

DuPont™ Suva®
refrigerants

**Thermodynamic
Properties
of**

**DuPont™
Suva® HP80**

Refrigerant

(R-402A)



The miracles of science™

Thermodynamic Properties of Suva® HP80 Refrigerant

SI Units

New tables of the thermodynamic properties of Suva® HP80 refrigerant [ASHRAE designation: R-402A (60/2/38)], a near azeotropic blend of HFC-125/HC-290/HCFC-22, 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 ₂ CF ₃ /CH ₃ CH ₂ CH ₃ /CHClF ₂ (60/2/38% by weight)	
Molecular Weight	101.55	
Boiling Point at One Atmosphere	-48.91°C	(-56.04°F)
Critical Temperature, T _c	75.50°C	(167.89°F)
	348.65 K	(627.56°R)
Critical Pressure, P _c	4134.7 kPa (abs)	(599.7 psia)
Critical Density, D _c	541.7 kg/m ³	(33.82 lb/ft ³)
Critical Volume, V _c	0.00185 m ³ /kg	(0.0296 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® HP80,	R = 0.0819 kJ/kg · K
One atmosphere =	101.325 kPa

Reference point for enthalpy and entropy:

$$h_f = 200 \text{ kJ/kg at } 0^\circ\text{C}$$

$$s_f = 1 \text{ kJ/kg} \cdot \text{K at } 0^\circ\text{C}$$

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)

$$P = RT/(V-b) - a/(V^2 + 2bV - b^2)$$

where P is in kPa, T is in K, V is in m³/mole, and R = 0.008314 kJ/(mole) (K). The constants a and b are calculated as follows:

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

where

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

$$x_i = \text{mole fraction of component } i$$

$$x_j = \text{mole fraction of component } j$$

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

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

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

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

$$\kappa_i = \kappa_{0_i} + \kappa_{1_i} [(1 + T_{r_i}^{0.5}) (0.7 - T_{r_i})]$$

(Note: $\kappa_i = \kappa_{0_i}$ for $T_r > 0.7$)

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

$$\kappa_{1_i} = \text{adjustable parameter for component } i$$

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

Values for R , T_{c_i} , P_{c_i} , 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[®] HP80 are summarized below:

Component	T_{c_i}	P_{c_i}	ω_i	κ_{1i}	x_i
HFC-125 ($i = 1$)	339.19	3595.0	0.3010	0.0390	0.50766
HC-290 ($i = 2$)	369.90	4257.0	0.1520	0.0320	0.04606
HCFC-22 ($i = 3$)	369.16	4977.0	0.2214	0.0360	0.44628

The binary interaction parameters, k_{ij} , for Suva[®] 80 are:

$k_{11} = 0.0000$	$k_{12} = 0.1478$	$k_{13} = 0.0158$
$k_{21} = 0.1478$	$k_{22} = 0.0000$	$k_{23} = 0.0839$
$k_{31} = 0.0158$	$k_{32} = 0.0839$	$k_{33} = 0.0000$

Ideal Gas Heat Capacity Equation (at constant pressure):

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

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

where C_p^o and $C_{p_i}^o$ 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[®] HP80).

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

$A_1 = 1.170140 \text{ E}+01$	$B_1 = 0.216411 \text{ E}-01$
$A_2 = -1.009000 \text{ E}+00$	$B_2 = 0.731500 \text{ E}-01$
$A_3 = 6.164370 \text{ E}+00$	$B_3 = 0.173407 \text{ E}-01$
$C_1 = 0.868526 \text{ E}-04$	$D_1 = -0.112776 \text{ E}-06$
$C_2 = -0.378900 \text{ E}-04$	$D_2 = 0.767800 \text{ E}-08$
$C_3 = 0.557618 \text{ E}-04$	$D_3 = -0.140596 \text{ E}-06$
$E_1 = 0.000000 \text{ E}+00$	$F_1 = 0.000000 \text{ E}+00$
$E_2 = 0.000000 \text{ E}+00$	$F_2 = 0.000000 \text{ E}+00$
$E_3 = 0.120557 \text{ E}-09$	$F_3 = -0.368814 \text{ E}-13$

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, $H(\text{ref})$ and $S(\text{ref})$ are the saturated liquid enthalpy and entropy at -40°C . For Suva[®] HP80: $H(\text{ref}) = 150.8$ kJ/kg and $S(\text{ref}) = 0.8070$ kJ/kg \cdot K.

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

P (psia)	$= P$ (kPa) \cdot 0.14504
T ($^\circ\text{F}$)	$= [T[^\circ\text{C}]] \cdot 1.8 + 32$
D (lb/ft ³)	$= D$ (kg/m ³) \cdot 0.062428
V (ft ³ /lb)	$= V$ (m ³ /kg) \cdot 16.018
H (Btu/lb)	$= [H$ (kJ/kg) $- H(\text{ref})] \cdot 0.43021$
S (Btu/lb \cdot $^\circ\text{R}$)	$= [S$ (kJ/kg \cdot K) $- S(\text{ref})] \cdot 0.23901$
C_p (Btu/lb \cdot $^\circ\text{F}$)	$= C_p$ (kJ/kg \cdot K) \cdot 0.23901
C_v (Btu/lb \cdot $^\circ\text{F}$)	$= C_v$ (kJ/kg \cdot K) \cdot 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 :

$A = 5.10069 \text{ E}+01$	$C = -5.84437 \text{ E}+00$
$B = -3.43829 \text{ E}+03$	$D = 1.15066 \text{ E}-05$

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

$A = 6.84431 \text{ E}+01$	$C = -8.62823 \text{ E}+00$
$B = -4.04659 \text{ E}+03$	$D = 1.64590 \text{ E}-05$

For I/P units

T is in $^\circ\text{R}$ and P is in psia

A , B , C and D are constants.

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

$A = 5.25076 \text{ E}+01$	$C = -5.84437 \text{ E}+00$
$B = -6.18779 \text{ E}+03$	$D = 0.35578 \text{ E}-05$

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

$A = 7.15846 \text{ E}+01$	$C = -8.62823 \text{ E}+00$
$B = -7.28408 \text{ E}+03$	$D = 0.50786 \text{ E}-05$

3. Density of the Saturated Liquid

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

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

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 $^\circ\text{R}$ in I/P units; $a_0, a_1, a_2, a_3, a_4,$ and t_0 are constants:

$$a_0 = 2.256102$$

$$a_3 = -1.975586$$

$$a_1 = 2.805985$$

$$a_4 = -5.888184$$

$$a_2 = 1.878483$$

$$t_0 = 0.5735863$$

Table 1
Suva® HP80 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	
-100	4.0	3.0	0.0006	4.7037	1614.8	0.213	87.0	218.0	305.0	0.4917	1.7578	-100
-99	4.4	3.3	0.0006	4.3234	1612.0	0.231	88.0	217.6	305.6	0.4975	1.7538	-99
-98	4.7	3.6	0.0006	3.9793	1609.1	0.251	89.0	217.1	306.1	0.5032	1.7498	-98
-97	5.1	3.9	0.0006	3.6670	1606.2	0.273	90.0	216.7	306.7	0.5090	1.7459	-97
-96	5.6	4.3	0.0006	3.3818	1603.3	0.296	91.0	216.3	307.3	0.5147	1.7421	-96
-95	6.0	4.7	0.0006	3.1230	1600.3	0.320	92.0	215.8	307.8	0.5203	1.7384	-95
-94	6.5	5.1	0.0006	2.8868	1597.4	0.346	93.0	215.4	308.4	0.5260	1.7347	-94
-93	7.0	5.5	0.0006	2.6717	1594.5	0.374	94.0	215.0	309.0	0.5316	1.7311	-93
-92	7.6	6.0	0.0006	2.4746	1591.5	0.404	95.0	214.5	309.6	0.5372	1.7276	-92
-91	8.2	6.5	0.0006	2.2946	1588.6	0.436	96.0	214.1	310.1	0.5428	1.7242	-91
-90	8.8	7.0	0.0006	2.1299	1585.6	0.470	97.1	213.6	310.7	0.5484	1.7209	-90
-89	9.5	7.6	0.0006	1.9786	1582.6	0.505	98.1	213.2	311.3	0.5540	1.7176	-89
-88	10.2	8.2	0.0006	1.8403	1579.6	0.543	99.1	212.8	311.9	0.5595	1.7144	-88
-87	11.0	8.9	0.0006	1.7129	1576.6	0.584	100.1	212.3	312.4	0.5650	1.7112	-87
-86	11.8	9.6	0.0006	1.5957	1573.6	0.627	101.2	211.9	313.0	0.5705	1.7082	-86
-85	12.6	10.3	0.0006	1.4881	1570.5	0.672	102.2	211.4	313.6	0.5760	1.7052	-85
-84	13.5	11.1	0.0006	1.3889	1567.5	0.720	103.2	211.0	314.2	0.5814	1.7022	-84
-83	14.5	11.9	0.0006	1.2974	1564.4	0.771	104.2	210.5	314.8	0.5869	1.6993	-83
-82	15.5	12.8	0.0006	1.2129	1561.3	0.825	105.3	210.1	315.3	0.5923	1.6965	-82
-81	16.6	13.8	0.0006	1.1349	1558.3	0.881	106.3	209.6	315.9	0.5977	1.6938	-81
-80	17.7	14.8	0.0006	1.0628	1555.2	0.941	107.4	209.2	316.5	0.6031	1.6911	-80
-79	18.9	15.8	0.0006	0.9960	1552.0	1.004	108.4	208.7	317.1	0.6084	1.6884	-79
-78	20.2	17.0	0.0006	0.9342	1548.9	1.070	109.4	208.2	317.7	0.6138	1.6859	-78
-77	21.5	18.2	0.0006	0.8770	1545.8	1.140	110.5	207.8	318.3	0.6191	1.6833	-77
-76	22.9	19.4	0.0006	0.8238	1542.6	1.214	111.5	207.3	318.9	0.6244	1.6809	-76
-75	24.4	20.7	0.0006	0.7745	1539.5	1.291	112.6	206.9	319.4	0.6297	1.6784	-75
-74	26.0	22.2	0.0007	0.7286	1536.3	1.373	113.6	206.4	320.0	0.6350	1.6761	-74
-73	27.6	23.6	0.0007	0.6860	1533.1	1.458	114.7	205.9	320.6	0.6403	1.6738	-73
-72	29.4	25.2	0.0007	0.6462	1529.9	1.547	115.7	205.5	321.2	0.6456	1.6715	-72
-71	31.2	26.8	0.0007	0.6093	1526.7	1.641	116.8	205.0	321.8	0.6508	1.6693	-71
-70	33.1	28.6	0.0007	0.5748	1523.5	1.740	117.9	204.5	322.4	0.6560	1.6671	-70
-69	35.1	30.4	0.0007	0.5427	1520.3	1.843	118.9	204.0	323.0	0.6612	1.6650	-69
-68	37.2	32.3	0.0007	0.5126	1517.0	1.951	120.0	203.6	323.6	0.6664	1.6630	-68
-67	39.4	34.3	0.0007	0.4846	1513.8	2.064	121.1	203.1	324.1	0.6716	1.6609	-67
-66	41.7	36.5	0.0007	0.4583	1510.5	2.182	122.1	202.6	324.7	0.6768	1.6590	-66
-65	44.1	38.7	0.0007	0.4338	1507.2	2.305	123.2	202.1	325.3	0.6819	1.6570	-65
-64	46.7	41.0	0.0007	0.4108	1503.9	2.434	124.3	201.6	325.9	0.6871	1.6551	-64
-63	49.3	43.4	0.0007	0.3893	1500.6	2.569	125.3	201.2	326.5	0.6922	1.6533	-63
-62	52.1	46.0	0.0007	0.3691	1497.3	2.709	126.4	200.7	327.1	0.6973	1.6515	-62
-61	55.0	48.7	0.0007	0.3502	1494.0	2.855	127.5	200.2	327.7	0.7024	1.6497	-61
-60	58.0	51.5	0.0007	0.3324	1490.6	3.008	128.6	199.7	328.3	0.7075	1.6480	-60
-59	61.1	54.4	0.0007	0.3157	1487.3	3.167	129.7	199.2	328.8	0.7126	1.6463	-59
-58	64.4	57.5	0.0007	0.3001	1483.9	3.333	130.8	198.7	329.4	0.7177	1.6447	-58
-57	67.9	60.7	0.0007	0.2853	1480.5	3.505	131.9	198.2	330.0	0.7227	1.6430	-57
-56	71.4	64.0	0.0007	0.2714	1477.1	3.684	133.0	197.7	330.6	0.7277	1.6415	-56
-55	75.1	67.5	0.0007	0.2583	1473.7	3.871	134.0	197.1	331.2	0.7328	1.6399	-55
-54	79.0	71.1	0.0007	0.2460	1470.3	4.065	135.1	196.6	331.8	0.7378	1.6384	-54
-53	83.1	74.9	0.0007	0.2344	1466.8	4.266	136.3	196.1	332.4	0.7428	1.6370	-53
-52	87.3	78.8	0.0007	0.2234	1463.4	4.476	137.4	195.6	333.0	0.7478	1.6355	-52
-51	91.6	82.9	0.0007	0.2131	1459.9	4.693	138.5	195.1	333.5	0.7528	1.6341	-51
-50	96.2	87.2	0.0007	0.2033	1456.4	4.918	139.6	194.5	334.1	0.7578	1.6327	-50
-49	100.9	91.7	0.0007	0.1941	1452.9	5.152	140.7	194.0	334.7	0.7627	1.6314	-49
-48	105.8	96.3	0.0007	0.1854	1449.4	5.395	141.8	193.5	335.3	0.7677	1.6301	-48
-47	110.8	101.1	0.0007	0.1771	1445.9	5.646	142.9	192.9	335.9	0.7726	1.6288	-47
-46	116.1	106.1	0.0007	0.1693	1442.4	5.907	144.0	192.4	336.4	0.7776	1.6275	-46
-45	121.6	111.3	0.0007	0.1619	1438.8	6.177	145.2	191.9	337.0	0.7825	1.6263	-45
-44	127.3	116.7	0.0007	0.1549	1435.3	6.456	146.3	191.3	337.6	0.7874	1.6251	-44
-43	133.1	122.2	0.0007	0.1482	1431.7	6.745	147.4	190.8	338.2	0.7923	1.6239	-43
-42	139.2	128.0	0.0007	0.1419	1428.1	7.045	148.6	190.2	338.8	0.7972	1.6228	-42
-41	145.5	134.0	0.0007	0.1360	1424.5	7.355	149.7	189.6	339.3	0.8021	1.6217	-41

