	0.0165	552.5	2.0229	0.0150	551.3	2.0135	190
195	0.0196	560.2	2.0510	0.0186	559.6	2.0457	0.0168	558.5	2.0357	0.0153	557.3	2.0264	195
200	—	—	—	—	—	—	0.0170	564.5	2.0484	0.0155	563.3	2.0392	200
205	—	—	—	—	—	—	—	—	—	0.0157	569.4	2.0519	205

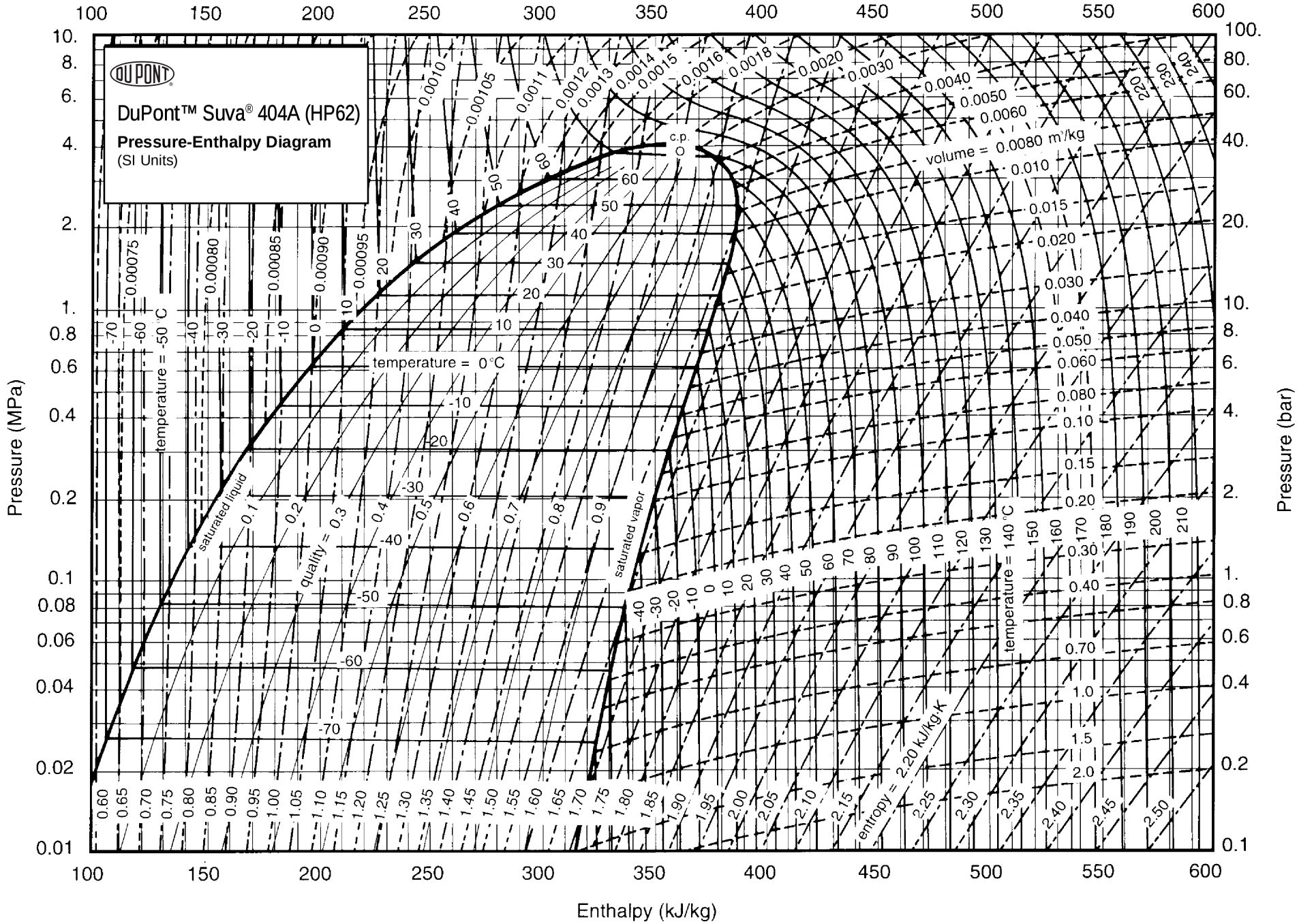
Table 2 (continued)
Suva® 404A (HP62) Superheated Vapor—Constant Pressure Tables

