

DuPont™ ISCEON® 9 Series

REFRIGERANTS

Technical Information

Thermodynamic Properties of DuPont™ ISCEON® M059 (R-417A) ENG Units



The miracles of science™

Thermodynamic Properties of DuPont™ ISCEON® MO59 Refrigerant (R-417A) (R-125/R-134a/R-600 – 46.6/50/0/3.4% by weight)

Eng Units

Tables of the thermodynamic properties of ISCEON® MO59 (R-417A) have been developed and are presented here. This information is based on values calculated using the NIST REFPROP Database (McLinden, M.O., Klein, S.A., Lemmon, E.W., and Peskin, A.P., NIST Standard Reference Database 23, NIST thermodynamic and transport properties of refrigerants and refrigerant mixtures – REFPROP version 7.0, Standard Reference Data Program, National Institute of Standards and Technology, 2005).

Units

P = Pressure in psia

T = Temperature in Fahrenheit

V_f = Fluid (liquid) specific volume in cubic ft per pound mass

V_g = Vapor (gas) specific volume in cubic ft per pound mass

d_f = Density of saturated vapor in pounds per cubic foot

d_g = Density of saturated liquid in pounds per cubic foot

h = Enthalpy (BTU/lb)

s = Entropy (BTU/lb·R)

Reference points for Enthalpy and Entropy:

$h_f = 0$ BTU/lb at -40°F

$s_f = 0$ BTU/lb·R at -40°F

Physical Properties

Chemical Formula	$\text{CHF}_2\text{CF}_3/\text{CH}_2\text{FCF}_3/\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$ (46.6/50.0/3.4% by weight)
Molecular mass	106.75
Boiling Point At one atmosphere	-38.42°F
Critical Temperature	188.7°F
Critical Pressure	585.3 psia
Critical Density	32.53 lb/ft ³
Critical Volume	0.0307 ft ³ /lb

Table 1
DuPont™ ISCEON® MO59 (R-417A) Saturation Properties—Temperature Table

TEMP. °F	PRESSURE (psia)		VOLUME (ft ³ /lb)		DENSITY (lb/ft ³)		ENTHALPY (BTU/lb)			ENTROPY (BTU/lb-R)		TEMP. °F
	LIQUID	VAPOR	LIQUID v _l	VAPOR v _g	LIQUID d _l	VAPOR d _g	LIQUID h _l	LATENT h _{lg}	VAPOR h _g	LIQUID s _l	VAPOR s _g	
-150	0.23	0.12	0.0102	262.2600	97.73	0.0038	-31.9	100.7	68.9	-0.0879	0.2437	-150
-149	0.25	0.13	0.0102	247.9200	97.63	0.0040	-31.6	100.6	69.0	-0.0870	0.2430	-149
-148	0.26	0.13	0.0103	234.4600	97.52	0.0043	-31.3	100.4	69.1	-0.0861	0.2424	-148
-147	0.27	0.14	0.0103	221.8400	97.42	0.0045	-31.0	100.3	69.3	-0.0851	0.2418	-147
-146	0.29	0.15	0.0103	209.9900	97.31	0.0048	-30.7	100.1	69.4	-0.0842	0.2411	-146
-145	0.30	0.16	0.0103	198.8600	97.21	0.0050	-30.4	100.0	69.6	-0.0833	0.2405	-145
-144	0.32	0.17	0.0103	188.4000	97.10	0.0053	-30.1	99.8	69.7	-0.0824	0.2399	-144
-143	0.34	0.18	0.0103	178.5700	97.00	0.0056	-29.8	99.7	69.9	-0.0814	0.2393	-143
-142	0.35	0.19	0.0103	169.3300	96.89	0.0059	-29.5	99.5	70.0	-0.0805	0.2387	-142
-141	0.37	0.20	0.0103	160.6300	96.79	0.0062	-29.3	99.4	70.1	-0.0796	0.2381	-141
-140	0.39	0.21	0.0103	152.4400	96.69	0.0066	-29.0	99.3	70.3	-0.0787	0.2375	-140
-139	0.41	0.22	0.0104	144.7300	96.58	0.0069	-28.7	99.1	70.4	-0.0778	0.2370	-139
-138	0.43	0.23	0.0104	137.4600	96.48	0.0073	-28.4	99.0	70.6	-0.0769	0.2364	-138
-137	0.45	0.25	0.0104	130.6100	96.37	0.0077	-28.1	98.8	70.7	-0.0760	0.2359	-137
-136	0.47	0.26	0.0104	124.1600	96.27	0.0081	-27.8	98.7	70.9	-0.0751	0.2353	-136
-135	0.50	0.28	0.0104	118.0700	96.17	0.0085	-27.5	98.5	71.0	-0.0742	0.2348	-135
-134	0.52	0.29	0.0104	112.3200	96.07	0.0089	-27.2	98.4	71.2	-0.0733	0.2342	-134
-133	0.55	0.31	0.0104	106.8900	95.96	0.0094	-26.9	98.2	71.3	-0.0725	0.2337	-133