Table 1 (continued)
Suva® HP80 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	
-40	152.0	140.3	0.0007	0.1303	1420.9	7.675	150.8	189.1	339.9	0.8070	1.6206	-40
-39	158.8	146.7	0.0007	0.1249	1417.3	8.006	152.0	188.5	340.5	0.8119	1.6195	-39
-38	165.8	153.4	0.0007	0.1198	1413.6	8.349	153.1	187.9	341.1	0.8167	1.6185	-38
-37	173.0	160.3	0.0007	0.1149	1410.0	8.702	154.3	187.3	341.6	0.8216	1.6175	-37
-36	180.5	167.5	0.0007	0.1103	1406.3	9.068	155.4	186.8	342.2	0.8264	1.6165	-36
-35	188.2	174.9	0.0007	0.1059	1402.6	9.444	157.4	185.4	342.8	0.8347	1.6155	-35
-34	196.1	182.5	0.0007	0.1017	1398.9	9.832	158.5	184.8	343.3	0.8395	1.6146	-34
-33	204.3	190.4	0.0007	0.0977	1395.2	10.232	159.7	184.2	343.9	0.8442	1.6137	-33
-32	212.8	198.5	0.0007	0.0939	1391.5	10.645	160.8	183.6	344.5	0.8489	1.6128	-32
-31	221.5	206.9	0.0007	0.0903	1387.7	11.071	162.0	183.0	345.0	0.8537	1.6119	-31
-30	230.5	215.6	0.0007	0.0869	1384.0	11.511	163.1	182.5	345.6	0.8584	1.6110	-30
-29	239.8	224.6	0.0007	0.0836	1380.2	11.964	164.3	181.9	346.2	0.8631	1.6102	-29
-28	249.4	233.8	0.0007	0.0804	1376.4	12.431	165.5	181.3	346.7	0.8678	1.6094	-28
-27	259.2	243.4	0.0007	0.0774	1372.6	12.912	166.6	180.6	347.3	0.8725	1.6086	-27
-26	269.4	253.2	0.0007	0.0746	1368.8	13.408	167.8	180.0	347.8	0.8772	1.6078	-26
-25	279.9	263.3	0.0007	0.0718	1365.0	13.919	169.0	179.4	348.4	0.8819	1.6070	-25
-24	290.6	273.8	0.0007	0.0692	1361.1	14.445	170.1	178.8	348.9	0.8866	1.6062	-24
-23	301.7	284.6	0.0007	0.0667	1357.3	14.987	171.3	178.2	349.5	0.8913	1.6055	-23
-22	313.2	295.7	0.0007	0.0643	1353.4	15.545	172.5	177.5	350.0	0.8960	1.6048	-22
-21	324.9	307.1	0.0007	0.0620	1349.5	16.120	173.7	176.9	350.6	0.9007	1.6041	-21
-20	337.0	318.8	0.0007	0.0598	1345.6	16.711	174.9	176.2	351.1	0.9053	1.6034	-20
-19	349.5	330.9	0.0007	0.0577	1341.7	17.319	176.1	175.6	351.6	0.9100	1.6027	-19
-18	362.2	343.4	0.0007	0.0557	1337.7	17.945	177.3	174.9	352.2	0.9147	1.6020	-18
-17	375.4	356.2	0.0007	0.0538	1333.8	18.589	178.5	174.2	352.7	0.9193	1.6014	-17
-16	388.9	369.4	0.0008	0.0519	1329.8	19.251	179.7	173.6	353.2	0.9240	1.6007	-16
-15	402.8	382.9	0.0008	0.0502	1325.8	19.932	180.9	172.9	353.8	0.9287	1.6001	-15
-14	417.0	396.7	0.0008	0.0485	1321.8	20.630	182.7	171.6	354.3	0.9335	1.5995	-14
-13	431.6	411.0	0.0008	0.0468	1317.8	21.347	183.9	170.9	354.8	0.9403	1.5989	-13
-12	446.5	425.6	0.0008	0.0453	1313.8	22.084	185.1	170.2	355.3	0.9449	1.5983	-12
-11	461.9	440.6	0.0008	0.0438	1309.7	22.841	186.3	169.5	355.9	0.9495	1.5978	-11
-10	477.6	456.0	0.0008	0.0423	1305.7	23.620	187.6	168.8	356.4	0.9541	1.5972	-10
-9	493.8	471.8	0.0008	0.0410	1301.6	24.420	188.8	168.1	356.9	0.9587	1.5966	-9
-8	510.4	488.1	0.0008	0.0396	1297.5	25.241	190.0	167.4	357.4	0.9633	1.5961	-8
-7	527.4	504.7	0.0008	0.0383	1293.4	26.086	191.2	166.7	357.9	0.9679	1.5955	-7
-6	544.8	521.8	0.0008	0.0371	1289.3	26.953	192.5	165.9	358.4	0.9724	1.5950	-6
-5	562.7	539.3	0.0008	0.0359	1285.1	27.844	193.7	165.2	358.9	0.9770	1.5945	-5
-4	581.0	557.3	0.0008	0.0348	1281.0	28.759	195.0	164.4	359.4	0.9816	1.5939	-4
-3	599.7	575.7	0.0008	0.0337	1276.8	29.699	196.2	163.7	359.9	0.9862	1.5934	-3
-2	619.0	594.5	0.0008	0.0326	1272.6	30.665	197.5	162.9	360.4	0.9908	1.5929	-2
-1	638.6	613.8	0.0008	0.0316	1268.4	31.656	198.7	162.1	360.8	0.9954	1.5924	-1
0	658.8	633.6	0.0008	0.0306	1264.1	32.674	200.0	161.3	361.3	1.0000	1.5919	0
1	679.4	653.9	0.0008	0.0297	1259.9	33.720	201.3	160.5	361.8	1.0046	1.5914	1
2	700.5	674.7	0.0008	0.0287	1255.6	34.793	202.6	159.7	362.3	1.0092	1.5909	2
3	722.1	695.9	0.0008	0.0279	1251.3	35.895	203.8	158.9	362.7	1.0138	1.5904	3
4	744.2	717.7	0.0008	0.0270	1247.0	37.027	205.1	158.1	363.2	1.0184	1.5899	4
5	766.8	740.0	0.0008	0.0262	1242.7	38.189	206.4	157.2	363.6	1.0230	1.5894	5
6	789.9	762.7	0.0008	0.0254	1238.4	39.382	207.7	156.4	364.1	1.0276	1.5889	6
7	813.6	786.1	0.0008	0.0246	1234.0	40.606	209.0	155.5	364.5	1.0322	1.5884	7
8	837.7	809.9	0.0008	0.0239	1229.6	41.864	210.4	154.6	365.0	1.0368	1.5880	8
9	862.5	834.3	0.0008	0.0232	1225.2	43.155	211.7	153.7	365.4	1.0415	1.5875	9
10	887.7	859.2	0.0008	0.0225	1220.8	44.480	213.0	152.8	365.9	1.0461	1.5870	10
11	913.5	884.7	0.0008	0.0218	1216.4	45.841	214.3	151.9	366.3	1.0507	1.5865	11
12	939.9	910.7	0.0008	0.0212	1211.9	47.238	215.7	151.0	366.7	1.0553	1.5860	12
13	966.8	937.4	0.0008	0.0205	1207.5	48.673	217.0	150.1	367.1	1.0600	1.5855	13
14	994.3	964.6	0.0008	0.0199	1203.0	50.146	218.4	149.1	367.5	1.0646	1.5850	14
15	1022.4	992.4	0.0008	0.0194	1198.5	51.658	219.7	148.2	367.9	1.0693	1.5845	15
16	1051.1	1020.7	0.0008	0.0188	1193.9	53.212	221.1	147.2	368.3	1.0740	1.5840	16
17	1080.4	1049.7	0.0008	0.0182	1189.4	54.807	222.5	146.2	368.7	1.0786	1.5835	17
18	1110.3	1079.3	0.0008	0.0177	1184.8	56.445	223.9	145.2	369.1	1.0833	1.5830	18
19	1140.8	1109.6	0.0008	0.0172	1180.2	58.128	225.3	144.2	369.5	1.0880	1.5825	19

Table 1 (continued)
Suva® HP80 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	1172.0	1140.4	0.0009	0.0167	1175.6	59.856	226.7	143.2	369.8	1.0927	1.5820	20
21	1203.7	1171.9	0.0009	0.0162	1171.0	61.632	228.1	142.1	370.2	1.0974	1.5814	21
22	1236.1	1204.1	0.0009	0.0158	1166.3	63.456	229.5	141.1	370.6	1.1021	1.5809	22
23	1269.2	1236.9	0.0009	0.0153	1161.6	65.331	230.9	140.0	370.9	1.1069	1.5804	23
24	1302.9	1270.3	0.0009	0.0149	1156.9	67.257	232.4	138.9	371.2	1.1116	1.5798	24
25	1337.3	1304.5	0.0009	0.0144	1152.2	69.237	233.8	137.8	371.6	1.1164	1.5792	25
26	1372.4	1339.3	0.0009	0.0140	1147.5	71.272	235.3	136.6	371.9	1.1211	1.5787	26
27	1408.1	1374.8	0.0009	0.0136	1142.7	73.365	236.7	135.5	372.2	1.1259	1.5781	27
28	1444.5	1411.0	0.0009	0.0132	1137.9	75.517	238.2	134.3	372.5	1.1307	1.5775	28
29	1481.7	1447.9	0.0009	0.0129	1133.1	77.730	239.7	133.1	372.8	1.1355	1.5769	29
30	1519.5	1485.5	0.0009	0.0125	1128.2	80.006	241.2	131.9	373.1	1.1403	1.5762	30
31	1558.1	1523.9	0.0009	0.0121	1123.3	82.348	242.7	130.7	373.4	1.1452	1.5756	31
32	1597.4	1563.0	0.0009	0.0118	1118.4	84.759	244.2	129.4	373.7	1.1500	1.5749	32
33	1637.4	1602.8	0.0009	0.0115	1113.5	87.240	245.7	128.2	373.9	1.1549	1.5743	33
34	1678.1	1643.4	0.0009	0.0111	1108.6	89.795	247.3	126.9	374.2	1.1598	1.5736	34
35	1719.6	1684.8	0.0009	0.0108	1103.6	92.426	248.8	125.6	374.4	1.1647	1.5729	35
36	1761.9	1726.9	0.0009	0.0105	1098.6	95.136	250.4	124.2	374.6	1.1697	1.5721	36
37	1805.0	1769.9	0.0009	0.0102	1093.5	97.930	252.0	122.9	374.8	1.1746	1.5714	37
38	1848.8	1813.6	0.0009	0.0099	1088.5	100.810	253.6	121.5	375.0	1.1796	1.5706	38
39	1893.4	1858.1	0.0009	0.0096	1083.4	103.780	255.2	120.0	375.2	1.1846	1.5698	39
40	1938.8	1903.4	0.0009	0.0094	1078.2	106.843	256.8	118.6	375.4	1.1897	1.5690	40
41	1985.0	1949.6	0.0009	0.0091	1073.1	110.006	258.4	117.1	375.6	1.1948	1.5681	41
42	2032.1	1996.6	0.0009	0.0088	1067.9	113.271	260.1	115.6	375.7	1.1999	1.5673	42
43	2079.9	2044.4	0.0009	0.0086	1062.6	116.644	261.7	114.1	375.8	1.2050	1.5663	43
44	2128.6	2093.1	0.0009	0.0083	1057.3	120.130	263.4	112.5	375.9	1.2102	1.5654	44
45	2178.2	2142.6	0.0010	0.0081	1052.0	123.734	265.1	110.9	376.0	1.2154	1.5644	45
46	2228.6	2193.0	0.0010	0.0078	1046.7	127.464	266.9	109.2	376.1	1.2206	1.5634	46
47	2279.8	2244.3	0.0010	0.0076	1041.3	131.326	268.6	107.6	376.2	1.2259	1.5623	47
48	2332.0	2296.5	0.0010	0.0074	1035.8	135.327	270.4	105.8	376.2	1.2312	1.5612	48
49	2385.0	2349.7	0.0010	0.0072	1030.3	139.475	272.1	104.1	376.2	1.2366	1.5601	49
50	2438.9	2403.7	0.0010	0.0070	1024.8	143.779	273.9	102.3	376.2	1.2420	1.5589	50
51	2493.7	2458.6	0.0010	0.0067	1019.2	148.249	275.8	100.4	376.2	1.2475	1.5576	51
52	2549.4	2514.5	0.0010	0.0065	1013.6	152.895	277.6	98.5	376.1	1.2530	1.5563	52
53	2606.0	2571.4	0.0010	0.0063	1007.9	157.729	279.5	96.5	376.1	1.2586	1.5550	53
54	2663.6	2629.2	0.0010	0.0061	1002.1	162.764	281.4	94.5	376.0	1.2642	1.5535	54
55	2722.1	2688.0	0.0010	0.0060	996.2	168.015	283.4	92.5	375.8	1.2699	1.5520	55
56	2781.5	2747.8	0.0010	0.0058	990.3	173.498	285.3	90.3	375.6	1.2757	1.5505	56
57	2841.9	2808.5	0.0010	0.0056	984.3	179.232	287.3	88.1	375.4	1.2816	1.5488	57
58	2903.3	2870.3	0.0010	0.0054	978.2	185.239	289.4	85.8	375.2	1.2876	1.5471	58
59	2965.6	2933.1	0.0010	0.0052	972.1	191.542	291.5	83.4	374.9	1.2937	1.5452	59
60	3029.0	2997.0	0.0010	0.0050	965.8	198.170	293.6	81.0	374.6	1.2998	1.5433	60
61	3093.3	3061.9	0.0010	0.0049	959.4	205.155	295.8	78.4	374.2	1.3061	1.5412	61
62	3158.6	3127.9	0.0010	0.0047	952.8	212.536	298.0	75.8	373.8	1.3126	1.5390	62
63	3225.0	3194.9	0.0011	0.0045	946.1	220.359	300.3	73.0	373.3	1.3192	1.5366	63
64	3292.3	3263.1	0.0011	0.0044	939.2	228.679	302.7	70.1	372.8	1.3259	1.5341	64
65	3360.7	3332.4	0.0011	0.0042	932.1	237.565	305.1	67.0	372.2	1.3329	1.5313	65
66	3430.1	3402.8	0.0011	0.0040	924.7	247.101	307.6	63.8	371.4	1.3401	1.5284	66
67	3500.5	3474.3	0.0011	0.0039	917.1	257.396	310.3	60.4	370.6	1.3475	1.5252	67
68	3572.0	3547.1	0.0011	0.0037	909.0	268.591	313.0	56.7	369.7	1.3553	1.5216	68

Table 2
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													TEMP. °C
TEMP. °C	10.0			20.0			30.0			40.0			
	(-85.39°C)			(-75.56°C)			(-69.22°C)			(-64.42°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(1.5292)	(313.4)	(1.7063)	(0.8015)	(319.1)	(1.6798)	(0.5495)	(322.8)	(1.6655)	(0.4204)	(325.7)	(1.6559)		
-70	1.6562	322.7	1.7542	0.8245	322.5	1.6969	—	—	—	—	—	—	-70
-65	1.6974	325.8	1.7693	0.8453	325.7	1.7120	0.5612	325.5	1.6783	—	—	—	-65
-60	1.7386	329.0	1.7843	0.8660	328.8	1.7270	0.5751	328.6	1.6933	0.4297	328.5	1.6692	-60
-55	1.7798	332.2	1.7991	0.8867	332.0	1.7418	0.5890	331.8	1.7082	0.4402	331.7	1.6841	-55
-50	1.8210	335.4	1.8137	0.9074	335.2	1.7565	0.6029	335.1	1.7228	0.4507	334.9	1.6988	-50
-45	1.8621	338.7	1.8281	0.9281	338.5	1.7710	0.6168	338.3	1.7373	0.4611	338.2	1.7133	-45
-40	1.9033	342.0	1.8424	0.9488	341.8	1.7853	0.6307	341.7	1.7517	0.4716	341.5	1.7277	-40
-35	1.9444	345.3	1.8566	0.9695	345.2	1.7995	0.6445	345.0	1.7659	0.4820	344.9	1.7419	-35
-30	1.9855	348.7	1.8706	0.9902	348.5	1.8135	0.6583	348.4	1.7799	0.4924	348.2	1.7560	-30
-25	2.0267	352.1	1.8845	1.0108	351.9	1.8274	0.6722	351.8	1.7938	0.5029	351.7	1.7699	-25
-20	2.0678	355.5	1.8983	1.0314	355.4	1.8412	0.6860	355.3	1.8076	0.5133	355.1	1.7837	-20
-15	2.1089	359.0	1.9119	1.0521	358.9	1.8548	0.6998	358.8	1.8213	0.5237	358.6	1.7974	-15
-10	2.1500	362.5	1.9254	1.0727	362.4	1.8684	0.7136	362.3	1.8348	0.5341	362.2	1.8110	-10
-5	2.1910	366.1	1.9388	1.0933	366.0	1.8818	0.7274	365.9	1.8483	0.5445	365.7	1.8244	-5
0	2.2321	369.7	1.9521	1.1139	369.6	1.8951	0.7412	369.5	1.8616	0.5548	369.3	1.8377	0
5	2.2732	373.3	1.9653	1.1345	373.2	1.9083	0.7550	373.1	1.8748	0.5652	373.0	1.8510	5
10	2.3143	377.0	1.9784	1.1551	376.9	1.9214	0.7688	376.8	1.8879	0.5756	376.7	1.8641	10
15	2.3553	380.7	1.9913	1.1757	380.6	1.9343	0.7825	380.5	1.9009	0.5859	380.4	1.8771	15
20	2.3964	384.5	2.0042	1.1963	384.3	1.9472	0.7963	384.2	1.9138	0.5963	384.1	1.8900	20
25	2.4374	388.2	2.0170	1.2169	388.1	1.9600	0.8101	388.0	1.9266	0.6067	387.9	1.9028	25
30	2.4785	392.0	2.0297	1.2375	391.9	1.9727	0.8238	391.8	1.9393	0.6170	391.7	1.9155	30
35	2.5195	395.9	2.0423	1.2581	395.8	1.9853	0.8376	395.7	1.9519	0.6273	395.6	1.9282	35
40	2.5606	399.8	2.0548	1.2787	399.7	1.9979	0.8513	399.6	1.9645	0.6377	399.5	1.9407	40
45	2.6016	403.7	2.0673	1.2992	403.6	2.0103	0.8651	403.5	1.9769	0.6480	403.4	1.9532	45
50	2.6427	407.7	2.0796	1.3198	407.6	2.0227	0.8788	407.5	1.9893	0.6584	407.4	1.9655	50
55	2.6837	411.7	2.0919	1.3404	411.6	2.0349	0.8926	411.5	2.0016	0.6687	411.4	1.9778	55
60	2.7247	415.7	2.1041	1.3609	415.6	2.0471	0.9063	415.5	2.0138	0.6790	415.4	1.9900	60
65	2.7657	419.8	2.1162	1.3815	419.7	2.0592	0.9200	419.6	2.0259	0.6893	419.5	2.0022	65
70	2.8068	423.9	2.1282	1.4020	423.8	2.0713	0.9338	423.7	2.0379	0.6996	423.6	2.0142	70
75	2.8478	428.0	2.1402	1.4226	427.9	2.0833	0.9475	427.8	2.0499	0.7100	427.7	2.0262	75
80	2.8888	432.2	2.1521	1.4431	432.1	2.0952	0.9612	432.0	2.0618	0.7203	431.9	2.0381	80
85	—	—	—	—	—	—	0.9749	436.2	2.0736	0.7306	436.1	2.0499	85
90	—	—	—	—	—	—	—	—	—	0.7409	440.4	2.0617	90