V = Volume in m^3/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa

TEMP. °C	2600.0 (55.59°C)			2800.0 (58.98°C)			3000.0 (62.19°C)			3200.0 (65.24°C)			TEMP. °C
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0062)	(385.6)	(1.5829)	(0.0055)	(384.6)	(1.5765)	(0.0049)	(383.0)	(1.5687)	(0.0043)	(380.7)	(1.5591)	
60	0.0066	392.6	1.6041	0.0056	386.5	1.5823	—	—	—	—	—	—	60
65	0.0071	399.8	1.6256	0.0061	395.0	1.6074	0.0052	389.0	1.5863	—	—	—	65
70	0.0075	406.5	1.6454	0.0066	402.4	1.6294	0.0057	397.7	1.6120	0.0049	391.9	1.5919	70
75	0.0079	413.0	1.6642	0.0070	409.4	1.6496	0.0062	405.4	1.6342	0.0054	400.8	1.6177	75
80	0.0082	419.3	1.6822	0.0073	416.1	1.6685	0.0065	412.5	1.6546	0.0058	408.6	1.6400	80
85	0.0086	425.5	1.6995	0.0077	422.5	1.6867	0.0069	419.3	1.6737	0.0062	415.9	1.6605	85
90	0.0089	431.6	1.7164	0.0080	428.8	1.7042	0.0072	425.9	1.6920	0.0065	422.8	1.6797	90
95	0.0092	437.6	1.7329	0.0083	435.0	1.7211	0.0075	432.3	1.7095	0.0068	429.5	1.6979	95
100	0.0095	443.6	1.7489	0.0086	441.1	1.7377	0.0078	438.6	1.7265	0.0071	436.0	1.7155	100
105	0.0097	449.5	1.7647	0.0088	447.2	1.7538	0.0081	444.8	1.7431	0.0074	442.4	1.7326	105
110	0.0100	455.4	1.7802	0.0091	453.2	1.7696	0.0083	451.0	1.7593	0.0076	448.7	1.7491	110
115	0.0103	461.3	1.7955	0.0094	459.2	1.7852	0.0086	457.1	1.7751	0.0079	454.9	1.7653	115
120	0.0105	467.1	1.8105	0.0096	465.2	1.8004	0.0088	463.2	1.7907	0.0081	461.1	1.7812	120
125	0.0108	473.0	1.8254	0.0099	471.1	1.8155	0.0090	469.2	1.8060	0.0083	467.3	1.7967	125
130	0.0110	478.9	1.8400	0.0101	477.1	1.8303	0.0093	475.3	1.8210	0.0086	473.4	1.8120	130
135	0.0113	484.8	1.8545	0.0103	483.0	1.8450	0.0095	481.3	1.8358	0.0088	479.5	1.8270	135
140	0.0115	490.6	1.8688	0.0106	489.0	1.8595	0.0097	487.3	1.8505	0.0090	485.6	1.8418	140
145	0.0118	496.5	1.8830	0.0108	494.9	1.8738	0.0099	493.3	1.8650	0.0092	491.7	1.8565	145
150	0.0120	502.4	1.8970	0.0110	500.9	1.8879	0.0102	499.3	1.8792	0.0094	497.7	1.8709	150
155	0.0122	508.3	1.9109	0.0112	506.8	1.9019	0.0104	505.3	1.8934	0.0096	503.8	1.8852	155
160	0.0125	514.2	1.9246	0.0115	512.8	1.9158	0.0106	511.4	1.9074	0.0098	509.9	1.8993	160
165	0.0127	520.2	1.9383	0.0117	518.8	1.9295	0.0108	517.4	1.9212	0.0100	516.0	1.9132	165
170	0.0129	526.1	1.9518	0.0119	524.8	1.9431	0.0110	523.4	1.9349	0.0102	522.1	1.9271	170
175	0.0131	532.1	1.9652	0.0121	530.8	1.9566	0.0112	529.5	1.9485	0.0104	528.2	1.9407	175
180	0.0134	538.1	1.9784	0.0123	536.8	1.9700	0.0114	535.5	1.9619	0.0106	534.3	1.9543	180
185	0.0136	544.1	1.9916	0.0125	542.9	1.9832	0.0116	541.6	1.9753	0.0108	540.4	1.9677	185
190	0.0138	550.1	2.0047	0.0127	548.9	1.9964	0.0118	547.7	1.9885	0.0110	546.5	1.9810	190
195	0.0140	556.2	2.0177	0.0129	555.0	2.0094	0.0120	553.8	2.0016	0.0111	552.7	1.9942	195
200	0.0142	562.2	2.0305	0.0131	561.1	2.0224	0.0122	559.9	2.0146	0.0113	558.8	2.0073	200
205	0.0144	568.3	2.0433	0.0133	567.2	2.0352	0.0123	566.1	2.0276	0.0115	565.0	2.0203	205
210	0.0146	574.4	2.0560	0.0135	573.3	2.0480	0.0125	572.2	2.0404	0.0117	571.2	2.0331	210
215	—	—	—	—	—	—	0.0127	578.4	2.0531	0.0119	577.4	2.0459	215
220	—	—	—	—	—	—	—	—	—	0.0120	583.6	2.0586	220