-132	0.57	0.32	0.0104	101.7600	95.86	0.0098	-26.7	98.1	71.4	-0.0716	0.2332	-132
-131	0.60	0.34	0.0104	96.9180	95.76	0.0103	-26.4	98.0	71.6	-0.0707	0.2326	-131
-130	0.63	0.36	0.0105	92.3390	95.65	0.0108	-26.1	97.8	71.7	-0.0698	0.2321	-130
-129	0.66	0.38	0.0105	88.0090	95.55	0.0114	-25.8	97.7	71.9	-0.0690	0.2316	-129
-128	0.69	0.40	0.0105	83.9120	95.45	0.0119	-25.5	97.5	72.0	-0.0681	0.2311	-128
-127	0.72	0.42	0.0105	80.0360	95.35	0.0125	-25.2	97.4	72.2	-0.0672	0.2306	-127
-126	0.75	0.44	0.0105	76.3660	95.24	0.0131	-24.9	97.2	72.3	-0.0664	0.2302	-126
-125	0.79	0.46	0.0105	72.8890	95.14	0.0137	-24.6	97.1	72.5	-0.0655	0.2297	-125
-124	0.82	0.48	0.0105	69.5960	95.04	0.0144	-24.4	97.0	72.6	-0.0647	0.2292	-124
-123	0.86	0.51	0.0105	66.4740	94.94	0.0150	-24.1	96.8	72.8	-0.0638	0.2287	-123
-122	0.90	0.53	0.0105	63.5150	94.84	0.0157	-23.8	96.7	72.9	-0.0629	0.2283	-122
-121	0.94	0.56	0.0106	60.7070	94.73	0.0165	-23.5	96.5	73.0	-0.0621	0.2278	-121
-120	0.98	0.59	0.0106	58.0430	94.63	0.0172	-23.2	96.4	73.2	-0.0613	0.2274	-120
-119	1.02	0.61	0.0106	55.5150	94.53	0.0180	-22.9	96.3	73.3	-0.0604	0.2269	-119
-118	1.06	0.64	0.0106	53.1140	94.43	0.0188	-22.6	96.1	73.5	-0.0596	0.2265	-118
-117	1.11	0.67	0.0106	50.8340	94.33	0.0197	-22.3	96.0	73.6	-0.0587	0.2260	-117
-116	1.16	0.71	0.0106	48.6670	94.22	0.0205	-22.1	95.8	73.8	-0.0579	0.2256	-116
-115	1.20	0.74	0.0106	46.6080	94.12	0.0215	-21.8	95.7	73.9	-0.0571	0.2252	-115
-114	1.26	0.77	0.0106	44.6490	94.02	0.0224	-21.5	95.6	74.1	-0.0562	0.2248	-114
-113	1.31	0.81	0.0106	42.7870	93.92	0.0234	-21.2	95.4	74.2	-0.0554	0.2244	-113
-112	1.36	0.85	0.0107	41.0140	93.82	0.0244	-20.9	95.3	74.4	-0.0546	0.2240	-112
-111	1.42	0.89	0.0107	39.3270	93.71	0.0254	-20.6	95.2	74.5	-0.0537	0.2236	-111
-110	1.48	0.93	0.0107	37.7210	93.61	0.0265	-20.3	95.0	74.7	-0.0529	0.2232	-110
-109	1.54	0.97	0.0107	36.1920	93.51	0.0276	-20.1	94.9	74.8	-0.0521	0.2228	-109
-108	1.60	1.01	0.0107	34.7350	93.41	0.0288	-19.8	94.7	75.0	-0.0513	0.2224	-108
-107	1.66	1.06	0.0107	33.3460	93.31	0.0300	-19.5	94.6	75.1	-0.0505	0.2220	-107
-106	1.73	1.10	0.0107	32.0220	93.21	0.0312	-19.2	94.5	75.3	-0.0497	0.2216	-106
-105	1.80	1.15	0.0107	30.7590	93.10	0.0325	-18.9	94.3	75.4	-0.0489	0.2213	-105
-104	1.87	1.20	0.0108	29.5550	93.00	0.0338	-18.6	94.2	75.6	-0.0480	0.2209	-104
-103	1.94	1.25	0.0108	28.4060	92.90	0.0352	-18.3	94.0	75.7	-0.0472	0.2205	-103
-102	2.01	1.31	0.0108	27.3090	92.80	0.0366	-18.0	93.9	75.9	-0.0464	0.2202	-102
-101	2.09	1.36	0.0108	26.2610	92.70	0.0381	-17.8	93.8	76.0	-0.0456	0.2198	-101
-100	2.17	1.42	0.0108	25.2610	92.60	0.0396	-17.5	93.6	76.2	-0.0448	0.2195	-100
-99	2.25	1.48	0.0108	24.3060	92.49	0.0411	-17.2	93.5	76.3	-0.0440	0.2191	-99
-98	2.34	1.54	0.0108	23.3920	92.39	0.0427	-16.9	93.4	76.5	-0.0432	0.2188	-98
-97	2.42	1.60	0.0108	22.5200	92.29	0.0444	-16.6	93.2	76.6	-0.0425	0.2185	-97
-96	2.51	1.67	0.0108	21.6850	92.19	0.0461	-16.3	93.1	76.8	-0.0417	0.2181	-96
-95	2.61	1.74	0.0109	20.8870	92.09	0.0479	-16.0	92.9	76.9	-0.0409	0.2178	-95
-94	2.70	1.81	0.0109	20.1230	91.98	0.0497	-15.7	92.8	77.1	-0.0401	0.2175	-94
-93	2.80	1.88	0.0109	19.3920	91.88	0.0516	-15.5	92.7	77.2	-0.0393	0.2172	-93
-92	2.90	1.96	0.0109	18.6920	91.78	0.0535	-15.2	92.5	77.4	-0.0385	0.2169	-92
-91	3.01	2.04	0.0109	18.0230	91.68	0.0555	-14.9	92.4	77.5	-0.0377	0.2166	-91