TEMP. °C	50.0			60.0			70.0			80.0			TEMP. °C
	(-60.52°C)			(-57.20°C)			(-54.30°C)			(-51.71°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.3415)	(328.0)	(1.6489)	(0.2882)	(329.9)	(1.6434)	(0.2496)	(331.6)	(1.6389)	(0.2204)	(333.1)	(1.6351)	
-60	0.3424	328.3	1.6505	—	—	—	—	—	—	—	—	—	-60
-55	0.3509	331.5	1.6653	0.2913	331.3	1.6499	—	—	—	—	—	—	-55
-50	0.3593	334.7	1.6801	0.2984	334.6	1.6647	0.2549	334.4	1.6516	0.2222	334.2	1.6401	-50
-45	0.3677	338.0	1.6946	0.3054	337.9	1.6792	0.2609	337.7	1.6662	0.2276	337.5	1.6548	-45
-40	0.3761	341.3	1.7090	0.3125	341.2	1.6936	0.2670	341.0	1.6806	0.2329	340.9	1.6692	-40
-35	0.3845	344.7	1.7233	0.3195	344.6	1.7079	0.2731	344.4	1.6949	0.2382	344.3	1.6836	-35
-30	0.3929	348.1	1.7373	0.3265	348.0	1.7220	0.2791	347.8	1.7090	0.2436	347.7	1.6977	-30
-25	0.4013	351.5	1.7513	0.3335	351.4	1.7360	0.2852	351.2	1.7230	0.2489	351.1	1.7117	-25
-20	0.4096	355.0	1.7651	0.3405	354.9	1.7499	0.2912	354.7	1.7369	0.2542	354.6	1.7256	-20
-15	0.4180	358.5	1.7788	0.3475	358.4	1.7636	0.2972	358.2	1.7506	0.2594	358.1	1.7393	-15
-10	0.4263	362.0	1.7924	0.3545	361.9	1.7772	0.3032	361.8	1.7642	0.2647	361.6	1.7530	-10
-5	0.4347	365.6	1.8059	0.3615	365.5	1.7906	0.3092	365.4	1.7777	0.2700	365.2	1.7665	-5
0	0.4430	369.2	1.8192	0.3685	369.1	1.8040	0.3152	369.0	1.7911	0.2753	368.8	1.7798	0
5	0.4513	372.9	1.8324	0.3754	372.7	1.8172	0.3212	372.6	1.8043	0.2805	372.5	1.7931	5
10	0.4597	376.5	1.8455	0.3824	376.4	1.8304	0.3272	376.3	1.8175	0.2858	376.2	1.8063	10
15	0.4680	380.3	1.8586	0.3893	380.2	1.8434	0.3332	380.0	1.8305	0.2910	379.9	1.8193	15
20	0.4763	384.0	1.8715	0.3963	383.9	1.8563	0.3391	383.8	1.8434	0.2963	383.7	1.8323	20
25	0.4846	387.8	1.8843	0.4032	387.7	1.8691	0.3451	387.6	1.8563	0.3015	387.5	1.8451	25
30	0.4929	391.6	1.8970	0.4102	391.5	1.8819	0.3511	391.4	1.8690	0.3067	391.3	1.8579	30
35	0.5012	395.5	1.9097	0.4171	395.4	1.8945	0.3570	395.3	1.8817	0.3120	395.2	1.8705	35
40	0.5095	399.4	1.9222	0.4240	399.3	1.9071	0.3630	399.2	1.8943	0.3172	399.1	1.8831	40
45	0.5178	403.3	1.9347	0.4309	403.2	1.9196	0.3689	403.1	1.9067	0.3224	403.0	1.8956	45
50	0.5261	407.3	1.9471	0.4379	407.2	1.9319	0.3749	407.1	1.9191	0.3276	407.0	1.9080	50
55	0.5343	411.3	1.9594	0.4448	411.2	1.9442	0.3808	411.1	1.9314	0.3328	411.0	1.9203	55
60	0.5426	415.3	1.9716	0.4517	415.3	1.9565	0.3868	415.2	1.9437	0.3380	415.1	1.9326	60
65	0.5509	419.4	1.9837	0.4586	419.3	1.9686	0.3927	419.2	1.9558	0.3433	419.2	1.9447	65
70	0.5592	423.5	1.9958	0.4655	423.4	1.9807	0.3986	423.4	1.9679	0.3485	423.3	1.9568	70
75	0.5674	427.7	2.0078	0.4724	427.6	1.9927	0.4046	427.5	1.9799	0.3537	427.4	1.9688	75
80	0.5757	431.8	2.0197	0.4793	431.8	2.0046	0.4105	431.7	1.9918	0.3589	431.6	1.9807	80
85	0.5840	436.1	2.0315	0.4862	436.0	2.0164	0.4164	435.9	2.0037	0.3640	435.8	1.9926	85
90	0.5922	440.3	2.0433	0.4931	440.2	2.0282	0.4223	440.1	2.0154	0.3692	440.1	2.0043	90
95	—	—	—	0.5000	444.5	2.0399	0.4283	444.4	2.0271	0.3744	444.3	2.0161	95
100	—	—	—	—	—	—	0.4342	448.7	2.0388	0.3796	448.7	2.0277	100

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	90.0			100.0			101.325			110.0			TEMP. °C
	(-49.37°C)			(-47.22°C)			(-46.95°C)			(-45.24°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1974)	(334.5)	(1.6319)	(0.1789)	(335.7)	(1.6291)	(0.1767)	(335.9)	(1.6287)	(0.1637)	(336.9)	(1.6266)	
-45	0.2016	337.4	1.6447	0.1808	337.2	1.6356	0.1784	337.2	1.6344	0.1638	337.0	1.6273	-45
-40	0.2064	340.7	1.6592	0.1852	340.6	1.6501	0.1827	340.5	1.6490	0.1678	340.4	1.6419	-40
-35	0.2111	344.1	1.6735	0.1895	343.9	1.6645	0.1869	343.9	1.6633	0.1717	343.8	1.6562	-35
-30	0.2159	347.5	1.6877	0.1938	347.4	1.6787	0.1912	347.3	1.6775	0.1757	347.2	1.6705	-30
-25	0.2206	351.0	1.7017	0.1980	350.8	1.6927	0.1954	350.8	1.6916	0.1796	350.7	1.6845	-25
-20	0.2254	354.4	1.7156	0.2023	354.3	1.7066	0.1996	354.3	1.7055	0.1835	354.2	1.6985	-20
-15	0.2301	358.0	1.7294	0.2066	357.8	1.7204	0.2038	357.8	1.7193	0.1874	357.7	1.7123	-15
-10	0.2348	361.5	1.7430	0.2109	361.4	1.7341	0.2080	361.4	1.7329	0.1913	361.3	1.7259	-10
-5	0.2395	365.1	1.7565	0.2151	365.0	1.7476	0.2122	365.0	1.7465	0.1951	364.8	1.7395	-5
0	0.2442	368.7	1.7699	0.2193	368.6	1.7610	0.2164	368.6	1.7599	0.1990	368.5	1.7529	0
5	0.2489	372.4	1.7832	0.2236	372.3	1.7743	0.2206	372.3	1.7732	0.2029	372.1	1.7662	5
10	0.2536	376.1	1.7964	0.2278	376.0	1.7875	0.2248	376.0	1.7863	0.2067	375.9	1.7794	10
15	0.2583	379.8	1.8094	0.2320	379.7	1.8005	0.2290	379.7	1.7994	0.2106	379.6	1.7925	15
20	0.2629	383.6	1.8224	0.2363	383.5	1.8135	0.2331	383.5	1.8124	0.2144	383.4	1.8055	20
25	0.2676	387.4	1.8352	0.2405	387.3	1.8264	0.2373	387.3	1.8253	0.2183	387.2	1.8183	25
30	0.2723	391.2	1.8480	0.2447	391.1	1.8392	0.2414	391.1	1.8380	0.2221	391.0	1.8311	30
35	0.2769	395.1	1.8607	0.2489	395.0	1.8518	0.2456	395.0	1.8507	0.2260	394.9	1.8438	35
40	0.2816	399.0	1.8733	0.2531	398.9	1.8644	0.2497	398.9	1.8633	0.2298	398.8	1.8564	40
45	0.2862	402.9	1.8858	0.2573	402.9	1.8769	0.2539	402.8	1.8758	0.2336	402.8	1.8689	45
50	0.2909	406.9	1.8982	0.2615	406.8	1.8893	0.2580	406.8	1.8882	0.2374	406.7	1.8813	50
55	0.2955	410.9	1.9105	0.2657	410.8	1.9017	0.2622	410.8	1.9006	0.2412	410.8	1.8937	55
60	0.3002	415.0	1.9227	0.2699	414.9	1.9139	0.2663	414.9	1.9128	0.2451	414.8	1.9059	60
65	0.3048	419.1	1.9349	0.2740	419.0	1.9261	0.2704	419.0	1.9250	0.2489	418.9	1.9181	65
70	0.3094	423.2	1.9470	0.2782	423.1	1.9382	0.2745	423.1	1.9371	0.2527	423.0	1.9302	70
75	0.3141	427.3	1.9590	0.2824	427.3	1.9502	0.2787	427.2	1.9491	0.2565	427.2	1.9422	75
80	0.3187	431.5	1.9709	0.2866	431.4	1.9621	0.2828	431.4	1.9610	0.2603	431.4	1.9542	80
85	0.3233	435.7	1.9828	0.2907	435.7	1.9740	0.2869	435.6	1.9729	0.2641	435.6	1.9660	85
90	0.3279	440.0	1.9946	0.2949	439.9	1.9858	0.2910	439.9	1.9847	0.2679	439.8	1.9778	90
95	0.3326	444.3	2.0063	0.2991	444.2	1.9975	0.2951	444.2	1.9964	0.2717	444.1	1.9896	95
100	0.3372	448.6	2.0179	0.3032	448.5	2.0092	0.2992	448.5	2.0081	0.2755	448.4	2.0012	100
105	0.3418	452.9	2.0295	0.3074	452.9	2.0207	0.3033	452.9	2.0196	0.2793	452.8	2.0128	105

TEMP. °C	120.0			130.0			140.0			150.0			TEMP. °C
	(-43.40°C)			(-41.67°C)			(-40.04°C)			(-38.51°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1508)	(338.0)	(1.6244)	(0.1399)	(339.0)	(1.6224)	(0.1305)	(339.9)	(1.6206)	(0.1223)	(340.8)	(1.6190)	
-40	0.1533	340.2	1.6343	0.1411	340.1	1.6273	0.1306	339.9	1.6208	—	—	—	-40
-35	0.1569	343.6	1.6487	0.1444	343.5	1.6417	0.1337	343.3	1.6352	0.1244	343.2	1.6292	-35
-30	0.1606	347.1	1.6629	0.1478	346.9	1.6560	0.1368	346.8	1.6495	0.1273	346.6	1.6435	-30
-25	0.1642	350.5	1.6770	0.1511	350.4	1.6701	0.1400	350.2	1.6636	0.1303	350.1	1.6576	-25
-20	0.1678	354.0	1.6910	0.1545	353.9	1.6841	0.1431	353.7	1.6776	0.1332	353.6	1.6716	-20
-15	0.1714	357.6	1.7048	0.1578	357.4	1.6979	0.1462	357.3	1.6915	0.1361	357.1	1.6855	-15
-10	0.1749	361.1	1.7185	0.1611	361.0	1.7116	0.1493	360.9	1.7052	0.1390	360.7	1.6992	-10
-5	0.1785	364.7	1.7320	0.1644	364.6	1.7252	0.1523	364.5	1.7188	0.1419	364.3	1.7128	-5
0	0.1821	368.4	1.7455	0.1677	368.2	1.7386	0.1554	368.1	1.7323	0.1448	368.0	1.7263	0
5	0.1856	372.0	1.7588	0.1710	371.9	1.7520	0.1585	371.8	1.7456	0.1476	371.7	1.7397	5
10	0.1892	375.7	1.7720	0.1743	375.6	1.7652	0.1616	375.5	1.7588	0.1505	375.4	1.7529	10
15	0.1927	379.5	1.7851	0.1776	379.4	1.7783	0.1646	379.2	1.7719	0.1534	379.1	1.7660	15
20	0.1963	383.3	1.7981	0.1809	383.1	1.7913	0.1677	383.0	1.7850	0.1562	382.9	1.7791	20
25	0.1998	387.1	1.8110	0.1841	387.0	1.8042	0.1707	386.8	1.7979	0.1591	386.7	1.7920	25
30	0.2033	390.9	1.8238	0.1874	390.8	1.8170	0.1738	390.7	1.8107	0.1619	390.6	1.8048	30
35	0.2068	394.8	1.8365	0.1907	394.7	1.8297	0.1768	394.6	1.8234	0.1648	394.5	1.8175	35
40	0.2104	398.7	1.8491	0.1939	398.6	1.8423	0.1798	398.5	1.8360	0.1676	398.4	1.8302	40
45	0.2139	402.7	1.8616	0.1972	402.6	1.8548	0.1829	402.5	1.8486	0.1704	402.4	1.8427	45
50	0.2174	406.6	1.8740	0.2004	406.6	1.8673	0.1859	406.5	1.8610	0.1733	406.4	1.8552	50
55	0.2209	410.7	1.8864	0.2037	410.6	1.8796	0.1889	410.5	1.8734	0.1761	410.4	1.8675	55
60	0.2244	414.7	1.8986	0.2069	414.6	1.8919	0.1919	414.5	1.8856	0.1789	414.4	1.8798	60
65	0.2279	418.8	1.9108	0.2101	418.7	1.9041	0.1949	418.6	1.8978	0.1817	418.5	1.8920	65
70	0.2314	422.9	1.9229	0.2134	422.8	1.9162	0.1979	422.8	1.9100	0.1846	422.7	1.9041	70
75	0.2349	427.1	1.9349	0.2166	427.0	1.9282	0.2009	426.9	1.9220	0.1874	426.8	1.9162	75
80	0.2384	431.3	1.9469	0.2198	431.2	1.9402	0.2040	431.1	1.9340	0.1902	431.0	1.9281	80
85	0.2419	435.5	1.9588	0.2231	435.4	1.9521	0.2070	435.3	1.9458	0.1930	435.3	1.9400	85
90	0.2454	439.8	1.9706	0.2263	439.7	1.9639	0.2100	439.6	1.9577	0.1958	439.5	1.9519	90
95	0.2488	444.0	1.9823	0.2295	444.0	1.9756	0.2130	443.9	1.9694	0.1986	443.8	1.9636	95
100	0.2523	448.4	1.9940	0.2327	448.3	1.9873	0.2159	448.2	1.9811	0.2014	448.1	1.9753	100
105	0.2558	452.7	2.0055	0.2359	452.6	1.9989	0.2189	452.6	1.9927	0.2042	452.5	1.9869	105
110	0.2593	457.1	2.0171	0.2392	457.0	2.0104	0.2219	457.0	2.0042	0.2070	456.9	1.9984	110
115	—	—	—	—	—	—	—	—	—	0.2098	461.3	2.0099	115