TEMP. °C	3400.0 (68.14°C)			3600.0 (70.92°C)									TEMP. °C
	V	H	S	V	H	S							
	(0.0037)	(377.1)	(1.5463)	(0.0031)	(371.0)	(1.5263)							
70	0.0041	383.7	1.5656	—	—	—							70
75	0.0047	395.3	1.5990	0.0040	388.1	1.5760							75
80	0.0052	404.2	1.6244	0.0046	399.1	1.6072							80
85	0.0056	412.1	1.6467	0.0050	408.0	1.6321							85
90	0.0059	419.5	1.6671	0.0053	415.9	1.6542							90
95	0.0062	426.5	1.6863	0.0056	423.3	1.6744							95
100	0.0065	433.3	1.7045	0.0059	430.4	1.6935							100
105	0.0068	439.9	1.7221	0.0062	437.2	1.7117							105
110	0.0070	446.3	1.7391	0.0065	443.9	1.7292							110
115	0.0072	452.7	1.7557	0.0067	450.4	1.7462							115
120	0.0075	459.0	1.7719	0.0069	456.9	1.7627							120
125	0.0077	465.3	1.7877	0.0072	463.3	1.7789							125
130	0.0079	471.5	1.8032	0.0074	469.6	1.7946							130
135	0.0081	477.7	1.8185	0.0076	475.9	1.8101							135
140	0.0084	483.9	1.8335	0.0078	482.1	1.8253							140
145	0.0086	490.0	1.8483	0.0080	488.3	1.8403							145
150	0.0088	496.2	1.8629	0.0082	494.6	1.8551							150
155	0.0090	502.3	1.8773	0.0084	500.8	1.8696							155
160	0.0091	508.4	1.8915	0.0085	506.9	1.8840							160
165	0.0093	514.6	1.9056	0.0087	513.1	1.8982							165
170	0.0095	520.7	1.9195	0.0089	519.3	1.9122							170
175	0.0097	526.8	1.9333	0.0091	525.5	1.9261							175
180	0.0099	533.0	1.9469	0.0093	531.7	1.9399							180
185	0.0101	539.1	1.9604	0.0094	537.9	1.9535							185
190	0.0102	545.3	1.9738	0.0096	544.1	1.9669							190
195	0.0104	551.5	1.9871	0.0098	550.3	1.9803							195
200	0.0106	557.7	2.0003	0.0099	556.5	1.9935							200
205	0.0108	563.9	2.0133	0.0101	562.8	2.0066							205
210	0.0109	570.1	2.0262	0.0103	569.0	2.0196							210
215	0.0111	576.3	2.0391	0.0104	575.3	2.0325							215
220	0.0113	582.6	2.0518	0.0106	581.6	2.0453							220
225	—	—	—	0.0107	587.8	2.0580							225
230	—	—	—	—	—	—							230


DuPont™ Suva® 404A (HP62)
Pressure-Enthalpy Diagram
(SI Units)
Pressure (MPa)
Pressure (bar)
Enthalpy (kJ/kg)
saturated liquid
saturated vapor
quality = 0.3
temperature = 0 °C
temperature = -50 °C
temperature = 140 °C
volume = 0.0080 m³/kg
entropy = 2.20 kJ/kg·K
c.p.

H-51590

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