Table 1 (continued)
DuPont™ ISCEON® MO59 (R-417A) Saturation Properties—Temperature Table

TEMP. °F	PRESSURE (psia)		VOLUME (ft ³ /lb)		DENSITY (lb/ft ³)		ENTHALPY (BTU/lb)			ENTROPY (BTU/lb-R)		TEMP. °F
	LIQUID	VAPOR	LIQUID v _l	VAPOR v _g	LIQUID d _l	VAPOR d _g	LIQUID h _l	LATENT h _{lg}	VAPOR h _g	LIQUID s _l	VAPOR s _g	
-90	3.11	2.12	0.0109	17.3810	91.58	0.0575	-14.6	92.3	77.7	-0.0370	0.2162	-90
-89	3.23	2.20	0.0109	16.7660	91.47	0.0596	-14.3	92.1	77.8	-0.0362	0.2159	-89
-88	3.34	2.28	0.0109	16.1770	91.37	0.0618	-14.0	92.0	78.0	-0.0354	0.2156	-88
-87	3.46	2.37	0.0110	15.6130	91.27	0.0641	-13.7	91.8	78.1	-0.0346	0.2154	-87
-86	3.58	2.46	0.0110	15.0710	91.17	0.0664	-13.4	91.7	78.3	-0.0339	0.2151	-86
-85	3.70	2.56	0.0110	14.5520	91.07	0.0687	-13.1	91.6	78.4	-0.0331	0.2148	-85
-84	3.83	2.65	0.0110	14.0540	90.96	0.0712	-12.9	91.4	78.6	-0.0323	0.2145	-84
-83	3.96	2.75	0.0110	13.5760	90.86	0.0737	-12.6	91.3	78.7	-0.0315	0.2142	-83
-82	4.09	2.86	0.0110	13.1180	90.76	0.0762	-12.3	91.2	78.9	-0.0308	0.2140	-82
-81	4.23	2.96	0.0110	12.6780	90.66	0.0789	-12.0	91.0	79.0	-0.0300	0.2137	-81
-80	4.37	3.07	0.0110	12.2550	90.55	0.0816	-11.7	90.9	79.2	-0.0293	0.2134	-80
-79	4.52	3.18	0.0111	11.8490	90.45	0.0844	-11.4	90.7	79.3	-0.0285	0.2132	-79
-78	4.67	3.30	0.0111	11.4590	90.35	0.0873	-11.1	90.6	79.5	-0.0277	0.2129	-78
-77	4.82	3.42	0.0111	11.0840	90.24	0.0902	-10.8	90.5	79.6	-0.0270	0.2126	-77
-76	4.98	3.54	0.0111	10.7240	90.14	0.0933	-10.5	90.3	79.8	-0.0262	0.2124	-76
-75	5.14	3.67	0.0111	10.3770	90.04	0.0964	-10.3	90.2	79.9	-0.0255	0.2121	-75
-74	5.31	3.80	0.0111	10.0440	89.94	0.0996	-10.0	90.1	80.1	-0.0247	0.2119	-74
-73	5.48	3.93	0.0111	9.7237	89.83	0.1028	-9.7	89.9	80.2	-0.0240	0.2117	-73
-72	5.65	4.07	0.0111	9.4155	89.73	0.1062	-9.4	89.8	80.4	-0.0232	0.2114	-72
-71	5.83	4.21	0.0112	9.1189	89.63	0.1097	-9.1	89.6	80.5	-0.0225	0.2112	-71
-70	6.02	4.36	0.0112	8.8335	89.52	0.1132	-8.8	89.5	80.7	-0.0217	0.2110	-70
-69	6.20	4.50	0.0112	8.5586	89.42	0.1168	-8.5	89.4	80.8	-0.0210	0.2107	-69
-68	6.40	4.66	0.0112	8.2940	89.31	0.1206	-8.2	89.2	81.0	-0.0202	0.2105	-68
-67	6.60	4.82	0.0112	8.0391	89.21	0.1244	-7.9	89.1	81.1	-0.0195	0.2103	-67
-66	6.80	4.98	0.0112	7.7936	89.11	0.1283	-7.6	88.9	81.3	-0.0188	0.2101	-66
-65	7.01	5.14	0.0112	7.5570	89.00	0.1323	-7.3	88.8	81.4	-0.0180	0.2098	-65
-64	7.22	5.32	0.0112	7.3290	88.90	0.1364	-7.1	88.7	81.6	-0.0173	0.2096	-64
-63	7.44	5.49	0.0113	7.1092	88.79	0.1407	-6.8	88.5	81.8	-0.0165	0.2094	-63
-62	7.66	5.67	0.0113	6.8973	88.69	0.1450	-6.5	88.4	81.9	-0.0158	0.2092	-62
-61	7.89	5.86	0.0113	6.6929	88.59	0.1494	-6.2	88.2	82.1	-0.0151	0.2090	-61
-60	8.13	6.05	0.0113	6.4957	88.48	0.1540	-5.9	88.1	82.2	-0.0143	0.2088	-60
-59	8.37	6.24	0.0113	6.3056	88.38	0.1586	-5.6	88.0	82.4	-0.0136	0.2086	-59
-58	8.61	6.44	0.0113	6.1220	88.27	0.1633	-5.3	87.8	82.5	-0.0129	0.2084	-58
-57	8.86	6.64	0.0113	5.9449	88.17	0.1682	-5.0	87.7	82.7	-0.0122	0.2082	-57
-56	9.12	6.85	0.0114	5.7739	88.06	0.1732	-4.7	87.5	82.8	-0.0114	0.2080	-56
-55	9.38	7.07	0.0114	5.6088	87.96	0.1783	-4.4	87.4	83.0	-0.0107	0.2078	-55
-54	9.65	7.29	0.0114	5.4493	87.85	0.1835	-4.1	87.2	83.1	-0.0100	0.2077	-54
-53	9.93	7.52	0.0114	5.2953	87.74	0.1889	-3.8	87.1	83.3	-0.0093	0.2075	-53
-52	10.21	7.75	0.0114	5.1465	87.64	0.1943	-3.5	87.0	83.4	-0.0085	0.2073	-52
-51	10.50	7.99	0.0114	5.0028	87.53	0.1999	-3.2	86.8	83.6	-0.0078	0.2071	-51
-50	10.79	8.23	0.0114	4.8638	87.43	0.2056	-3.0	86.7	83.7	-0.0071	0.2069	-50
-49	11.09	8.48	0.0115	4.7295	87.32	0.2114	-2.7	86.5	83.9	-0.0064	0.2068	-49
-48	11.40	8.73	0.0115	4.5996	87.22	0.2174	-2.4	86.4	84.0	-0.0057	0.2066	-48
-47	11.71	9.00	0.0115	4.4740	87.11	0.2235	-2.1	86.2	84.2	-0.0050	0.2064	-47
-46	12.03	9.26	0.0115	4.3525	87.00	0.2298	-1.8	86.1	84.3	-0.0043	0.2063	-46
-45	12.36	9.54	0.0115	4.2350	86.90	0.2361	-1.5	86.0	84.5	-0.0035	0.2061	-45
-44	12.69	9.82	0.0115	4.1213	86.79	0.2426	-1.2	85.8	84.6	-0.0028	0.2060	-44
-43	13.04	10.10	0.0115	4.0113	86.68	0.2493	-0.9	85.7	84.8	-0.0021	0.2058	-43
-42	13.38	10.40	0.0116	3.9048	86.58	0.2561	-0.6	85.5	84.9	-0.0014	0.2056	-42
-41	13.74	10.70	0.0116	3.8017	86.47	0.2630	-0.3	85.4	85.1	-0.0007	0.2055	-41
-40	14.10	11.00	0.0116	3.7019	86.36	0.2701	0.0	85.2	85.2	0.0000	0.2053	-40
-39	14.48	11.32	0.0116	3.6053	86.25	0.2774	0.3	85.1	85.4	0.0007	0.2052	-39
-38	14.86	11.64	0.0116	3.5116	86.15	0.2848	0.6	84.9	85.5	0.0014	0.2050	-38
-37	15.24	11.97	0.0116	3.4210	86.04	0.2923	0.9	84.8	85.7	0.0021	0.2049	-37
-36	15.64	12.30	0.0116	3.3331	85.93	0.3000	1.2	84.6	85.8	0.0028	0.2048	-36
-35	16.04	12.65	0.0117	3.2479	85.82	0.3079	1.5	84.5	86.0	0.0035	0.2046	-35
-34	16.45	13.00	0.0117	3.1654	85.71	0.3159	1.8	84.3	86.1	0.0042	0.2045	-34
-33	16.87	13.35	0.0117	3.0854	85.60	0.3241	2.1	84.2	86.3	0.0049	0.2043	-33
-32	17.30	13.72	0.0117	3.0078	85.50	0.3325	2.4	84.0	86.4	0.0056	0.2042	-32
-31	17.73	14.09	0.0117	2.9326	85.39	0.3410	2.7	83.9	86.6	0.0063	0.2041	-31