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	160.0			170.0			180.0			190.0			TEMP. °C
	(-37.05°C)			(-35.66°C)			(-34.32°C)			(-33.05°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1151)	(341.6)	(1.6175)	(0.1087)	(342.4)	(1.6162)	(0.1030)	(343.2)	(1.6149)	(0.0979)	(343.9)	(1.6137)	
-35	0.1163	343.0	1.6234	0.1091	342.8	1.6181	—	—	—	—	—	—	-35
-30	0.1190	346.5	1.6378	0.1117	346.3	1.6324	0.1052	346.1	1.6273	0.0994	346.0	1.6225	-30
-25	0.1218	349.9	1.6519	0.1143	349.8	1.6466	0.1077	349.6	1.6415	0.1017	349.5	1.6367	-25
-20	0.1245	353.5	1.6660	0.1169	353.3	1.6606	0.1101	353.2	1.6556	0.1041	353.0	1.6508	-20
-15	0.1273	357.0	1.6799	0.1195	356.9	1.6745	0.1126	356.7	1.6695	0.1064	356.6	1.6647	-15
-10	0.1300	360.6	1.6936	0.1221	360.5	1.6883	0.1150	360.3	1.6833	0.1087	360.2	1.6785	-10
-5	0.1327	364.2	1.7072	0.1247	364.1	1.7020	0.1175	363.9	1.6970	0.1110	363.8	1.6922	-5
0	0.1354	367.9	1.7207	0.1272	367.7	1.7155	0.1199	367.6	1.7105	0.1134	367.5	1.7057	0
5	0.1382	371.5	1.7341	0.1298	371.4	1.7288	0.1223	371.3	1.7239	0.1157	371.2	1.7192	5
10	0.1409	375.3	1.7473	0.1323	375.1	1.7421	0.1247	375.0	1.7372	0.1180	374.9	1.7324	10
15	0.1435	379.0	1.7605	0.1349	378.9	1.7553	0.1272	378.8	1.7503	0.1202	378.7	1.7456	15
20	0.1462	382.8	1.7735	0.1374	382.7	1.7683	0.1296	382.6	1.7634	0.1225	382.5	1.7587	20
25	0.1489	386.6	1.7865	0.1399	386.5	1.7813	0.1320	386.4	1.7763	0.1248	386.3	1.7717	25
30	0.1516	390.5	1.7993	0.1425	390.4	1.7941	0.1343	390.3	1.7892	0.1271	390.2	1.7845	30
35	0.1543	394.4	1.8120	0.1450	394.3	1.8068	0.1367	394.2	1.8019	0.1294	394.1	1.7973	35
40	0.1569	398.3	1.8247	0.1475	398.2	1.8195	0.1391	398.1	1.8146	0.1316	398.0	1.8100	40
45	0.1596	402.3	1.8372	0.1500	402.2	1.8321	0.1415	402.1	1.8272	0.1339	402.0	1.8225	45
50	0.1623	406.3	1.8497	0.1525	406.2	1.8445	0.1439	406.1	1.8396	0.1361	406.0	1.8350	50
55	0.1649	410.3	1.8621	0.1550	410.2	1.8569	0.1462	410.1	1.8520	0.1384	410.0	1.8474	55
60	0.1676	414.4	1.8744	0.1575	414.3	1.8692	0.1486	414.2	1.8643	0.1406	414.1	1.8597	60
65	0.1702	418.5	1.8866	0.1600	418.4	1.8814	0.1510	418.3	1.8766	0.1429	418.2	1.8720	65
70	0.1729	422.6	1.8987	0.1625	422.5	1.8936	0.1533	422.4	1.8887	0.1451	422.3	1.8841	70
75	0.1755	426.8	1.9107	0.1650	426.7	1.9056	0.1557	426.6	1.9008	0.1474	426.5	1.8962	75
80	0.1781	431.0	1.9227	0.1675	430.9	1.9176	0.1581	430.8	1.9127	0.1496	430.7	1.9082	80
85	0.1808	435.2	1.9346	0.1700	435.1	1.9295	0.1604	435.0	1.9247	0.1518	434.9	1.9201	85
90	0.1834	439.4	1.9464	0.1725	439.4	1.9413	0.1628	439.3	1.9365	0.1541	439.2	1.9319	90
95	0.1860	443.7	1.9582	0.1750	443.7	1.9531	0.1651	443.6	1.9482	0.1563	443.5	1.9437	95
100	0.1887	448.1	1.9699	0.1774	448.0	1.9647	0.1674	447.9	1.9599	0.1585	447.8	1.9554	100
105	0.1913	452.4	1.9815	0.1799	452.4	1.9764	0.1698	452.3	1.9715	0.1607	452.2	1.9670	105
110	0.1939	456.8	1.9930	0.1824	456.7	1.9879	0.1721	456.7	1.9831	0.1630	456.6	1.9785	110
115	0.1965	461.2	2.0045	0.1849	461.2	1.9994	0.1745	461.1	1.9946	0.1652	461.0	1.9900	115
120	—	—	—	—	—	—	0.1768	465.6	2.0060	0.1674	465.5	2.0014	120

TEMP. °C	200.0			210.0			220.0			230.0			TEMP. °C
	(-31.82°C)			(-30.64°C)			(-29.51°C)			(-28.41°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0933)	(344.6)	(1.6126)	(0.0891)	(345.2)	(1.6116)	(0.0852)	(345.9)	(1.6106)	(0.0817)	(346.5)	(1.6097)	
-30	0.0941	345.8	1.6178	0.0894	345.7	1.6134	—	—	—	—	—	—	-30
-25	0.0964	349.3	1.6321	0.0915	349.2	1.6277	0.0871	349.0	1.6235	0.0831	348.9	1.6195	-25
-20	0.0986	352.9	1.6462	0.0937	352.7	1.6418	0.0892	352.6	1.6376	0.0851	352.4	1.6336	-20
-15	0.1008	356.4	1.6602	0.0958	356.3	1.6558	0.0912	356.2	1.6516	0.0870	356.0	1.6476	-15
-10	0.1031	360.1	1.6740	0.0979	359.9	1.6697	0.0932	359.8	1.6655	0.0890	359.6	1.6615	-10
-5	0.1053	363.7	1.6877	0.1000	363.6	1.6834	0.0953	363.4	1.6792	0.0909	363.3	1.6753	-5
0	0.1075	367.4	1.7012	0.1021	367.2	1.6969	0.0973	367.1	1.6928	0.0929	367.0	1.6889	0
5	0.1097	371.1	1.7147	0.1042	370.9	1.7104	0.0993	370.8	1.7063	0.0948	370.7	1.7023	5
10	0.1119	374.8	1.7280	0.1063	374.7	1.7237	0.1013	374.5	1.7196	0.0967	374.4	1.7157	10
15	0.1140	378.6	1.7412	0.1084	378.4	1.7369	0.1033	378.3	1.7328	0.0986	378.2	1.7289	15
20	0.1162	382.4	1.7542	0.1105	382.2	1.7500	0.1053	382.1	1.7459	0.1005	382.0	1.7420	20
25	0.1184	386.2	1.7672	0.1126	386.1	1.7630	0.1073	386.0	1.7589	0.1025	385.9	1.7550	25
30	0.1206	390.1	1.7801	0.1146	390.0	1.7759	0.1093	389.8	1.7718	0.1044	389.7	1.7679	30
35	0.1227	394.0	1.7929	0.1167	393.9	1.7886	0.1112	393.8	1.7846	0.1063	393.7	1.7807	35
40	0.1249	397.9	1.8055	0.1188	397.8	1.8013	0.1132	397.7	1.7973	0.1081	397.6	1.7935	40
45	0.1270	401.9	1.8181	0.1208	401.8	1.8139	0.1152	401.7	1.8099	0.1100	401.6	1.8061	45
50	0.1292	405.9	1.8306	0.1229	405.8	1.8264	0.1171	405.7	1.8224	0.1119	405.6	1.8186	50
55	0.1313	409.9	1.8430	0.1249	409.8	1.8388	0.1191	409.7	1.8348	0.1138	409.6	1.8310	55
60	0.1335	414.0	1.8553	0.1270	413.9	1.8512	0.1211	413.8	1.8472	0.1157	413.7	1.8433	60
65	0.1356	418.1	1.8676	0.1290	418.0	1.8634	0.1230	417.9	1.8594	0.1175	417.8	1.8556	65
70	0.1377	422.2	1.8797	0.1310	422.2	1.8756	0.1250	422.1	1.8716	0.1194	422.0	1.8678	70
75	0.1399	426.4	1.8918	0.1331	426.3	1.8876	0.1269	426.2	1.8837	0.1213	426.2	1.8799	75
80	0.1420	430.6	1.9038	0.1351	430.5	1.8996	0.1288	430.5	1.8957	0.1231	430.4	1.8919	80
85	0.1441	434.9	1.9157	0.1371	434.8	1.9116	0.1308	434.7	1.9076	0.1250	434.6	1.9038	85
90	0.1462	439.1	1.9276	0.1392	439.1	1.9234	0.1327	439.0	1.9195	0.1268	438.9	1.9157	90
95	0.1484	443.4	1.9393	0.1412	443.4	1.9352	0.1347	443.3	1.9312	0.1287	443.2	1.9275	95
100	0.1505	447.8	1.9510	0.1432	447.7	1.9469	0.1366	447.6	1.9429	0.1305	447.5	1.9392	100
105	0.1526	452.1	1.9627	0.1452	452.1	1.9585	0.1385	452.0	1.9546	0.1324	451.9	1.9508	105
110	0.1547	456.5	1.9742	0.1472	456.5	1.9701	0.1404	456.4	1.9661	0.1342	456.3	1.9624	110
115	0.1568	461.0	1.9857	0.1492	460.9	1.9816	0.1424	460.8	1.9776	0.1361	460.8	1.9739	115
120	0.1589	465.4	1.9971	0.1513	465.4	1.9930	0.1443	465.3	1.9891	0.1379	465.2	1.9853	120
125	—	—	—	—	—	—	0.1462	469.8	2.0004	0.1398	469.7	1.9967	125

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	240.0			250.0			260.0			270.0			TEMP. °C
	(-27.35°C)			(-26.32)			(-25.33°C)			(-24.36°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0785)	(347.1)	(1.6088)	(0.0755)	(347.6)	(1.6080)	(0.0727)	(348.2)	(1.6073)	(0.0702)	(348.7)	(1.6065)	
-25	0.0794	348.7	1.6156	0.0760	348.6	1.6118	0.0728	348.4	1.6082	—	—	—	-25
-20	0.0813	352.3	1.6298	0.0778	352.1	1.6260	0.0746	352.0	1.6224	0.0717	351.8	1.6189	-20
-15	0.0832	355.9	1.6438	0.0796	355.7	1.6401	0.0764	355.6	1.6365	0.0734	355.4	1.6330	-15
-10	0.0851	359.5	1.6577	0.0815	359.4	1.6540	0.0781	359.2	1.6505	0.0751	359.1	1.6470	-10
-5	0.0869	363.2	1.6715	0.0833	363.0	1.6678	0.0799	362.9	1.6642	0.0768	362.8	1.6608	-5
0	0.0888	366.8	1.6851	0.0851	366.7	1.6814	0.0816	366.6	1.6779	0.0784	366.4	1.6745	0
5	0.0907	370.6	1.6986	0.0869	370.4	1.6949	0.0834	370.3	1.6914	0.0801	370.2	1.6880	5
10	0.0925	374.3	1.7119	0.0886	374.2	1.7083	0.0851	374.1	1.7048	0.0818	373.9	1.7014	10
15	0.0944	378.1	1.7252	0.0904	378.0	1.7215	0.0868	377.9	1.7181	0.0834	377.7	1.7147	15
20	0.0962	381.9	1.7383	0.0922	381.8	1.7347	0.0885	381.7	1.7312	0.0851	381.6	1.7279	20
25	0.0980	385.8	1.7513	0.0940	385.6	1.7477	0.0902	385.5	1.7443	0.0867	385.4	1.7409	25
30	0.0999	389.6	1.7642	0.0957	389.5	1.7606	0.0919	389.4	1.7572	0.0884	389.3	1.7539	30
35	0.1017	393.6	1.7770	0.0975	393.4	1.7735	0.0936	393.3	1.7700	0.0900	393.2	1.7667	35
40	0.1035	397.5	1.7897	0.0992	397.4	1.7862	0.0953	397.3	1.7828	0.0916	397.2	1.7794	40
45	0.1053	401.5	1.8024	0.1010	401.4	1.7988	0.0970	401.3	1.7954	0.0932	401.2	1.7921	45
50	0.1071	405.5	1.8149	0.1027	405.4	1.8113	0.0986	405.3	1.8079	0.0949	405.2	1.8046	50
55	0.1089	409.5	1.8273	0.1044	409.5	1.8238	0.1003	409.4	1.8204	0.0965	409.3	1.8171	55
60	0.1107	413.6	1.8397	0.1062	413.5	1.8361	0.1020	413.4	1.8327	0.0981	413.4	1.8295	60
65	0.1125	417.7	1.8519	0.1079	417.7	1.8484	0.1036	417.6	1.8450	0.0997	417.5	1.8418	65
70	0.1143	421.9	1.8641	0.1096	421.8	1.8606	0.1053	421.7	1.8572	0.1013	421.6	1.8540	70
75	0.1161	426.1	1.8762	0.1114	426.0	1.8727	0.1070	425.9	1.8693	0.1029	425.8	1.8661	75
80	0.1179	430.3	1.8882	0.1131	430.2	1.8847	0.1086	430.1	1.8814	0.1045	430.0	1.8781	80
85	0.1197	434.5	1.9002	0.1148	434.5	1.8967	0.1103	434.4	1.8933	0.1061	434.3	1.8901	85
90	0.1215	438.8	1.9120	0.1165	438.7	1.9085	0.1119	438.7	1.9052	0.1077	438.6	1.9019	90
95	0.1232	443.1	1.9238	0.1182	443.1	1.9203	0.1136	443.0	1.9170	0.1093	442.9	1.9137	95
100	0.1250	447.5	1.9355	0.1199	447.4	1.9321	0.1152	447.3	1.9287	0.1109	447.2	1.9255	100
105	0.1268	451.8	1.9472	0.1216	451.8	1.9437	0.1169	451.7	1.9404	0.1125	451.6	1.9371	105
110	0.1286	456.3	1.9588	0.1233	456.2	1.9553	0.1185	456.1	1.9519	0.1140	456.0	1.9487	110
115	0.1303	460.7	1.9703	0.1250	460.6	1.9668	0.1201	460.5	1.9635	0.1156	460.5	1.9602	115
120	0.1321	465.2	1.9817	0.1267	465.1	1.9782	0.1218	465.0	1.9749	0.1172	464.9	1.9717	120
125	0.1339	469.7	1.9931	0.1284	469.6	1.9896	0.1234	469.5	1.9863	0.1188	469.5	1.9831	125
130	—	—	—	—	—	—	—	—	—	0.1203	474.0	1.9944	130