Table 1 (continued)
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TEMP. °F	PRESSURE (psia)		VOLUME (ft ³ /lb)		DENSITY (lb/ft ³)		ENTHALPY (BTU/lb)			ENTROPY (BTU/lb-R)		TEMP. °F
	LIQUID	VAPOR	LIQUID v _l	VAPOR v _g	LIQUID d _l	VAPOR d _g	LIQUID h _l	LATENT h _{lg}	VAPOR h _g	LIQUID s _l	VAPOR s _g	
-30	18.18	14.48	0.0117	2.8597	85.28	0.3497	3.0	83.7	86.7	0.0070	0.2040	-30
-29	18.63	14.87	0.0117	2.7889	85.17	0.3586	3.3	83.6	86.9	0.0077	0.2038	-29
-28	19.09	15.26	0.0118	2.7202	85.06	0.3676	3.6	83.4	87.0	0.0084	0.2037	-28
-27	19.56	15.67	0.0118	2.6536	84.95	0.3768	3.9	83.3	87.2	0.0091	0.2036	-27
-26	20.04	16.08	0.0118	2.5890	84.84	0.3863	4.2	83.1	87.3	0.0098	0.2035	-26
-25	20.53	16.51	0.0118	2.5263	84.73	0.3958	4.5	83.0	87.5	0.0104	0.2033	-25
-24	21.03	16.94	0.0118	2.4653	84.62	0.4056	4.8	82.8	87.6	0.0111	0.2032	-24
-23	21.54	17.38	0.0118	2.4062	84.51	0.4156	5.1	82.7	87.8	0.0118	0.2031	-23
-22	22.05	17.83	0.0118	2.3488	84.40	0.4258	5.4	82.5	87.9	0.0125	0.2030	-22
-21	22.58	18.29	0.0119	2.2930	84.29	0.4361	5.7	82.4	88.1	0.0132	0.2029	-21
-20	23.12	18.76	0.0119	2.2388	84.18	0.4467	6.0	82.2	88.2	0.0139	0.2028	-20
-19	23.66	19.23	0.0119	2.1862	84.06	0.4574	6.3	82.1	88.4	0.0146	0.2027	-19
-18	24.22	19.72	0.0119	2.1351	83.95	0.4684	6.6	81.9	88.5	0.0152	0.2026	-18
-17	24.79	20.22	0.0119	2.0854	83.84	0.4795	6.9	81.8	88.6	0.0159	0.2024	-17
-16	25.36	20.72	0.0119	2.0371	83.73	0.4909	7.2	81.6	88.8	0.0166	0.2023	-16
-15	25.95	21.24	0.0120	1.9902	83.62	0.5025	7.5	81.4	88.9	0.0173	0.2022	-15
-14	26.55	21.77	0.0120	1.9445	83.50	0.5143	7.8	81.3	89.1	0.0180	0.2021	-14
-13	27.16	22.30	0.0120	1.9002	83.39	0.5263	8.1	81.1	89.2	0.0186	0.2020	-13
-12	27.78	22.85	0.0120	1.8570	83.28	0.5385	8.4	81.0	89.4	0.0193	0.2019	-12
-11	28.41	23.41	0.0120	1.8150	83.17	0.5510	8.7	80.8	89.5	0.0200	0.2018	-11
-10	29.05	23.97	0.0120	1.7742	83.05	0.5636	9.0	80.7	89.7	0.0207	0.2018	-10
-9	29.70	24.55	0.0121	1.7345	82.94	0.5765	9.3	80.5	89.8	0.0213	0.2017	-9
-8	30.36	25.14	0.0121	1.6959	82.83	0.5897	9.6	80.3	90.0	0.0220	0.2016	-8
-7	31.04	25.74	0.0121	1.6583	82.71	0.6030	9.9	80.2	90.1	0.0227	0.2015	-7
-6	31.72	26.35	0.0121	1.6217	82.60	0.6167	10.2	80.0	90.3	0.0234	0.2014	-6
-5	32.42	26.97	0.0121	1.5860	82.48	0.6305	10.5	79.9	90.4	0.0240	0.2013	-5
-4	33.13	27.60	0.0121	1.5514	82.37	0.6446	10.8	79.7	90.5	0.0247	0.2012	-4
-3	33.85	28.25	0.0122	1.5176	82.25	0.6589	11.2	79.5	90.7	0.0254	0.2011	-3
-2	34.58	28.91	0.0122	1.4847	82.14	0.6735	11.5	79.4	90.8	0.0260	0.2011	-2
-1	35.33	29.57	0.0122	1.4527	82.02	0.6884	11.8	79.2	91.0	0.0267	0.2010	-1
0	36.09	30.25	0.0122	1.4215	81.91	0.7035	12.1	79.0	91.1	0.0274	0.2009	0
1	36.86	30.94	0.0122	1.3911	81.79	0.7188	12.4	78.9	91.3	0.0280	0.2008	1
2	37.64	31.65	0.0122	1.3615	81.67	0.7345	12.7	78.7	91.4	0.0287	0.2007	2
3	38.44	32.36	0.0123	1.3327	81.56	0.7504	13.0	78.6	91.6	0.0294	0.2007	3
4	39.25	33.09	0.0123	1.3046	81.44	0.7665	13.3	78.4	91.7	0.0300	0.2006	4
5	40.07	33.83	0.0123	1.2772	81.32	0.7830	13.6	78.2	91.8	0.0307	0.2005	5
6	40.90	34.59	0.0123	1.2505	81.20	0.7997	13.9	78.1	92.0	0.0313	0.2004	6
7	41.75	35.36	0.0123	1.2245	81.09	0.8167	14.2	77.9	92.1	0.0320	0.2004	7
8	42.61	36.14	0.0124	1.1991	80.97	0.8339	14.5	77.7	92.3	0.0327	0.2003	8
9	43.49	36.93	0.0124	1.1744	80.85	0.8515	14.9	77.6	92.4	0.0333	0.2002	9
10	44.38	37.73	0.0124	1.1503	80.73	0.8694	15.2	77.4	92.6	0.0340	0.2002	10
11	45.28	38.55	0.0124	1.1267	80.61	0.8875	15.5	77.2	92.7	0.0346	0.2001	11
12	46.20	39.39	0.0124	1.1038	80.49	0.9060	15.8	77.0	92.8	0.0353	0.2000	12
13	47.13	40.23	0.0124	1.0814	80.37	0.9247	16.1	76.9	93.0	0.0360	0.2000	13
14	48.07	41.10	0.0125	1.0596	80.25	0.9438	16.4	76.7	93.1	0.0366	0.1999	14
15	49.03	41.97	0.0125	1.0383	80.13	0.9632	16.7	76.5	93.3	0.0373	0.1998	15
16	50.00	42.86	0.0125	1.0175	80.01	0.9828	17.0	76.4	93.4	0.0379	0.1998	16
17	50.99	43.76	0.0125	0.9972	79.89	1.0028	17.4	76.2	93.5	0.0386	0.1997	17
18	52.00	44.68	0.0125	0.9774	79.77	1.0232	17.7	76.0	93.7	0.0392	0.1997	18
19	53.01	45.61	0.0126	0.9580	79.65	1.0438	18.0	75.8	93.8	0.0399	0.1996	19
20	54.05	46.56	0.0126	0.9391	79.53	1.0648	18.3	75.7	94.0	0.0405	0.1995	20
21	55.10	47.53	0.0126	0.9207	79.41	1.0861	18.6	75.5	94.1	0.0412	0.1995	21
22	56.16	48.50	0.0126	0.9027	79.28	1.1078	18.9	75.3	94.2	0.0418	0.1994	22
23	57.24	49.50	0.0126	0.8851	79.16	1.1298	19.2	75.1	94.4	0.0425	0.1994	23
24	58.33	50.50	0.0127	0.8679	79.04	1.1522	19.6	74.9	94.5	0.0431	0.1993	24
25	59.45	51.53	0.0127	0.8512	78.91	1.1749	19.9	74.8	94.6	0.0438	0.1993	25
26	60.57	52.57	0.0127	0.8348	78.79	1.1979	20.2	74.6	94.8	0.0444	0.1992	26
27	61.72	53.62	0.0127	0.8188	78.66	1.2214	20.5	74.4	94.9	0.0451	0.1992	27
28	62.87	54.70	0.0127	0.8031	78.54	1.2452	20.8	74.2	95.1	0.0457	0.1991	28
29	64.05	55.78	0.0128	0.7878	78.41	1.2693	21.2	74.0	95.2	0.0464	0.1991	29

Table 1 (continued)
DuPont™ ISCEON® MO59 (R-417A) Saturation Properties—Temperature Table

TEMP. °F	PRESSURE (psia)		VOLUME (ft ³ /lb)		DENSITY (lb/ft ³)		ENTHALPY (BTU/lb)			ENTROPY (BTU/lb-R)		TEMP. °F
	LIQUID	VAPOR	LIQUID v _l	VAPOR v _g	LIQUID d _l	VAPOR d _g	LIQUID h _l	LATENT h _{lg}	VAPOR h _g	LIQUID s _l	VAPOR s _g	
30	65.24	56.89	0.0128	0.7729	78.29	1.2939	21.5	73.9	95.3	0.0470	0.1990	30
31	66.45	58.01	0.0128	0.7583	78.16	1.3188	21.8	73.7	95.5	0.0477	0.1990	31
32	67.68	59.15	0.0128	0.7440	78.04	1.3441	22.1	73.5	95.6	0.0483	0.1989	32
33	68.92	60.30	0.0128	0.7301	77.91	1.3698	22.4	73.3	95.7	0.0490	0.1989	33
34	70.18	61.47	0.0129	0.7164	77.78	1.3959	22.8	73.1	95.9	0.0496	0.1988	34
35	71.46	62.66	0.0129	0.7031	77.65	1.4223	23.1	72.9	96.0	0.0502	0.1988	35
36	72.75	63.87	0.0129	0.6900	77.53	1.4492	23.4	72.7	96.1	0.0509	0.1987	36
37	74.07	65.09	0.0129	0.6773	77.40	1.4765	23.7	72.5	96.3	0.0515	0.1987	37
38	75.40	66.33	0.0129	0.6648	77.27	1.5043	24.0	72.4	96.4	0.0522	0.1986	38
39	76.75	67.59	0.0130	0.6526	77.14	1.5324	24.4	72.2	96.5	0.0528	0.1986	39
40	78.11	68.87	0.0130	0.6406	77.01	1.5610	24.7	72.0	96.7	0.0535	0.1986	40
41	79.50	70.16	0.0130	0.6289	76.88	1.5900	25.0	71.8	96.8	0.0541	0.1985	41
42	80.90	71.48	0.0130	0.6175	76.75	1.6194	25.3	71.6	96.9	0.0547	0.1985	42
43	82.32	72.81	0.0131	0.6063	76.62	1.6493	25.7	71.4	97.1	0.0554	0.1984	43
44	83.76	74.16	0.0131	0.5954	76.49	1.6797	26.0	71.2	97.2	0.0560	0.1984	44
45	85.22	75.53	0.0131	0.5846	76.36	1.7105	26.3	71.0	97.3	0.0567	0.1983	45
46	86.70	76.92	0.0131	0.5742	76.22	1.7417	26.6	70.8	97.4	0.0573	0.1983	46
47	88.20	78.32	0.0131	0.5639	76.09	1.7734	27.0	70.6	97.6	0.0579	0.1983	47
48	89.72	79.75	0.0132	0.5538	75.96	1.8056	27.3	70.4	97.7	0.0586	0.1982	48
49	91.25	81.20	0.0132	0.5440	75.82	1.8383	27.6	70.2	97.8	0.0592	0.1982	49
50	92.81	82.66	0.0132	0.5343	75.69	1.8715	27.9	70.0	98.0	0.0598	0.1982	50
51	94.39	84.15	0.0132	0.5249	75.55	1.9051	28.3	69.8	98.1	0.0605	0.1981	51
52	95.98	85.66	0.0133	0.5157	75.42	1.9393	28.6	69.6	98.2	0.0611	0.1981	52
53	97.60	87.18	0.0133	0.5066	75.28	1.9740	28.9	69.4	98.3	0.0618	0.1980	53
54	99.24	88.73	0.0133	0.4977	75.15	2.0091	29.3	69.2	98.5	0.0624	0.1980	54
55	100.89	90.30	0.0133	0.4890	75.01	2.0449	29.6	69.0	98.6	0.0630	0.1980	55
56	102.57	91.89	0.0134	0.4805	74.87	2.0811	29.9	68.8	98.7	0.0637	0.1979	56
57	104.27	93.49	0.0134	0.4722	74.73	2.1179	30.3	68.6	98.8	0.0643	0.1979	57
58	105.99	95.12	0.0134	0.4640	74.60	2.1552	30.6	68.4	98.9	0.0649	0.1979	58
59	107.73	96.78	0.0134	0.4560	74.46	2.1930	30.9	68.2	99.1	0.0656	0.1978	59
60	109.50	98.45	0.0135	0.4481	74.32	2.2315	31.3	67.9	99.2	0.0662	0.1978	60
61	111.28	100.14	0.0135	0.4404	74.18	2.2705	31.6	67.7	99.3	0.0668	0.1978	61
62	113.08	101.86	0.0135	0.4329	74.04	2.3100	31.9	67.5	99.4	0.0675	0.1977	62
63	114.91	103.60	0.0135	0.4255	73.89	2.3502	32.3	67.3	99.6	0.0681	0.1977	63
64	116.76	105.36	0.0136	0.4183	73.75	2.3909	32.6	67.1	99.7	0.0687	0.1977	64
65	118.63	107.14	0.0136	0.4111	73.61	2.4323	32.9	66.9	99.8	0.0694	0.1976	65
66	120.53	108.95	0.0136	0.4042	73.47	2.4742	33.3	66.6	99.9	0.0700	0.1976	66
67	122.44	110.78	0.0136	0.3973	73.32	2.5168	33.6	66.4	100.0	0.0706	0.1976	67
68	124.38	112.63	0.0137	0.3906	73.18	2.5600	33.9	66.2	100.2	0.0713	0.1975	68
69	126.35	114.50	0.0137	0.3841	73.03	2.6038	34.3	66.0	100.3	0.0719	0.1975	69
70	128.33	116.40	0.0137	0.3776	72.89	2.6483	34.6	65.8	100.4	0.0725	0.1975	70
71	130.34	118.32	0.0137	0.3713	72.74	2.6934	35.0	65.5	100.5	0.0732	0.1974	71
72	132.37	120.27	0.0138	0.3651	72.59	2.7392	35.3	65.3	100.6	0.0738	0.1974	72
73	134.43	122.24	0.0138	0.3590	72.44	2.7857	35.6	65.1	100.7	0.0744	0.1974	73
74	136.51	124.23	0.0138	0.3530	72.30	2.8329	36.0	64.9	100.8	0.0750	0.1973	74
75	138.61	126.25	0.0139	0.3471	72.15	2.8807	36.3	64.6	101.0	0.0757	0.1973	75
76	140.74	128.29	0.0139	0.3414	72.00	2.9293	36.7	64.4	101.1	0.0763	0.1972	76
77	142.89	130.36	0.0139	0.3357	71.85	2.9786	37.0	64.2	101.2	0.0769	0.1972	77
78	145.06	132.45	0.0139	0.3302	71.69	3.0286	37.4	63.9	101.3	0.0776	0.1972	78
79	147.27	134.56	0.0140	0.3247	71.54	3.0794	37.7	63.7	101.4	0.0782	0.1971	79
80	149.49	136.71	0.0140	0.3194	71.39	3.1309	38.1	63.5	101.5	0.0788	0.1971	80
81	151.74	138.87	0.0140	0.3142	71.24	3.1831	38.4	63.2	101.6	0.0795	0.1971	81
82	154.02	141.07	0.0141	0.3090	71.08	3.2362	38.7	63.0	101.7	0.0801	0.1970	82
83	156.32	143.29	0.0141	0.3040	70.93	3.2900	39.1	62.7	101.8	0.0807	0.1970	83
84	158.64	145.53	0.0141	0.2990	70.77	3.3447	39.4	62.5	101.9	0.0814	0.1970	84
85	161.00	147.80	0.0142	0.2941	70.61	3.4001	39.8	62.2	102.0	0.0820	0.1969	85
86	163.38	150.10	0.0142	0.2893	70.45	3.4564	40.1	62.0	102.1	0.0826	0.1969	86
87	165.78	152.42	0.0142	0.2846	70.29	3.5136	40.5	61.7	102.2	0.0833	0.1968	87
88	168.21	154.78	0.0143	0.2800	70.14	3.5716	40.8	61.5	102.3	0.0839	0.1968	88
89	170.67	157.15	0.0143	0.2755	69.97	3.6304	41.2	61.2	102.4	0.0845	0.1968	89