TEMP. °C	280.0			290.0			300.0			310.0			TEMP. °C
	(-23.42°C)			(-22.51°C)			(-21.62°C)			(-20.75°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0678)	(349.2)	(1.6058)	(0.0655)	(349.7)	(1.6051)	(0.0634)	(350.2)	(1.6045)	(0.0615)	(350.7)	(1.6039)	
-20	0.0689	351.7	1.6156	0.0663	351.5	1.6123	0.0640	351.4	1.6091	0.0617	351.2	1.6060	-20
-15	0.0706	355.3	1.6297	0.0679	355.1	1.6264	0.0655	355.0	1.6233	0.0632	354.9	1.6202	-15
-10	0.0722	358.9	1.6437	0.0695	358.8	1.6405	0.0671	358.7	1.6373	0.0648	358.5	1.6343	-10
-5	0.0738	362.6	1.6575	0.0711	362.5	1.6543	0.0686	362.3	1.6512	0.0662	362.2	1.6482	-5
0	0.0755	366.3	1.6712	0.0727	366.2	1.6680	0.0701	366.1	1.6649	0.0677	365.9	1.6619	0
5	0.0771	370.0	1.6847	0.0743	369.9	1.6815	0.0716	369.8	1.6785	0.0692	369.7	1.6755	5
10	0.0787	373.8	1.6981	0.0758	373.7	1.6950	0.0732	373.6	1.6919	0.0707	373.4	1.6889	10
15	0.0803	377.6	1.7114	0.0774	377.5	1.7083	0.0747	377.4	1.7052	0.0721	377.3	1.7023	15
20	0.0819	381.4	1.7246	0.0789	381.3	1.7215	0.0762	381.2	1.7184	0.0736	381.1	1.7155	20
25	0.0835	385.3	1.7377	0.0805	385.2	1.7346	0.0777	385.1	1.7315	0.0750	385.0	1.7286	25
30	0.0851	389.2	1.7506	0.0820	389.1	1.7475	0.0792	389.0	1.7445	0.0765	388.9	1.7416	30
35	0.0866	393.1	1.7635	0.0835	393.0	1.7604	0.0806	392.9	1.7574	0.0779	392.8	1.7545	35
40	0.0882	397.1	1.7762	0.0851	397.0	1.7732	0.0821	396.9	1.7702	0.0794	396.8	1.7672	40
45	0.0898	401.1	1.7889	0.0866	401.0	1.7858	0.0836	400.9	1.7828	0.0808	400.8	1.7799	45
50	0.0914	405.1	1.8015	0.0881	405.0	1.7984	0.0851	404.9	1.7954	0.0822	404.8	1.7925	50
55	0.0929	409.2	1.8139	0.0896	409.1	1.8109	0.0865	409.0	1.8079	0.0836	408.9	1.8050	55
60	0.0945	413.3	1.8263	0.0911	413.2	1.8232	0.0880	413.1	1.8203	0.0850	413.0	1.8174	60
65	0.0960	417.4	1.8386	0.0926	417.3	1.8355	0.0894	417.2	1.8326	0.0865	417.1	1.8297	65
70	0.0976	421.5	1.8508	0.0941	421.5	1.8478	0.0909	421.4	1.8448	0.0879	421.3	1.8419	70
75	0.0991	425.7	1.8629	0.0956	425.7	1.8599	0.0923	425.6	1.8569	0.0893	425.5	1.8541	75
80	0.1007	430.0	1.8750	0.0971	429.9	1.8719	0.0938	429.8	1.8690	0.0907	429.7	1.8611	80
85	0.1022	434.2	1.8869	0.0986	434.1	1.8839	0.0952	434.1	1.8810	0.0921	434.0	1.8781	85
90	0.1038	438.5	1.8988	0.1001	438.4	1.8958	0.0967	438.3	1.8929	0.0935	438.3	1.8900	90
95	0.1053	442.8	1.9106	0.1016	442.7	1.9076	0.0981	442.7	1.9047	0.0949	442.6	1.9019	95
100	0.1068	447.2	1.9224	0.1031	447.1	1.9193	0.0996	447.0	1.9164	0.0963	446.9	1.9136	100
105	0.1084	451.6	1.9340	0.1045	451.5	1.9310	0.1010	451.4	1.9281	0.0977	451.3	1.9253	105
110	0.1099	456.0	1.9456	0.1060	455.9	1.9426	0.1024	455.8	1.9397	0.0990	455.7	1.9369	110
115	0.1114	460.4	1.9571	0.1075	460.3	1.9541	0.1038	460.3	1.9512	0.1004	460.2	1.9484	115
120	0.1129	464.9	1.9686	0.1090	464.8	1.9656	0.1053	464.7	1.9627	0.1018	464.7	1.9599	120
125	0.1145	469.4	1.9800	0.1104	469.3	1.9770	0.1067	469.2	1.9741	0.1032	469.2	1.9713	125
130	0.1160	473.9	1.9913	0.1119	473.9	1.9883	0.1081	473.8	1.9854	0.1046	473.7	1.9826	130

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	320.0			330.0			340.0			350.0			TEMP. °C
	(-19.90°C)			(-19.08°C)			(-18.27°C)			(-17.48°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0596)	(351.1)	(1.6033)	(0.0579)	(351.6)	(1.6027)	(0.0563)	(352.0)	(1.6022)	(0.0547)	(352.4)	(1.6017)	
-15	0.0611	354.7	1.6172	0.0591	354.6	1.6143	0.0572	354.4	1.6115	0.0554	354.3	1.6087	-15
-10	0.0626	358.4	1.6313	0.0605	358.2	1.6284	0.0586	358.1	1.6256	0.0568	357.9	1.6229	-10
-5	0.0640	362.1	1.6452	0.0619	361.9	1.6424	0.0600	361.8	1.6396	0.0581	361.7	1.6368	-5
0	0.0655	365.8	1.6590	0.0633	365.7	1.6561	0.0613	365.5	1.6533	0.0594	365.4	1.6506	0
5	0.0669	369.5	1.6726	0.0647	369.4	1.6697	0.0627	369.3	1.6670	0.0608	369.1	1.6643	5
10	0.0683	373.3	1.6860	0.0661	373.2	1.6832	0.0640	373.1	1.6805	0.0608	372.9	1.6778	10
15	0.0697	377.1	1.6994	0.0675	377.0	1.6966	0.0654	376.9	1.6939	0.0634	376.8	1.6912	15
20	0.0712	381.0	1.7126	0.0689	380.9	1.7098	0.0667	380.7	1.7071	0.0647	380.6	1.7045	20
25	0.0726	384.9	1.7257	0.0703	384.7	1.7230	0.0681	384.6	1.7203	0.0660	384.5	1.7176	25
30	0.0740	388.8	1.7387	0.0716	388.7	1.7360	0.0694	388.5	1.7333	0.0673	388.4	1.7307	30
35	0.0754	392.7	1.7516	0.0730	392.6	1.7489	0.0707	392.5	1.7462	0.0686	392.4	1.7436	35
40	0.0768	396.7	1.7644	0.0743	396.6	1.7617	0.0720	396.5	1.7590	0.0699	396.4	1.7564	40
45	0.0782	400.7	1.7771	0.0757	400.6	1.7744	0.0734	400.5	1.7717	0.0712	400.4	1.7691	45
50	0.0795	404.7	1.7897	0.0770	404.6	1.7870	0.0747	404.5	1.7843	0.0724	404.4	1.7818	50
55	0.0809	408.8	1.8022	0.0784	408.7	1.7995	0.0760	408.6	1.7969	0.0737	408.5	1.7943	55
60	0.0823	412.9	1.8146	0.0797	412.8	1.8119	0.0773	412.7	1.8093	0.0750	412.6	1.8067	60
65	0.0837	417.0	1.8269	0.0810	416.9	1.8242	0.0786	416.9	1.8216	0.0762	416.8	1.8191	65
70	0.0850	421.2	1.8392	0.0824	421.1	1.8365	0.0799	421.0	1.8339	0.0775	420.9	1.8313	70
75	0.0864	425.4	1.8513	0.0837	425.3	1.8486	0.0812	425.2	1.8460	0.0788	425.1	1.8435	75
80	0.0878	429.6	1.8634	0.0850	429.5	1.8607	0.0824	429.5	1.8581	0.0800	429.4	1.8556	80
85	0.0891	433.9	1.8754	0.0863	433.8	1.8727	0.0837	433.7	1.8701	0.0813	433.6	1.8676	85
90	0.0905	438.2	1.8873	0.0877	438.1	1.8846	0.0850	438.0	1.8820	0.0825	437.9	1.8795	90
95	0.0918	442.5	1.8991	0.0890	442.4	1.8964	0.0863	442.4	1.8939	0.0838	442.3	1.8913	95
100	0.0932	446.9	1.9109	0.0903	446.8	1.9082	0.0876	446.7	1.9056	0.0850	446.6	1.9031	100
105	0.0945	451.3	1.9225	0.0916	451.2	1.9199	0.0888	451.1	1.9173	0.0862	451.0	1.9148	105
110	0.0959	455.7	1.9342	0.0929	455.6	1.9315	0.0901	455.5	1.9289	0.0875	455.5	1.9264	110
115	0.0972	460.1	1.9457	0.0942	460.1	1.9430	0.0914	460.0	1.9405	0.0887	459.9	1.9380	115
120	0.0986	464.6	1.9572	0.0955	464.5	1.9545	0.0926	464.5	1.9520	0.0899	464.4	1.9495	120
125	0.0999	469.1	1.9686	0.0968	469.0	1.9659	0.0939	469.0	1.9634	0.0912	468.9	1.9609	125
130	0.1012	473.7	1.9799	0.0981	473.6	1.9773	0.0952	473.5	1.9747	0.0924	473.5	1.9722	130
135	0.1026	478.2	1.9912	0.0994	478.2	1.9885	0.0964	478.1	1.9860	0.0936	478.0	1.9835	135

TEMP. °C	360.0			370.0			380.0			390.0			TEMP. °C
	(-16.71°C)			(-15.95°C)			(-15.21°C)			(-14.48°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0533)	(352.9)	(1.6012)	(0.0519)	(353.3)	(1.6007)	(0.0505)	(353.6)	(1.6002)	(0.0493)	(354.0)	(1.5998)	
-15	0.0537	354.1	1.6060	0.0521	354.0	1.6034	0.0506	353.8	1.6008	—	—	—	-15
-10	0.0550	357.8	1.6202	0.0534	357.7	1.6176	0.0519	357.5	1.6150	0.0504	357.4	1.6125	-10
-5	0.0564	361.5	1.6342	0.0547	361.4	1.6316	0.0531	361.2	1.6291	0.0516	361.1	1.6266	-5
0	0.0577	365.3	1.6480	0.0560	365.1	1.6454	0.0544	365.0	1.6429	0.0529	364.8	1.6404	0
5	0.0590	369.0	1.6617	0.0572	368.9	1.6591	0.0556	368.8	1.6566	0.0541	368.6	1.6542	5
10	0.0603	372.8	1.6752	0.0585	372.7	1.6727	0.0568	372.6	1.6702	0.0553	372.4	1.6678	10
15	0.0615	376.6	1.6886	0.0598	376.5	1.6861	0.0581	376.4	1.6836	0.0565	376.3	1.6812	15
20	0.0628	380.5	1.7019	0.0610	380.4	1.6994	0.0593	380.3	1.6969	0.0577	380.2	1.6945	20
25	0.0641	384.4	1.7151	0.0622	384.3	1.7126	0.0605	384.2	1.7101	0.0589	384.1	1.7077	25
30	0.0653	388.3	1.7281	0.0635	388.2	1.7256	0.0617	388.1	1.7232	0.0600	388.0	1.7208	30
35	0.0666	392.3	1.7411	0.0647	392.2	1.7386	0.0629	392.1	1.7362	0.0612	392.0	1.7338	35
40	0.0679	396.3	1.7539	0.0659	396.2	1.7514	0.0641	396.1	1.7490	0.0624	395.9	1.7466	40
45	0.0691	400.3	1.7666	0.0671	400.2	1.7642	0.0653	400.1	1.7618	0.0635	400.0	1.7594	45
50	0.0703	404.3	1.7792	0.0684	404.2	1.7768	0.0665	404.1	1.7744	0.0647	404.0	1.7721	50
55	0.0716	408.4	1.7918	0.0696	408.3	1.7893	0.0677	408.2	1.7869	0.0658	408.1	1.7846	55
60	0.0728	412.5	1.8042	0.0708	412.4	1.8018	0.0688	412.3	1.7994	0.0670	412.2	1.7971	60
65	0.0740	416.7	1.8166	0.0720	416.6	1.8141	0.0700	416.5	1.8118	0.0681	416.4	1.8095	65
70	0.0753	420.8	1.8288	0.0732	420.8	1.8264	0.0712	420.7	1.8240	0.0693	420.6	1.8217	70
75	0.0765	425.1	1.8410	0.0744	425.0	1.8386	0.0723	424.9	1.8362	0.0704	424.8	1.8339	75
80	0.0777	429.3	1.8531	0.0755	429.2	1.8507	0.0735	429.1	1.8483	0.0715	429.0	1.8460	80
85	0.0789	433.6	1.8651	0.0767	433.5	1.8627	0.0746	433.4	1.8604	0.0727	433.3	1.8581	85
90	0.0802	437.9	1.8770	0.0779	437.8	1.8746	0.0758	437.7	1.8723	0.0738	437.6	1.8700	90
95	0.0814	442.2	1.8889	0.0791	442.1	1.8865	0.0770	442.0	1.8842	0.0749	442.0	1.8819	95
100	0.0826	446.6	1.9007	0.0803	446.5	1.8983	0.0781	446.4	1.8959	0.0760	446.3	1.8937	100
105	0.0838	451.0	1.9124	0.0815	450.9	1.9100	0.0793	450.8	1.9077	0.0772	450.7	1.9054	105
110	0.0850	455.4	1.9240	0.0826	455.3	1.9216	0.0804	455.2	1.9193	0.0783	455.2	1.9170	110
115	0.0862	459.8	1.9355	0.0838	459.8	1.9332	0.0815	459.7	1.9309	0.0794	459.6	1.9286	115
120	0.0874	464.3	1.9470	0.0850	464.3	1.9447	0.0827	464.2	1.9423	0.0805	464.1	1.9401	120
125	0.0886	468.8	1.9584	0.0861	468.8	1.9561	0.0838	468.7	1.9538	0.0816	468.6	1.9515	125
130	0.0898	473.4	1.9698	0.0873	473.3	1.9674	0.0850	473.3	1.9651	0.0827	473.2	1.9629	130
135	0.0910	478.0	1.9811	0.0885	477.9	1.9787	0.0861	477.8	1.9764	0.0838	477.8	1.9742	135
140	—	—	—	—	—	—	—	—	—	0.0849	482.4	1.9854	140

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	400.0			425.0			450.0			475.0			TEMP. °C
	(-13.77°C)			(-12.04°C)			(-10.39°C)			(-8.80°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0481)	(354.4)	(1.5994)	(0.0453)	(355.3)	(1.5984)	(0.0429)	(356.2)	(1.5974)	(0.0407)	(357.0)	(1.5965)	
-10	0.0490	357.2	1.6101	0.0458	356.8	1.6042	0.0430	356.5	1.5985	—	—	—	-10
-5	0.0502	360.9	1.6241	0.0470	360.6	1.6183	0.0441	360.2	1.6127	0.0415	359.9	1.6073	-5
0	0.0514	364.7	1.6380	0.0481	364.4	1.6322	0.0452	364.0	1.6267	0.0425	363.7	1.6214	0
5	0.0526	368.5	1.6518	0.0492	368.2	1.6460	0.0462	367.8	1.6405	0.0436	367.5	1.6353	5
10	0.0538	372.3	1.6654	0.0504	372.0	1.6597	0.0473	371.7	1.6542	0.0446	371.3	1.6490	10
15	0.0550	376.2	1.6788	0.0515	375.8	1.6732	0.0484	375.5	1.6677	0.0456	375.2	1.6626	15
20	0.0561	380.0	1.6922	0.0526	379.7	1.6865	0.0494	379.4	1.6811	0.0466	379.1	1.6760	20
25	0.0573	383.9	1.7054	0.0537	383.6	1.6998	0.0505	383.4	1.6944	0.0476	383.1	1.6893	25
30	0.0584	387.9	1.7185	0.0548	387.6	1.7129	0.0515	387.3	1.7076	0.0486	387.0	1.7025	30
35	0.0596	391.8	1.7315	0.0559	391.6	1.7259	0.0526	391.3	1.7206	0.0496	391.0	1.7156	35
40	0.0607	395.8	1.7443	0.0569	395.6	1.7388	0.0536	395.3	1.7336	0.0506	395.0	1.7285	40
45	0.0619	399.9	1.7571	0.0580	399.6	1.7516	0.0546	399.4	1.7464	0.0516	399.1	1.7414	45
50	0.0630	403.9	1.7698	0.0591	403.7	1.7643	0.0556	403.4	1.7591	0.0525	403.2	1.7541	50
55	0.0641	408.0	1.7823	0.0602	407.8	1.7769	0.0566	407.5	1.7717	0.0535	407.3	1.7668	55
60	0.0652	412.2	1.7948	0.0612	411.9	1.7894	0.0576	411.7	1.7842	0.0545	411.4	1.7793	60
65	0.0664	416.3	1.8072	0.0623	416.1	1.8018	0.0587	415.8	1.7966	0.0554	415.6	1.7917	65
70	0.0675	420.5	1.8195	0.0633	420.3	1.8141	0.0597	420.0	1.8089	0.0564	419.8	1.8041	70
75	0.0686	424.7	1.8317	0.0644	424.5	1.8263	0.0607	424.3	1.8212	0.0573	424.1	1.8163	75
80	0.0697	429.0	1.8438	0.0654	428.7	1.8384	0.0616	428.5	1.8333	0.0583	428.3	1.8285	80
85	0.0708	433.2	1.8558	0.0665	433.0	1.8505	0.0626	432.8	1.8454	0.0592	432.6	1.8406	85
90	0.0719	437.5	1.8678	0.0675	437.3	1.8624	0.0636	437.1	1.8574	0.0601	436.9	1.8526	90
95	0.0730	441.9	1.8797	0.0686	441.7	1.8743	0.0646	441.5	1.8693	0.0611	441.3	1.8645	95
100	0.0741	446.3	1.8915	0.0696	446.1	1.8861	0.0656	445.9	1.8811	0.0620	445.7	1.8763	100
105	0.0752	450.7	1.9032	0.0706	450.5	1.8979	0.0666	450.3	1.8928	0.0630	450.1	1.8881	105
110	0.0763	455.1	1.9148	0.0717	454.9	1.9095	0.0676	454.7	1.9045	0.0639	454.6	1.8998	110
115	0.0774	459.6	1.9264	0.0727	459.4	1.9211	0.0685	459.2	1.9161	0.0648	459.0	1.9114	115
120	0.0784	464.1	1.9379	0.0737	463.9	1.9326	0.0695	463.7	1.9276	0.0657	463.5	1.9229	120
125	0.0795	468.6	1.9493	0.0747	468.4	1.9441	0.0705	468.2	1.9391	0.0667	468.1	1.9344	125
130	0.0806	473.1	1.9607	0.0758	473.0	1.9554	0.0714	472.8	1.9505	0.0676	472.6	1.9457	130
135	0.0817	477.7	1.9720	0.0768	477.5	1.9667	0.0724	477.4	1.9618	0.0685	477.2	1.9571	135
140	0.0828	482.3	1.9832	0.0778	482.2	1.9780	0.0734	482.0	1.9730	0.0694	481.8	1.9683	140
145	—	—	—	—	—	—	—	—	—	0.0703	486.5	1.9795	145

TEMP. °C	500.0			525.0			550.0			575.0			TEMP. °C
	(-7.28°C)			(-5.81°C)			(-4.40°C)			(-3.04°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0387)	(357.7)	(1.5957)	(0.0369)	(358.5)	(1.5949)	(0.0352)	(359.2)	(1.5942)	(0.0337)	(359.9)	(1.5934)	
-5	0.0392	359.5	1.6022	0.0370	359.1	1.5972	—	—	—	—	—	—	-5
0	0.0402	363.3	1.6163	0.0380	362.9	1.6114	0.0361	362.6	1.6067	0.0343	362.2	1.6021	0
5	0.0412	367.1	1.6302	0.0390	366.8	1.6254	0.0370	366.4	1.6207	0.0352	366.1	1.6162	5
10	0.0421	371.0	1.6440	0.0399	370.7	1.6392	0.0379	370.3	1.6346	0.0360	370.0	1.6301	10
15	0.0431	374.9	1.6576	0.0408	374.6	1.6529	0.0388	374.3	1.6483	0.0369	373.9	1.6439	15
20	0.0441	378.8	1.6711	0.0418	378.5	1.6664	0.0397	378.2	1.6618	0.0378	377.9	1.6575	20
25	0.0450	382.8	1.6845	0.0427	382.5	1.6798	0.0406	382.2	1.6753	0.0386	381.9	1.6709	25
30	0.0460	386.7	1.6977	0.0436	386.5	1.6930	0.0415	386.2	1.6886	0.0395	385.9	1.6843	30
35	0.0469	390.7	1.7108	0.0445	390.5	1.7062	0.0423	390.2	1.7017	0.0403	389.9	1.6975	35
40	0.0479	394.8	1.7238	0.0454	394.5	1.7192	0.0432	394.2	1.7148	0.0412	394.0	1.7105	40
45	0.0488	398.8	1.7366	0.0463	398.6	1.7321	0.0441	398.3	1.7277	0.0420	398.0	1.7235	45
50	0.0497	402.9	1.7494	0.0472	402.7	1.7448	0.0449	402.4	1.7405	0.0428	402.2	1.7363	50
55	0.0507	407.1	1.7620	0.0481	406.8	1.7575	0.0458	406.6	1.7532	0.0436	406.3	1.7490	55
60	0.0516	411.2	1.7746	0.0490	411.0	1.7701	0.0466	410.7	1.7658	0.0444	410.5	1.7617	60
65	0.0525	415.4	1.7871	0.0499	415.2	1.7826	0.0475	414.9	1.7783	0.0453	414.7	1.7742	65
70	0.0534	419.6	1.7994	0.0507	419.4	1.7950	0.0483	419.1	1.7907	0.0461	418.9	1.7866	70
75	0.0543	423.8	1.8117	0.0516	423.6	1.8073	0.0491	423.4	1.8030	0.0469	423.2	1.7989	75
80	0.0552	428.1	1.8239	0.0525	427.9	1.8195	0.0500	427.7	1.8152	0.0477	427.5	1.8112	80
85	0.0561	432.4	1.8360	0.0533	432.2	1.8316	0.0508	432.0	1.8274	0.0485	431.8	1.8233	85
90	0.0570	436.7	1.8480	0.0542	436.5	1.8436	0.0516	436.3	1.8394	0.0493	436.1	1.8354	90
95	0.0579	441.1	1.8599	0.0550	440.9	1.8555	0.0524	440.7	1.8514	0.0500	440.5	1.8473	95
100	0.0588	445.5	1.8718	0.0559	445.3	1.8674	0.0532	445.1	1.8632	0.0508	444.9	1.8592	100
105	0.0597	449.9	1.8835	0.0567	449.7	1.8792	0.0541	449.5	1.8750	0.0516	449.4	1.8710	105
110	0.0606	454.4	1.8952	0.0576	454.2	1.8909	0.0549	454.0	1.8867	0.0524	453.8	1.8828	110
115	0.0615	458.8	1.9068	0.0584	458.7	1.9025	0.0557	458.5	1.8984	0.0532	458.3	1.8944	115
120	0.0623	463.4	1.9184	0.0593	463.2	1.9141	0.0565	463.0	1.9099	0.0539	462.8	1.9060	120
125	0.0632	467.9	1.9299	0.0601	467.7	1.9256	0.0573	467.6	1.9214	0.0547	467.4	1.9175	125
130	0.0641	472.5	1.9413	0.0610	472.3	1.9370	0.0581	472.1	1.9329	0.0555	472.0	1.9289	130
135	0.0650	477.1	1.9526	0.0618	476.9	1.9483	0.0589	476.7	1.9442	0.0563	476.6	1.9403	135
140	0.0659	481.7	1.9638	0.0626	481.5	1.9596	0.0597	481.4	1.9555	0.0570	481.2	1.9516	140
145	0.0667	486.3	1.9750	0.0635	486.2	1.9708	0.0605	486.0	1.9667	0.0578	485.9	1.9628	145
150	—	—	—	—	—	—	0.0613	490.7	1.9778	0.0586	490.6	1.9739	150

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	600.0			625.0			650.0			675.0			TEMP. °C
	(-1.71°C)			(-0.43°C)			(0.81°C)			(2.02°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0323)	(360.5)	(1.5928)	(0.0310)	(361.1)	(1.5921)	(0.0298)	(361.7)	(1.5915)	(0.0287)	(362.3)	(1.5909)	
0	0.0326	361.8	1.5977	0.0311	361.4	1.5934	—	—	—	—	—	—	0
5	0.0335	365.7	1.6118	0.0319	365.4	1.6076	0.0305	365.0	1.6034	0.0292	364.6	1.5994	5
10	0.0343	369.7	1.6258	0.0328	369.3	1.6216	0.0313	369.0	1.6175	0.0300	368.6	1.6136	10
15	0.0352	373.6	1.6396	0.0336	373.3	1.6355	0.0321	372.9	1.6314	0.0308	372.6	1.6275	15
20	0.0360	377.6	1.6532	0.0344	377.2	1.6491	0.0329	376.9	1.6452	0.0315	376.6	1.6413	20
25	0.0369	381.6	1.6667	0.0352	381.2	1.6627	0.0337	380.9	1.6588	0.0323	380.6	1.6549	25
30	0.0377	385.6	1.6801	0.0360	385.3	1.6761	0.0345	385.0	1.6722	0.0330	384.7	1.6684	30
35	0.0385	389.6	1.6933	0.0368	389.3	1.6893	0.0352	389.0	1.6855	0.0338	388.7	1.6817	35
40	0.0393	393.7	1.7064	0.0376	393.4	1.7025	0.0360	393.1	1.6987	0.0345	392.8	1.6949	40
45	0.0401	397.8	1.7194	0.0384	397.5	1.7155	0.0367	397.2	1.7117	0.0352	397.0	1.7080	45
50	0.0409	401.9	1.7323	0.0391	401.6	1.7284	0.0375	401.4	1.7246	0.0360	401.1	1.7210	50
55	0.0417	406.1	1.7450	0.0399	405.8	1.7412	0.0382	405.6	1.7374	0.0367	405.3	1.7338	55
60	0.0425	410.2	1.7577	0.0406	410.0	1.7538	0.0390	409.7	1.7501	0.0374	409.5	1.7465	60
65	0.0432	414.4	1.7702	0.0414	414.2	1.7664	0.0397	414.0	1.7627	0.0381	413.7	1.7591	65
70	0.0440	418.7	1.7827	0.0421	418.5	1.7788	0.0404	418.2	1.7752	0.0388	418.0	1.7716	70
75	0.0448	423.0	1.7950	0.0429	422.7	1.7912	0.0411	422.5	1.7875	0.0395	422.3	1.7840	75
80	0.0456	427.2	1.8072	0.0436	427.0	1.8035	0.0419	426.8	1.7998	0.0402	426.6	1.7963	80
85	0.0463	431.6	1.8194	0.0444	431.4	1.8157	0.0426	431.1	1.8120	0.0409	430.9	1.8085	85
90	0.0471	435.9	1.8315	0.0451	435.7	1.8277	0.0433	435.5	1.8241	0.0416	435.3	1.8206	90
95	0.0479	440.3	1.8435	0.0458	440.1	1.8397	0.0440	439.9	1.8362	0.0423	439.7	1.8327	95
100	0.0486	444.7	1.8554	0.0466	444.5	1.8517	0.0447	444.3	1.8481	0.0430	444.1	1.8446	100
105	0.0494	449.2	1.8672	0.0473	449.0	1.8635	0.0454	448.8	1.8599	0.0436	448.6	1.8565	105
110	0.0501	453.6	1.8789	0.0480	453.4	1.8753	0.0461	453.3	1.8717	0.0443	453.1	1.8683	110
115	0.0509	458.1	1.8906	0.0487	458.0	1.8869	0.0468	457.8	1.8834	0.0450	457.6	1.8800	115
120	0.0516	462.7	1.9022	0.0495	462.5	1.8985	0.0475	462.3	1.8950	0.0457	462.1	1.8916	120
125	0.0524	467.2	1.9137	0.0502	467.0	1.9101	0.0482	466.9	1.9065	0.0463	466.7	1.9031	125
130	0.0531	471.8	1.9251	0.0509	471.6	1.9215	0.0489	471.5	1.9180	0.0470	471.3	1.9146	130
135	0.0538	476.4	1.9365	0.0516	476.2	1.9329	0.0496	476.1	1.9294	0.0477	475.9	1.9260	135
140	0.0546	481.0	1.9478	0.0523	480.9	1.9442	0.0502	480.7	1.9407	0.0483	480.6	1.9373	140
145	0.0553	485.7	1.9590	0.0530	485.6	1.9554	0.0509	485.4	1.9519	0.0490	485.2	1.9486	145
150	0.0561	490.4	1.9702	0.0537	490.3	1.9666	0.0516	490.1	1.9631	0.0496	490.0	1.9598	150
155	—	—	—	—	—	—	0.0523	494.8	1.9742	0.0503	494.7	1.9709	155

TEMP. °C	700.0			725.0			750.0			800.0			TEMP. °C
	(3.19°C)			(4.33°C)			(5.44°C)			(7.59°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0277)	(362.8)	(1.5903)	(0.0267)	(363.3)	(1.5898)	(0.0258)	(363.8)	(1.5892)	(0.0242)	(364.8)	(1.5882)	
5	0.0280	364.3	1.5955	0.0268	363.9	1.5917	—	—	—	—	—	—	5
10	0.0288	368.2	1.6097	0.0276	367.9	1.6059	0.0265	367.5	1.6023	0.0245	366.8	1.5951	10
15	0.0295	372.2	1.6237	0.0283	371.9	1.6200	0.0272	371.5	1.6164	0.0252	370.8	1.6094	15
20	0.0303	376.3	1.6376	0.0291	375.9	1.6339	0.0279	375.6	1.6303	0.0259	374.9	1.6234	20
25	0.0310	380.3	1.6512	0.0298	380.0	1.6476	0.0286	379.7	1.6441	0.0266	379.0	1.6373	25
30	0.0317	384.4	1.6647	0.0305	384.1	1.6612	0.0293	383.8	1.6577	0.0272	383.1	1.6509	30
35	0.0324	388.5	1.6781	0.0312	388.2	1.6746	0.0300	387.9	1.6711	0.0279	387.3	1.6645	35
40	0.0332	392.6	1.6913	0.0319	392.3	1.6878	0.0307	392.0	1.6844	0.0285	391.4	1.6778	40
45	0.0339	396.7	1.7044	0.0326	396.4	1.7010	0.0314	396.1	1.6976	0.0292	395.6	1.6911	45
50	0.0346	400.9	1.7174	0.0333	400.6	1.7140	0.0320	400.3	1.7106	0.0298	399.8	1.7042	50
55	0.0353	405.0	1.7303	0.0339	404.8	1.7268	0.0327	404.5	1.7235	0.0304	404.0	1.7171	55
60	0.0360	409.3	1.7430	0.0346	409.0	1.7396	0.0333	408.8	1.7363	0.0311	408.3	1.7300	60
65	0.0366	413.5	1.7556	0.0353	413.3	1.7523	0.0340	413.0	1.7490	0.0317	412.5	1.7427	65
70	0.0373	417.8	1.7682	0.0359	417.5	1.7648	0.0346	417.3	1.7616	0.0323	416.8	1.7553	70
75	0.0380	422.1	1.7806	0.0366	421.8	1.7772	0.0353	421.6	1.7740	0.0329	421.1	1.7678	75
80	0.0387	426.4	1.7929	0.0372	426.2	1.7896	0.0359	425.9	1.7864	0.0335	425.5	1.7802	80
85	0.0393	430.7	1.8051	0.0379	430.5	1.8018	0.0365	430.3	1.7986	0.0341	429.9	1.7925	85
90	0.0400	435.1	1.8173	0.0385	434.9	1.8140	0.0372	434.7	1.8108	0.0347	434.3	1.8047	90
95	0.0407	439.5	1.8293	0.0392	439.3	1.8261	0.0378	439.1	1.8229	0.0353	438.7	1.8168	95
100	0.0413	443.9	1.8413	0.0398	443.7	1.8380	0.0384	443.5	1.8349	0.0359	443.1	1.8288	100
105	0.0420	448.4	1.8532	0.0405	448.2	1.8499	0.0390	448.0	1.8468	0.0365	447.6	1.8408	105
110	0.0426	452.9	1.8649	0.0411	452.7	1.8617	0.0397	452.5	1.8586	0.0370	452.1	1.8526	110
115	0.0433	457.4	1.8767	0.0417	457.2	1.8735	0.0403	457.0	1.8703	0.0376	456.7	1.8644	115
120	0.0439	462.0	1.8883	0.0424	461.8	1.8851	0.0409	461.6	1.8820	0.0382	461.2	1.8761	120
125	0.0446	466.5	1.8999	0.0430	466.4	1.8967	0.0415	466.2	1.8936	0.0388	465.8	1.8877	125
130	0.0452	471.1	1.9113	0.0436	471.0	1.9082	0.0421	470.8	1.9051	0.0393	470.4	1.8992	130
135	0.0459	475.8	1.9227	0.0442	475.6	1.9196	0.0427	475.4	1.9165	0.0399	475.1	1.9106	135
140	0.0465	480.4	1.9341	0.0449	480.2	1.9309	0.0433	480.1	1.9279	0.0405	479.8	1.9220	140
145	0.0472	485.1	1.9453	0.0455	484.9	1.9422	0.0439	484.8	1.9391	0.0411	484.5	1.9333	145
150	0.0478	489.8	1.9565	0.0461	489.6	1.9534	0.0445	489.5	1.9504	0.0416	489.2	1.9445	150
155	0.0484	494.5	1.9677	0.0467	494.4	1.9645	0.0451	494.2	1.9615	0.0422	493.9	1.9557	155
160	—	—	—	—	—	—	0.0457	499.0	1.9726	0.0427	498.7	1.9668	160