Table 1 (continued)
DuPont™ ISCEON® MO59 (R-417A) Saturation Properties—Temperature Table

TEMP. °F	PRESSURE (psia)		VOLUME (ft ³ /lb)		DENSITY (lb/ft ³)		ENTHALPY (BTU/lb)			ENTROPY (BTU/lb-R)		TEMP. °F
	LIQUID	VAPOR	LIQUID v _l	VAPOR v _g	LIQUID d _l	VAPOR d _g	LIQUID h _l	LATENT h _{lg}	VAPOR h _g	LIQUID s _l	VAPOR s _g	
90	173.15	159.56	0.0143	0.2710	69.81	3.6902	41.6	61.0	102.5	0.0851	0.1967	90
91	175.66	161.99	0.0144	0.2666	69.65	3.7509	41.9	60.7	102.6	0.0858	0.1967	91
92	178.20	164.45	0.0144	0.2623	69.49	3.8124	42.3	60.5	102.7	0.0864	0.1967	92
93	180.76	166.94	0.0144	0.2581	69.32	3.8750	42.6	60.2	102.8	0.0870	0.1966	93
94	183.36	169.46	0.0145	0.2539	69.16	3.9384	43.0	60.0	102.9	0.0877	0.1966	94
95	185.98	172.01	0.0145	0.2498	68.99	4.0029	43.3	59.7	103.0	0.0883	0.1965	95
96	188.62	174.58	0.0145	0.2458	68.82	4.0683	43.7	59.4	103.1	0.0889	0.1965	96
97	191.30	177.18	0.0146	0.2419	68.66	4.1347	44.0	59.2	103.2	0.0896	0.1964	97
98	194.00	179.81	0.0146	0.2380	68.49	4.2022	44.4	58.9	103.3	0.0902	0.1964	98
99	196.74	182.48	0.0146	0.2342	68.32	4.2707	44.8	58.6	103.4	0.0908	0.1963	99
100	199.50	185.17	0.0147	0.2304	68.14	4.3403	45.1	58.3	103.5	0.0915	0.1963	100
101	202.29	187.89	0.0147	0.2267	67.97	4.4109	45.5	58.1	103.6	0.0921	0.1963	101
102	205.11	190.64	0.0148	0.2231	67.80	4.4827	45.9	57.8	103.7	0.0927	0.1962	102
103	207.95	193.42	0.0148	0.2195	67.62	4.5555	46.2	57.5	103.8	0.0934	0.1962	103
104	210.83	196.23	0.0148	0.2160	67.45	4.6296	46.6	57.2	103.8	0.0940	0.1961	104
105	213.74	199.07	0.0149	0.2126	67.27	4.7048	47.0	57.0	103.9	0.0947	0.1961	105
106	216.67	201.94	0.0149	0.2092	67.09	4.7812	47.3	56.7	104.0	0.0953	0.1960	106
107	219.64	204.85	0.0149	0.2058	66.91	4.8588	47.7	56.4	104.1	0.0959	0.1959	107
108	222.64	207.78	0.0150	0.2025	66.73	4.9377	48.1	56.1	104.2	0.0966	0.1959	108
109	225.66	210.75	0.0150	0.1993	66.55	5.0178	48.4	55.8	104.2	0.0972	0.1958	109
110	228.72	213.75	0.0151	0.1961	66.36	5.0993	48.8	55.5	104.3	0.0978	0.1958	110
111	231.81	216.78	0.0151	0.1930	66.18	5.1820	49.2	55.2	104.4	0.0985	0.1957	111
112	234.93	219.84	0.0152	0.1899	65.99	5.2662	49.6	54.9	104.5	0.0991	0.1957	112
113	238.08	222.94	0.0152	0.1869	65.80	5.3517	49.9	54.6	104.5	0.0998	0.1956	113
114	241.27	226.07	0.0152	0.1839	65.61	5.4386	50.3	54.3	104.6	0.1004	0.1955	114
115	244.48	229.23	0.0153	0.1809	65.42	5.5270	50.7	54.0	104.7	0.1010	0.1955	115
116	247.73	232.42	0.0153	0.1780	65.23	5.6169	51.1	53.7	104.8	0.1017	0.1954	116
117	251.00	235.65	0.0154	0.1752	65.03	5.7083	51.4	53.4	104.8	0.1023	0.1953	117
118	254.32	238.92	0.0154	0.1724	64.84	5.8012	51.8	53.1	104.9	0.1030	0.1953	118
119	257.66	242.21	0.0155	0.1696	64.64	5.8957	52.2	52.7	105.0	0.1036	0.1952	119
120	261.04	245.55	0.0155	0.1669	64.44	5.9919	52.6	52.4	105.0	0.1043	0.1951	120
121	264.44	248.91	0.0156	0.1642	64.24	6.0897	53.0	52.1	105.1	0.1049	0.1951	121
122	267.89	252.31	0.0156	0.1616	64.04	6.1893	53.4	51.8	105.1	0.1056	0.1950	122
123	271.36	255.75	0.0157	0.1590	63.83	6.2906	53.8	51.4	105.2	0.1062	0.1949	123
124	274.87	259.22	0.0157	0.1564	63.63	6.3937	54.1	51.1	105.2	0.1069	0.1948	124
125	278.42	262.73	0.0158	0.1539	63.42	6.4986	54.5	50.8	105.3	0.1075	0.1948	125
126	282.00	266.27	0.0158	0.1514	63.21	6.6055	54.9	50.4	105.4	0.1082	0.1947	126
127	285.61	269.86	0.0159	0.1489	63.00	6.7143	55.3	50.1	105.4	0.1088	0.1947	127
128	289.26	273.47	0.0159	0.1465	62.78	6.8251	55.7	49.7	105.4	0.1095	0.1945	128
129	292.94	277.13	0.0160	0.1441	62.57	6.9380	56.1	49.4	105.5	0.1101	0.1944	129
130	296.66	280.82	0.0160	0.1418	62.35	7.0529	56.5	49.0	105.5	0.1108	0.1943	130
131	300.41	284.55	0.0161	0.1395	62.13	7.1701	56.9	48.7	105.6	0.1115	0.1942	131
132	304.20	288.32	0.0162	0.1372	61.90	7.2895	57.3	48.3	105.6	0.1121	0.1941	132
133	308.02	292.12	0.0162	0.1349	61.68	7.4113	57.7	47.9	105.7	0.1128	0.1940	133
134	311.88	295.97	0.0163	0.1327	61.45	7.5354	58.1	47.6	105.7	0.1134	0.1939	134
135	315.78	299.85	0.0163	0.1305	61.22	7.6619	58.5	47.2	105.7	0.1141	0.1938	135
136	319.71	303.78	0.0164	0.1284	60.98	7.7910	58.9	46.8	105.7	0.1148	0.1937	136
137	323.68	307.74	0.0165	0.1262	60.75	7.9228	59.3	46.4	105.8	0.1154	0.1936	137
138	327.69	311.74	0.0165	0.1241	60.51	8.0572	59.8	46.0	105.8	0.1161	0.1935	138
139	331.74	315.79	0.0166	0.1220	60.27	8.1945	60.2	45.6	105.8	0.1168	0.1934	139
140	335.82	319.87	0.0167	0.1200	60.02	8.3346	60.6	45.2	105.8	0.1175	0.1932	140
141	339.94	324.00	0.0167	0.1180	59.77	8.4777	61.0	44.8	105.9	0.1181	0.1931	141
142	344.10	328.17	0.0168	0.1160	59.52	8.6240	61.4	44.4	105.9	0.1188	0.1930	142
143	348.30	332.38	0.0169	0.1140	59.27	8.7735	61.9	44.0	105.9	0.1195	0.1928	143
144	352.54	336.63	0.0169	0.1120	59.01	8.9263	62.3	43.6	105.9	0.1202	0.1927	144
145	356.82	340.93	0.0170	0.1101	58.75	9.0826	62.7	43.2	105.9	0.1209	0.1926	145
146	361.13	345.27	0.0171	0.1082	58.48	9.2425	63.2	42.7	105.9	0.1216	0.1924	146
147	365.49	349.65	0.0172	0.1063	58.21	9.4062	63.6	42.3	105.9	0.1223	0.1923	147
148	369.89	354.08	0.0173	0.1045	57.94	9.5738	64.0	41.8	105.9	0.1230	0.1921	148
149	374.32	358.55	0.0173	0.1026	57.66	9.7455	64.5	41.4	105.8	0.1237	0.1919	149