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	850.0			900.0			950.0			1000.0			TEMP. °C
	(9.63°C)			(11.59°C)			(13.47°C)			(15.27°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0227)	(365.7)	(1.5872)	(0.0214)	(366.5)	(1.5862)	(0.0203)	(367.3)	(1.5853)	(0.0192)	(368.0)	(1.5844)	
10	0.0228	366.0	1.5882	—	—	—	—	—	—	—	—	—	10
15	0.0235	370.1	1.6026	0.0219	369.4	1.5961	0.0205	368.6	1.5898	—	—	—	15
20	0.0241	374.2	1.6168	0.0225	373.5	1.6104	0.0211	372.8	1.6042	0.0198	372.0	1.5982	20
25	0.0248	378.3	1.6307	0.0231	377.7	1.6244	0.0217	377.0	1.6184	0.0204	376.3	1.6125	25
30	0.0254	382.5	1.6445	0.0237	381.8	1.6383	0.0223	381.2	1.6324	0.0209	380.5	1.6266	30
35	0.0260	386.6	1.6581	0.0244	386.0	1.6520	0.0229	385.4	1.6461	0.0215	384.8	1.6405	35
40	0.0266	390.8	1.6716	0.0249	390.2	1.6655	0.0234	389.6	1.6598	0.0221	389.0	1.6542	40
45	0.0273	395.0	1.6849	0.0255	394.4	1.6789	0.0240	393.9	1.6732	0.0226	393.3	1.6677	45
50	0.0279	399.2	1.6980	0.0261	398.7	1.6921	0.0245	398.1	1.6865	0.0231	397.6	1.6810	50
55	0.0285	403.5	1.7110	0.0267	402.9	1.7052	0.0251	402.4	1.6996	0.0237	401.9	1.6943	55
60	0.0290	407.7	1.7239	0.0273	407.2	1.7182	0.0256	406.7	1.7126	0.0242	406.2	1.7073	60
65	0.0296	412.0	1.7367	0.0278	411.5	1.7310	0.0262	411.0	1.7255	0.0247	410.5	1.7203	65
70	0.0302	416.3	1.7494	0.0284	415.9	1.7437	0.0267	415.4	1.7383	0.0252	414.9	1.7331	70
75	0.0308	420.7	1.7619	0.0289	420.2	1.7563	0.0272	419.7	1.7509	0.0257	419.3	1.7457	75
80	0.0314	425.0	1.7744	0.0295	424.6	1.7688	0.0278	424.1	1.7634	0.0262	423.7	1.7583	80
85	0.0319	429.4	1.7867	0.0300	429.0	1.7811	0.0283	428.6	1.7759	0.0267	428.1	1.7708	85
90	0.0325	433.8	1.7989	0.0306	433.4	1.7934	0.0288	433.0	1.7882	0.0272	432.6	1.7831	90
95	0.0331	438.3	1.8111	0.0311	437.9	1.8056	0.0293	437.5	1.8004	0.0277	437.0	1.7954	95
100	0.0336	442.8	1.8231	0.0316	442.3	1.8177	0.0298	441.9	1.8125	0.0282	441.5	1.8075	100
105	0.0342	447.2	1.8351	0.0321	446.9	1.8297	0.0303	446.5	1.8245	0.0287	446.1	1.8196	105
110	0.0347	451.8	1.8470	0.0327	451.4	1.8416	0.0308	451.0	1.8364	0.0292	450.6	1.8315	110
115	0.0353	456.3	1.8588	0.0332	455.9	1.8534	0.0313	455.6	1.8483	0.0297	455.2	1.8434	115
120	0.0358	460.9	1.8705	0.0337	460.5	1.8651	0.0318	460.2	1.8600	0.0301	459.8	1.8552	120
125	0.0364	465.5	1.8821	0.0342	465.1	1.8768	0.0323	464.8	1.8717	0.0306	464.4	1.8669	125
130	0.0369	470.1	1.8936	0.0348	469.8	1.8883	0.0328	469.4	1.8833	0.0311	469.1	1.8785	130
135	0.0375	474.8	1.9051	0.0353	474.4	1.8998	0.0333	474.1	1.8948	0.0316	473.8	1.8900	135
140	0.0380	479.4	1.9165	0.0358	479.1	1.9112	0.0338	478.8	1.9062	0.0320	478.5	1.9015	140
145	0.0385	484.1	1.9278	0.0363	483.8	1.9226	0.0343	483.5	1.9176	0.0325	483.2	1.9129	145
150	0.0391	488.9	1.9391	0.0368	488.6	1.9338	0.0348	488.3	1.9289	0.0330	487.9	1.9242	150
155	0.0396	493.6	1.9502	0.0373	493.3	1.9450	0.0353	493.0	1.9401	0.0334	492.7	1.9354	155
160	0.0401	498.4	1.9613	0.0378	498.1	1.9562	0.0357	497.8	1.9512	0.0339	497.5	1.9465	160
165	—	—	—	0.0383	502.9	1.9672	0.0362	502.6	1.9623	0.0343	502.4	1.9576	165
170	—	—	—	—	—	—	—	—	—	0.0348	507.2	1.9686	170

TEMP. °C	1100.0			1200.0			1300.0			1400.0			TEMP. °C
	(18.69°C)			(21.87°C)			(24.87°C)			(27.70°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0174)	(369.4)	(1.5827)	(0.01580)	(370.5)	(1.581)	(0.0145)	(371.5)	(1.5793)	(0.0134)	(372.4)	(1.5777)	
20	0.0175	370.5	1.5865	—	—	—	—	—	—	—	—	—	20
25	0.0181	374.8	1.6011	0.0162	373.3	1.5903	0.0145	371.7	1.5797	—	—	—	25
30	0.0186	379.1	1.6155	0.0167	377.7	1.6049	0.0150	376.2	1.5947	0.0136	374.6	1.5847	30
35	0.0192	383.4	1.6296	0.0172	382.1	1.6192	0.0155	380.6	1.6093	0.0141	379.1	1.5997	35
40	0.0197	387.7	1.6435	0.0177	386.4	1.6334	0.0160	385.1	1.6237	0.0145	383.7	1.6143	40
45	0.0202	392.1	1.6572	0.0182	390.8	1.6472	0.0165	389.5	1.6378	0.0150	388.2	1.6286	45
50	0.0207	396.4	1.6707	0.0187	395.2	1.6609	0.0169	394.0	1.6516	0.0154	392.7	1.6427	50
55	0.0212	400.8	1.6840	0.0191	399.6	1.6744	0.0174	398.4	1.6653	0.0159	397.2	1.6566	55
60	0.0217	405.1	1.6972	0.0196	404.0	1.6878	0.0178	402.9	1.6788	0.0163	401.7	1.6702	60
65	0.0222	409.5	1.7103	0.0201	408.4	1.7009	0.0183	407.4	1.6921	0.0167	406.3	1.6837	65
70	0.0227	413.9	1.7232	0.0205	412.9	1.7140	0.0187	411.8	1.7053	0.0171	410.8	1.6970	70
75	0.0231	418.3	1.7360	0.0210	417.3	1.7269	0.0191	416.3	1.7183	0.0175	415.3	1.7101	75
80	0.0236	422.7	1.7486	0.0214	421.8	1.7396	0.0195	420.8	1.7311	0.0179	419.9	1.7231	80
85	0.0241	427.2	1.7612	0.0218	426.3	1.7522	0.0199	425.4	1.7438	0.0183	424.4	1.7359	85
90	0.0245	431.7	1.7736	0.0223	430.8	1.7648	0.0203	429.9	1.7564	0.0187	429.0	1.7486	90
95	0.0250	436.2	1.7859	0.0227	435.3	1.7772	0.0207	434.5	1.7689	0.0191	433.6	1.7611	95
100	0.0254	440.7	1.7981	0.0231	439.9	1.7894	0.0211	439.1	1.7813	0.0195	438.2	1.7736	100
105	0.0259	445.3	1.8103	0.0235	444.5	1.8016	0.0215	443.7	1.7935	0.0198	442.8	1.7859	105
110	0.0263	449.8	1.8223	0.0239	449.1	1.8137	0.0219	448.3	1.8057	0.0202	447.5	1.7981	110
115	0.0268	454.4	1.8342	0.0244	453.7	1.8257	0.0223	452.9	1.8177	0.0206	452.2	1.8102	115
120	0.0272	459.1	1.8460	0.0248	458.3	1.8376	0.0227	457.6	1.8297	0.0209	456.8	1.8222	120
125	0.0277	463.7	1.8578	0.0252	463.0	1.8494	0.0231	462.3	1.8415	0.0213	461.6	1.8341	125
130	0.0281	468.4	1.8694	0.0256	467.7	1.8611	0.0235	467.0	1.8533	0.0216	466.3	1.8459	130
135	0.0285	473.1	1.8810	0.0260	472.4	1.8727	0.0238	471.7	1.8649	0.0220	471.0	1.8576	135
140	0.0290	477.8	1.8925	0.0264	477.1	1.8842	0.0242	476.5	1.8765	0.0224	475.8	1.8693	140
145	0.0294	482.6	1.9039	0.0268	481.9	1.8957	0.0246	481.3	1.8880	0.0227	480.6	1.8808	145
150	0.0298	487.3	1.9153	0.0272	486.7	1.9071	0.0250	486.1	1.8994	0.0231	485.4	1.8923	150
155	0.0302	492.1	1.9265	0.0276	491.5	1.9184	0.0253	490.9	1.9108	0.0234	490.3	1.9036	155
160	0.0307	496.9	1.9377	0.0280	496.3	1.9296	0.0257	495.7	1.9220	0.0237	495.1	1.9149	160
165	0.0311	501.8	1.9488	0.0284	501.2	1.9407	0.0261	500.6	1.9332	0.0241	500.0	1.9261	165
170	0.0315	506.6	1.9599	0.0287	506.1	1.9518	0.0264	505.5	1.9443	0.0244	504.9	1.9373	170
175	—	—	—	0.0291	511.0	1.9628	0.0268	510.4	1.9553	0.0248	509.9	1.9483	175
180	—	—	—	—	—	—	—	—	—	0.0251	514.8	1.9593	180

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	1500.0			1600.0			1700.0			1800.0			TEMP. °C
	(30.38°C)			(32.93°C)			(35.36°C)			(37.69°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0124)	(373.2)	(1.5760)	(0.0115)	(373.9)	(1.5743)	(0.0107)	(374.5)	(1.5726)	(0.0100)	(375.0)	(1.5709)	
35	0.0128	377.6	1.5902	0.0117	375.9	1.5808	—	—	—	—	—	—	35
40	0.0133	382.2	1.6052	0.0121	380.7	1.5962	0.0111	379.0	1.5873	0.0102	377.3	1.5783	40
45	0.0137	386.8	1.6198	0.0126	385.4	1.6111	0.0116	383.9	1.6026	0.0107	382.3	1.5941	45
50	0.0141	391.4	1.6341	0.0130	390.1	1.6257	0.0120	388.6	1.6175	0.0111	387.2	1.6094	50
55	0.0146	396.0	1.6482	0.0134	394.7	1.6400	0.0124	393.4	1.6320	0.0115	392.0	1.6242	55
60	0.0150	400.6	1.6620	0.0138	399.4	1.6540	0.0128	398.1	1.6463	0.0119	396.8	1.6387	60
65	0.0154	405.1	1.6756	0.0142	404.0	1.6678	0.0132	402.8	1.6603	0.0122	401.6	1.6529	65
70	0.0158	409.7	1.6890	0.0146	408.6	1.6814	0.0135	407.5	1.6740	0.0126	406.3	1.6668	70
75	0.0162	414.3	1.7023	0.0149	413.2	1.6948	0.0139	412.2	1.6876	0.0129	411.1	1.6805	75
80	0.0165	418.9	1.7154	0.0153	417.9	1.7080	0.0142	416.8	1.7009	0.0133	415.8	1.6940	80
85	0.0169	423.5	1.7283	0.0157	422.5	1.7210	0.0146	421.5	1.7141	0.0136	420.5	1.7073	85
90	0.0173	428.1	1.7411	0.0160	427.2	1.7339	0.0149	426.2	1.7270	0.0139	425.2	1.7204	90
95	0.0176	432.7	1.7537	0.0164	431.8	1.7467	0.0153	430.9	1.7399	0.0143	430.0	1.7334	95
100	0.0180	437.4	1.7662	0.0167	436.5	1.7593	0.0156	435.6	1.7526	0.0146	434.7	1.7462	100
105	0.0184	442.0	1.7786	0.0171	441.2	1.7717	0.0159	440.3	1.7651	0.0149	439.5	1.7588	105
110	0.0187	446.7	1.7909	0.0174	445.9	1.7841	0.0162	445.0	1.7776	0.0152	444.2	1.7713	110
115	0.0191	451.4	1.8031	0.0177	450.6	1.7963	0.0165	449.8	1.7899	0.0155	449.0	1.7837	115
120	0.0194	456.1	1.8152	0.0181	455.3	1.8085	0.0169	454.6	1.8021	0.0158	453.8	1.7959	120
125	0.0197	460.8	1.8271	0.0184	460.1	1.8205	0.0172	459.3	1.8142	0.0161	458.6	1.8081	125
130	0.0201	465.6	1.8390	0.0187	464.9	1.8324	0.0175	464.1	1.8261	0.0164	463.4	1.8201	130
135	0.0204	470.3	1.8508	0.0190	469.7	1.8442	0.0178	469.0	1.8380	0.0167	468.2	1.8320	135
140	0.0207	475.1	1.8624	0.0193	474.5	1.8559	0.0181	473.8	1.8498	0.0170	473.1	1.8439	140
145	0.0211	480.0	1.8740	0.0197	479.3	1.8676	0.0184	478.6	1.8614	0.0173	478.0	1.8556	145
150	0.0214	484.8	1.8855	0.0200	484.2	1.8791	0.0187	483.5	1.8730	0.0176	482.9	1.8672	150
155	0.0217	489.7	1.8969	0.0203	489.0	1.8906	0.0190	488.4	1.8845	0.0178	487.8	1.8788	155
160	0.0221	494.5	1.9083	0.0206	493.9	1.9019	0.0193	493.3	1.8959	0.0181	492.7	1.8902	160
165	0.0224	499.4	1.9195	0.0209	498.8	1.9132	0.0196	498.2	1.9073	0.0184	497.7	1.9016	165
170	0.0227	504.4	1.9307	0.0212	503.8	1.9244	0.0199	503.2	1.9185	0.0187	502.6	1.9128	170
175	0.0230	509.3	1.9418	0.0215	508.7	1.9355	0.0202	508.2	1.9296	0.0190	507.6	1.9240	175
180	0.0233	514.3	1.9528	0.0218	513.7	1.9466	0.0204	513.2	1.9407	0.0192	512.6	1.9351	180
185	0.0237	519.2	1.9637	0.0221	518.7	1.9576	0.0207	518.2	1.9517	0.0195	517.6	1.9462	185
190	—	—	—	—	—	—	0.0210	523.2	1.9626	0.0198	522.7	1.9571	190

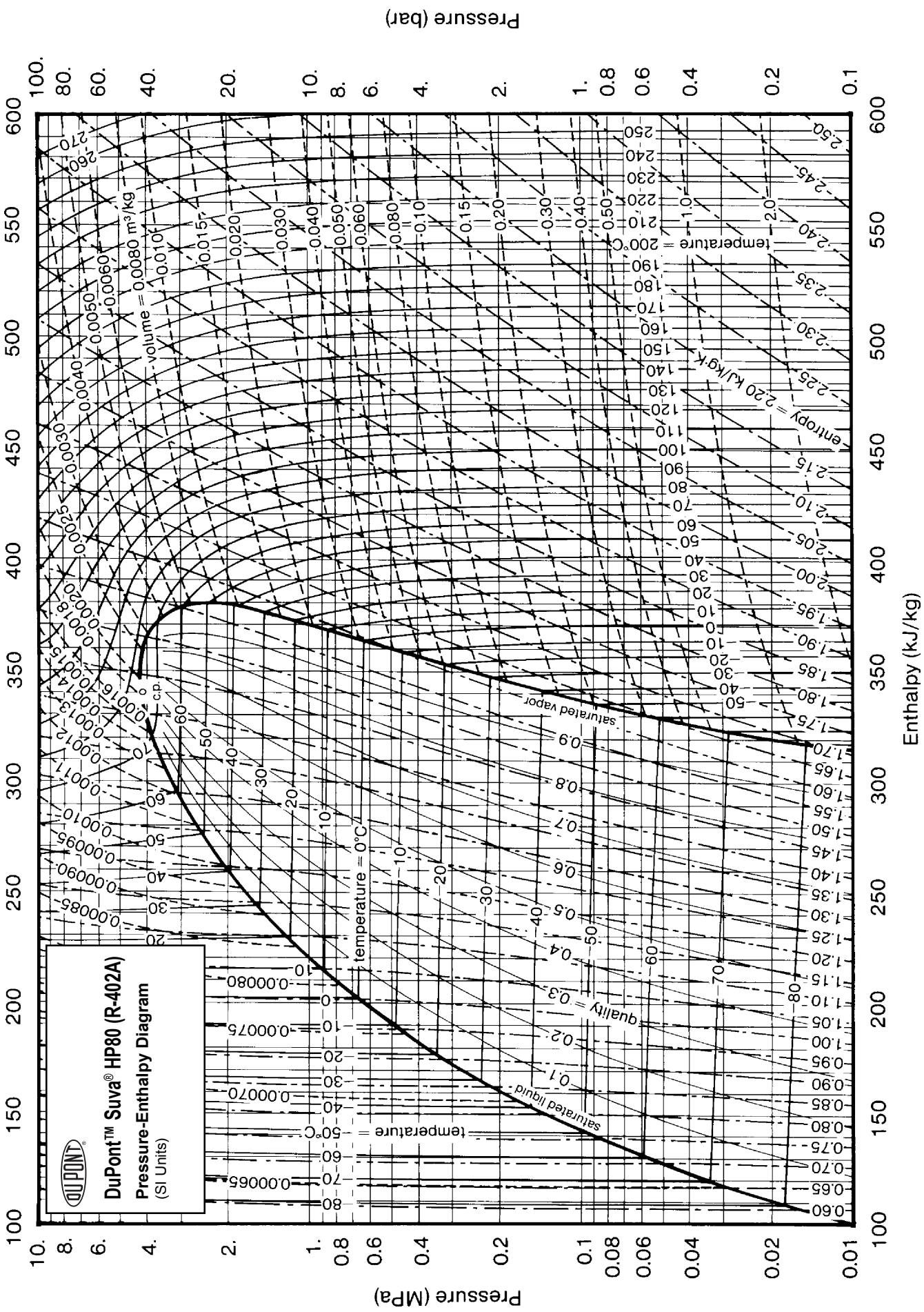
TEMP. °C	1900.0			2000.0			2200.0			2400.0			TEMP. °C
	(39.93°C)			(42.07°C)			(46.14°C)			(49.93°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0094)	(375.4)	(1.5691)	(0.0088)	(375.7)	(1.5672)	(0.0078)	(376.1)	(1.5633)	(0.0070)	(376.2)	(1.5590)	
40	0.0094	375.5	1.5693	—	—	—	—	—	—	—	—	—	40
45	0.0098	380.6	1.5856	0.0091	378.8	1.5770	—	—	—	—	—	—	45
50	0.0102	385.6	1.6013	0.0095	384.0	1.5932	0.0082	380.4	1.5767	0.0070	376.3	1.5592	50
55	0.0106	390.6	1.6165	0.0099	389.1	1.6088	0.0086	385.9	1.5934	0.0074	382.2	1.5774	55
60	0.0110	395.5	1.6313	0.0103	394.1	1.6239	0.0089	391.1	1.6093	0.0078	387.9	1.5945	60
65	0.0114	400.3	1.6457	0.0106	399.0	1.6386	0.0093	396.3	1.6246	0.0082	393.3	1.6106	65
70	0.0117	405.1	1.6598	0.0110	403.9	1.6530	0.0096	401.3	1.6395	0.0085	398.6	1.6262	70
75	0.0121	409.9	1.6737	0.0113	408.8	1.6670	0.0100	406.3	1.6540	0.0088	403.8	1.6413	75
80	0.0124	414.7	1.6873	0.0116	413.6	1.6808	0.0103	411.3	1.6682	0.0091	408.9	1.6559	80
85	0.0127	419.5	1.7008	0.0119	418.4	1.6944	0.0106	416.3	1.6821	0.0094	414.0	1.6702	85
90	0.0131	424.2	1.7140	0.0123	423.2	1.7078	0.0109	421.2	1.6957	0.0097	419.1	1.6842	90
95	0.0134	429.0	1.7271	0.0126	428.1	1.7209	0.0112	426.1	1.7092	0.0100	424.1	1.6979	95
100	0.0137	433.8	1.7399	0.0129	432.9	1.7339	0.0115	431.0	1.7224	0.0103	429.1	1.7114	100
105	0.0140	438.6	1.7527	0.0132	437.7	1.7468	0.0117	435.9	1.7354	0.0105	434.0	1.7246	105
110	0.0143	443.4	1.7653	0.0134	442.5	1.7594	0.0120	440.8	1.7483	0.0108	439.0	1.7377	110
115	0.0146	448.2	1.7777	0.0137	447.4	1.7720	0.0123	445.7	1.7610	0.0111	444.0	1.7506	115
120	0.0149	453.0	1.7901	0.0140	452.2	1.7844	0.0125	450.6	1.7736	0.0113	449.0	1.7633	120
125	0.0152	457.8	1.8023	0.0143	457.1	1.7967	0.0128	455.5	1.7860	0.0116	453.9	1.7759	125
130	0.0154	462.7	1.8144	0.0146	461.9	1.8088	0.0131	460.4	1.7983	0.0118	458.9	1.7883	130
135	0.0157	467.5	1.8263	0.0148	466.8	1.8208	0.0133	465.4	1.8104	0.0120	463.9	1.8006	135
140	0.0160	472.4	1.8382	0.0151	471.7	1.8328	0.0136	470.3	1.8225	0.0123	468.9	1.8128	140
145	0.0163	477.3	1.8500	0.0154	476.6	1.8446	0.0138	475.3	1.8344	0.0125	473.9	1.8248	145
150	0.0165	482.2	1.8617	0.0156	481.6	1.8563	0.0141	480.2	1.8462	0.0127	478.9	1.8367	150
155	0.0168	487.1	1.8732	0.0159	486.5	1.8679	0.0143	485.2	1.8579	0.0130	483.9	1.8485	155
160	0.0171	492.1	1.8847	0.0162	491.5	1.8795	0.0145	490.2	1.8695	0.0132	489.0	1.8602	160
165	0.0174	497.1	1.8961	0.0164	496.5	1.8909	0.0148	495.2	1.8810	0.0134	494.0	1.8718	165
170	0.0176	502.0	1.9074	0.0167	501.5	1.9022	0.0150	500.3	1.8925	0.0136	499.1	1.8833	170
175	0.0179	507.0	1.9187	0.0169	506.5	1.9135	0.0153	505.3	1.9038	0.0139	504.2	1.8947	175
180	0.0181	512.1	1.9298	0.0172	511.5	1.9247	0.0155	510.4	1.9150	0.0141	509.3	1.9060	180
185	0.0184	517.1	1.9409	0.0174	516.6	1.9358	0.0157	515.5	1.9262	0.0143	514.4	1.9173	185
190	0.0187	522.2	1.9518	0.0177	521.6	1.9468	0.0159	520.6	1.9373	0.0145	519.5	1.9284	190
195	—	—	—	0.0179	526.7	1.9577	0.0162	525.7	1.9482	0.0147	524.7	1.9394	195
200	—	—	—	—	—	—	0.0164	530.8	1.9591	0.0149	529.8	1.9504	200

Table 2 (continued)
Suva® HP80 Superheated Vapor—Constant Pressure Tables

V = Volume in m³/kg H = Enthalpy in kJ/kg S = Entropy in kJ/(kg) (K) (Saturation Properties in parentheses)

ABSOLUTE PRESSURE, kPa													
TEMP. °C	2600.0			2800.0			3000.0			3200.0			TEMP. °C
	(53.50°C)			(56.86°C)			(60.05°C)			(63.07°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0062)	(376.0)	(1.5543)	(0.0056)	(375.5)	(1.5491)	(0.0050)	(374.6)	(1.5432)	(0.0045)	(373.3)	(1.5364)	
55	0.0064	378.0	1.5603	—	—	—	—	—	—	—	—	—	55
60	0.0068	384.2	1.5791	0.0059	379.9	1.5624	—	—	—	—	—	—	60
65	0.0072	390.0	1.5964	0.0063	386.3	1.5816	0.0055	382.1	1.5655	0.0047	376.8	1.5468	65
70	0.0075	395.6	1.6129	0.0067	392.4	1.5993	0.0059	388.7	1.5850	0.0052	384.5	1.5695	70
75	0.0079	401.1	1.6286	0.0070	398.1	1.6159	0.0063	394.9	1.6029	0.0056	391.3	1.5893	75
80	0.0082	406.4	1.6438	0.0073	403.7	1.6318	0.0066	400.8	1.6197	0.0059	397.7	1.6073	80
85	0.0085	411.6	1.6586	0.0076	409.1	1.6471	0.0069	406.5	1.6357	0.0062	403.7	1.6241	85
90	0.0087	416.8	1.6730	0.0079	414.5	1.6620	0.0072	412.0	1.6511	0.0065	409.4	1.6402	90
95	0.0090	422.0	1.6870	0.0082	419.8	1.6764	0.0074	417.5	1.6660	0.0068	415.1	1.6556	95
100	0.0093	427.1	1.7008	0.0084	425.0	1.6905	0.0077	422.8	1.6804	0.0070	420.6	1.6705	100
105	0.0095	432.1	1.7143	0.0087	430.2	1.7043	0.0079	428.1	1.6946	0.0073	426.1	1.6850	105
110	0.0098	437.2	1.7276	0.0089	435.3	1.7178	0.0082	433.4	1.7084	0.0075	431.4	1.6991	110
115	0.0100	442.3	1.7407	0.0092	440.5	1.7312	0.0084	438.6	1.7219	0.0077	436.8	1.7130	115
120	0.0103	447.3	1.7536	0.0094	445.6	1.7443	0.0086	443.8	1.7353	0.0079	442.1	1.7265	120
125	0.0105	452.3	1.7663	0.0096	450.7	1.7572	0.0088	449.0	1.7484	0.0081	447.3	1.7398	125
130	0.0107	457.4	1.7789	0.0098	455.8	1.7699	0.0090	454.2	1.7613	0.0084	452.6	1.7529	130
135	0.0110	462.4	1.7913	0.0101	460.9	1.7825	0.0093	459.4	1.7740	0.0086	457.8	1.7658	135
140	0.0112	467.5	1.8036	0.0103	466.0	1.7949	0.0095	464.5	1.7866	0.0088	463.0	1.7785	140
145	0.0114	472.5	1.8158	0.0105	471.1	1.8072	0.0097	469.7	1.7990	0.0089	468.2	1.7911	145
150	0.0116	477.6	1.8278	0.0107	476.2	1.8193	0.0099	474.8	1.8112	0.0091	473.4	1.8035	150
155	0.0119	482.6	1.8397	0.0109	481.3	1.8313	0.0101	480.0	1.8233	0.0093	478.7	1.8157	155
160	0.0121	487.7	1.8515	0.0111	486.4	1.8432	0.0103	485.2	1.8353	0.0095	483.9	1.8278	160
165	0.0123	492.8	1.8632	0.0113	491.6	1.8550	0.0104	490.3	1.8472	0.0097	489.1	1.8398	165
170	0.0125	497.9	1.8748	0.0115	496.7	1.8667	0.0106	495.5	1.8590	0.0099	494.3	1.8516	170
175	0.0127	503.0	1.8862	0.0117	501.9	1.8782	0.0108	500.7	1.8706	0.0101	499.5	1.8633	175
180	0.0129	508.2	1.8976	0.0119	507.0	1.8897	0.0110	505.9	1.8821	0.0102	504.7	1.8749	180
185	0.0131	513.3	1.9089	0.0121	512.2	1.9010	0.0112	511.1	1.8935	0.0104	510.0	1.8864	185
190	0.0133	518.4	1.9201	0.0123	517.4	1.9123	0.0114	516.3	1.9049	0.0106	515.2	1.8978	190
195	0.0135	523.6	1.9312	0.0125	522.6	1.9235	0.0115	521.5	1.9161	0.0108	520.5	1.9091	195
200	0.0137	528.8	1.9422	0.0126	527.8	1.9345	0.0117	526.8	1.9272	0.0109	525.8	1.9203	200
205	0.0139	534.0	1.9532	0.0128	533.0	1.9455	0.0119	532.0	1.9383	0.0111	531.0	1.9314	205
210	—	—	—	0.0130	538.3	1.9564	0.0121	537.3	1.9492	0.0113	536.3	1.9424	210
215	—	—	—	—	—	—	0.0123	542.6	1.9601	0.0114	541.6	1.9533	215

TEMP. °C	3400.0			3600.0			3800.0			4000.0			TEMP. °C
	(65.96°C)			(68.72°C)			(71.35°C)			(73.87°C)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0041)	(371.5)	(1.5285)	(0.0036)	(368.9)	(1.5188)	(0.0032)	(365.3)	(1.5062)	(0.0027)	(359.1)	(1.4867)	
70	0.0045	379.4	1.5519	0.0038	372.5	1.5292	—	—	—	—	—	—	70
75	0.0049	387.3	1.5746	0.0043	382.5	1.5581	0.0037	376.3	1.5382	0.0030	366.6	1.5083	75
80	0.0053	394.2	1.5943	0.0047	390.3	1.5805	0.0042	385.9	1.5653	0.0037	380.5	1.5478	80
85	0.0056	400.6	1.6123	0.0051	397.3	1.6001	0.0046	393.6	1.5872	0.0041	389.5	1.5732	85
90	0.0059	406.7	1.6292	0.0054	403.8	1.6180	0.0049	400.6	1.6065	0.0044	397.2	1.5945	90
95	0.0062	412.6	1.6453	0.0057	409.9	1.6348	0.0052	407.1	1.6243	0.0047	404.1	1.6134	95
100	0.0064	418.3	1.6607	0.0059	415.8	1.6509	0.0054	413.3	1.6410	0.0050	410.6	1.6310	100
105	0.0067	423.9	1.6756	0.0061	421.6	1.6662	0.0057	419.3	1.6569	0.0052	416.8	1.6476	105
110	0.0069	429.4	1.6901	0.0064	427.3	1.6811	0.0059	425.1	1.6723	0.0055	422.9	1.6634	110
115	0.0071	434.8	1.7042	0.0066	432.9	1.6956	0.0061	430.8	1.6871	0.0057	428.7	1.6787	115
120	0.0073	440.2	1.7180	0.0068	438.4	1.7097	0.0063	436.5	1.7015	0.0059	434.5	1.6934	120
125	0.0075	445.6	1.7315	0.0070	443.8	1.7234	0.0065	442.0	1.7155	0.0061	440.2	1.7077	125
130	0.0077	450.9	1.7448	0.0072	449.2	1.7370	0.0067	447.5	1.7293	0.0063	445.8	1.7217	130
135	0.0079	456.2	1.7579	0.0074	454.6	1.7502	0.0069	453.0	1.7427	0.0065	451.3	1.7354	135
140	0.0081	461.5	1.7708	0.0076	460.0	1.7633	0.0071	458.4	1.7559	0.0066	456.8	1.7488	140
145	0.0083	466.8	1.7835	0.0078	465.3	1.7761	0.0073	463.8	1.7689	0.0068	462.3	1.7620	145
150	0.0085	472.0	1.7960	0.0079	470.6	1.7887	0.0074	469.2	1.7817	0.0070	467.7	1.7749	150
155	0.0087	477.3	1.8083	0.0081	475.9	1.8012	0.0076	474.6	1.7943	0.0072	473.2	1.7877	155
160	0.0089	482.6	1.8205	0.0083	481.2	1.8135	0.0078	479.9	1.8068	0.0073	478.6	1.8002	160
165	0.0090	487.8	1.8326	0.0085	486.5	1.8257	0.0079	485.3	1.8191	0.0075	484.0	1.8126	165
170	0.0092	493.1	1.8445	0.0086	491.8	1.8377	0.0081	490.6	1.8312	0.0076	489.4	1.8249	170
175	0.0094	498.3	1.8563	0.0088	497.1	1.8496	0.0083	496.0	1.8432	0.0078	494.8	1.8369	175
180	0.0096	503.6	1.8680	0.0090	502.5	1.8614	0.0084	501.3	1.8550	0.0079	500.1	1.8489	180
185	0.0097	508.9	1.8796	0.0091	507.8	1.8731	0.0086	506.6	1.8668	0.0081	505.5	1.8607	185
190	0.0099	514.2	1.8911	0.0093	513.1	1.8846	0.0087	512.0	1.8784	0.0082	510.9	1.8724	190
195	0.0101	519.4	1.9024	0.0094	518.4	1.8960	0.0089	517.4	1.8899	0.0084	516.3	1.8840	195
200	0.0102	524.7	1.9137	0.0096	523.7	1.9074	0.0090	522.7	1.9013	0.0085	521.7	1.8954	200
205	0.0104	530.1	1.9249	0.0097	529.1	1.9186	0.0092	528.1	1.9126	0.0087	527.1	1.9068	205
210	0.0105	535.4	1.9359	0.0099	534.4	1.9297	0.0093	533.4	1.9237	0.0088	532.5	1.9180	210
215	0.0107	540.7	1.9469	0.0101	539.8	1.9407	0.0095	538.8	1.9348	0.0090	537.9	1.9291	215
220	0.0109	546.0	1.9578	0.0102	545.1	1.9517	0.0096	544.2	1.9458	0.0091	543.3	1.9402	220
225	—	—	—	—	—	—	0.0098	549.6	1.9567	0.0092	548.7	1.9511	225



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