Table 1 (continued)
DuPont™ ISCEON® MO59 (R-417A) Saturation Properties—Temperature Table

TEMP. °F	PRESSURE (psia)		VOLUME (ft ³ /lb)		DENSITY (lb/ft ³)		ENTHALPY (BTU/lb)			ENTROPY (BTU/lb-R)		TEMP. °F
	LIQUID	VAPOR	LIQUID v _l	VAPOR v _g	LIQUID d _l	VAPOR d _g	LIQUID h _l	LATENT h _{lg}	VAPOR h _g	LIQUID s _l	VAPOR s _g	
150	378.80	363.07	0.0174	0.1008	57.38	9.9215	64.9	40.9	105.8	0.1244	0.1918	150
151	383.32	367.63	0.0175	0.0990	57.09	10.1020	65.4	40.4	105.8	0.1251	0.1916	151
152	387.88	372.24	0.0176	0.0972	56.80	10.2870	65.8	40.0	105.8	0.1258	0.1914	152
153	392.48	376.90	0.0177	0.0954	56.50	10.4770	66.3	39.5	105.7	0.1265	0.1912	153
154	397.13	381.60	0.0178	0.0937	56.20	10.6720	66.7	39.0	105.7	0.1272	0.1910	154
155	401.81	386.36	0.0179	0.0920	55.89	10.8730	67.2	38.5	105.7	0.1280	0.1908	155
156	406.54	391.16	0.0180	0.0903	55.57	11.0790	67.6	38.0	105.6	0.1287	0.1906	156
157	411.32	396.01	0.0181	0.0886	55.25	11.2910	68.1	37.4	105.6	0.1294	0.1904	157
158	416.13	400.91	0.0182	0.0869	54.93	11.5100	68.6	36.9	105.5	0.1302	0.1902	158
159	420.99	405.86	0.0183	0.0852	54.59	11.7360	69.1	36.4	105.4	0.1309	0.1899	159
160	425.90	410.86	0.0184	0.0836	54.25	11.9680	69.6	35.8	105.4	0.1317	0.1897	160
161	430.84	415.92	0.0186	0.0819	53.90	12.2080	70.0	35.2	105.3	0.1324	0.1894	161
162	435.84	421.03	0.0187	0.0803	53.54	12.4560	70.5	34.7	105.2	0.1332	0.1892	162
163	440.88	426.19	0.0188	0.0787	53.17	12.7130	71.0	34.1	105.1	0.1340	0.1889	163
164	445.96	431.41	0.0189	0.0770	52.79	12.9800	71.5	33.4	105.0	0.1348	0.1886	164
165	451.09	436.68	0.0191	0.0754	52.40	13.2560	72.1	32.8	104.9	0.1356	0.1883	165
166	456.27	442.01	0.0192	0.0738	52.00	13.5430	72.6	32.2	104.7	0.1364	0.1880	166
167	461.49	447.40	0.0194	0.0722	51.59	13.8410	73.1	31.5	104.6	0.1372	0.1876	167
168	466.76	452.85	0.0195	0.0707	51.16	14.1530	73.7	30.8	104.5	0.1380	0.1873	168
169	472.08	458.36	0.0197	0.0691	50.72	14.4780	74.2	30.1	104.3	0.1389	0.1869	169
170	477.44	463.94	0.0199	0.0675	50.26	14.8190	74.8	29.3	104.1	0.1397	0.1865	170
171	482.85	469.57	0.0201	0.0659	49.78	15.1760	75.3	28.6	103.9	0.1406	0.1861	171
172	488.31	475.28	0.0203	0.0643	49.28	15.5530	75.9	27.8	103.7	0.1415	0.1856	172
173	493.82	481.05	0.0205	0.0627	48.76	15.9500	76.5	27.0	103.5	0.1424	0.1852	173
174	499.37	486.90	0.0207	0.0611	48.21	16.3710	77.1	26.1	103.2	0.1433	0.1846	174
175	504.98	492.82	0.0210	0.0595	47.64	16.8200	77.8	25.2	102.9	0.1443	0.1841	175
176	510.63	498.81	0.0213	0.0578	47.02	17.3000	78.4	24.2	102.6	0.1453	0.1835	176
177	516.32	504.89	0.0216	0.0561	46.37	17.8180	79.1	23.2	102.3	0.1464	0.1829	177
178	522.06	511.06	0.0219	0.0544	45.66	18.3800	79.8	22.1	101.9	0.1474	0.1822	178
179	527.85	517.32	0.0223	0.0526	44.89	18.9970	80.6	20.9	101.5	0.1486	0.1814	179
180	533.67	523.69	0.0227	0.0508	44.04	19.6820	81.4	19.6	101.0	0.1498	0.1805	180

Table 2
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb·R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia

TEMP. °F	1			2			3			4			TEMP. °F
	(-108.26°F)			(-91.45°F)			(-80.65°F)			(-72.49°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(35.1070)	(74.9)	(0.2225)	(18.3180)	(77.5)	(0.2167)	(12.5260)	(79.1)	(0.2136)	(9.5664)	(80.3)	(0.2115)	
-100	35.9540	76.2	0.2262	—	—	—	—	—	—	—	—	—	-100
-90	36.9770	77.8	0.2305	18.3940	77.7	0.2173	—	—	—	—	—	—	-90
-80	37.9980	79.5	0.2349	18.9120	79.3	0.2217	12.5490	79.2	0.2139	—	—	—	-80
-70	39.0160	81.1	0.2391	19.4280	81.0	0.2260	12.8980	80.9	0.2182	9.6325	80.7	0.2126	-70
-60	40.0330	82.8	0.2434	19.9420	82.7	0.2303	13.2450	82.5	0.2225	9.8960	82.4	0.2169	-60
-50	41.0490	84.5	0.2475	20.4550	84.4	0.2345	13.5910	84.3	0.2267	10.1580	84.2	0.2212	-50
-40	42.0630	86.2	0.2517	20.9670	86.1	0.2386	13.9350	86.0	0.2309	10.4190	85.9	0.2254	-40
-30	43.0770	87.9	0.2558	21.4780	87.8	0.2427	14.2790	87.8	0.2350	10.6790	87.7	0.2295	-30
-20	44.0900	89.7	0.2599	21.9890	89.6	0.2468	14.6210	89.5	0.2391	10.9380	89.4	0.2337	-20
-10	45.1020	91.5	0.2639	22.4980	91.4	0.2509	14.9630	91.3	0.2432	11.1960	91.3	0.2377	-10
0	46.1130	93.3	0.2679	23.0070	93.2	0.2549	15.3050	93.2	0.2472	11.4540	93.1	0.2417	0
10	47.1240	95.1	0.2718	23.5150	95.1	0.2588	15.6460	95.0	0.2512	11.7110	94.9	0.2457	10
20	48.1350	97.0	0.2758	24.0230	96.9	0.2628	15.9860	96.9	0.2551	11.9670	96.8	0.2497	20
30	49.1450	98.9	0.2797	24.5310	98.8	0.2667	16.3260	98.8	0.2590	12.2230	98.7	0.2536	30
40	50.1550	100.8	0.2835	25.0380	100.8	0.2705	16.6650	100.7	0.2629	12.4790	100.6	0.2575	40
50	51.1640	102.7	0.2874	25.5440	102.7	0.2744	17.0040	102.6	0.2668	12.7340	102.6	0.2613	50
60	52.1730	104.7	0.2912	26.0510	104.7	0.2782	17.3430	104.6	0.2706	12.9900	104.6	0.2652	60
70	53.1820	106.7	0.2950	26.5570	106.6	0.2820	17.6820	106.6	0.2744	13.2440	106.5	0.2690	70
80	54.1910	108.7	0.2987	27.0630	108.6	0.2858	18.0200	108.6	0.2781	13.4990	108.6	0.2727	80
90	55.1990	110.7	0.3024	27.5690	110.7	0.2895	18.3580	110.6	0.2819	13.7530	110.6	0.2765	90
100	56.2070	112.8	0.3061	28.0740	112.7	0.2932	18.6960	112.7	0.2856	14.0080	112.7	0.2802	100
110	57.2150	114.9	0.3098	28.5790	114.8	0.2969	19.0340	114.8	0.2893	14.2610	114.7	0.2839	110
120	58.2230	117.0	0.3135	29.0850	116.9	0.3005	19.3720	116.9	0.2929	14.5150	116.8	0.2875	120
130	59.2300	119.1	0.3171	29.5890	119.0	0.3042	19.7090	119.0	0.2966	14.7690	119.0	0.2912	130
140	60.2380	121.2	0.3207	30.0940	121.2	0.3078	20.0460	121.2	0.3002	15.0220	121.1	0.2948	140
150	61.2450	123.4	0.3243	30.5990	123.4	0.3114	20.3840	123.3	0.3038	15.2760	123.3	0.2984	150
160	62.2530	125.6	0.3279	31.1040	125.6	0.3149	20.7210	125.5	0.3073	15.5290	125.5	0.3020	160
170	63.2600	127.8	0.3314	31.6080	127.8	0.3185	21.0580	127.7	0.3109	15.7820	127.7	0.3055	170
180	64.2670	130.0	0.3349	32.1130	130.0	0.3220	21.3940	130.0	0.3144	16.0350	129.9	0.3090	180
190	65.2740	132.3	0.3384	32.6170	132.3	0.3255	21.7310	132.2	0.3179	16.2880	132.2	0.3125	190
200	66.2810	134.6	0.3419	33.1210	134.5	0.3290	22.0680	134.5	0.3214	16.5410	134.5	0.3160	200

ABSOLUTE PRESSURE, psia

TEMP. °F	5			6			7			8			TEMP. °F
	(-65.87°F)			(-60.24°F)			(-55.32°F)			(-50.94°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(7.7612)	(81.3)	(0.2100)	(6.5419)	(82.2)	(0.2089)	(5.6613)	(82.9)	(0.2079)	(4.9946)	(83.6)	(0.2071)	
-60	7.8863	82.3	0.2126	6.5462	82.2	0.2090	—	—	—	—	—	—	-60
-50	8.0982	84.1	0.2168	6.7248	84.0	0.2133	5.7436	83.8	0.2102	5.0075	83.7	0.2075	-50
-40	8.3089	85.8	0.2211	6.9021	85.7	0.2175	5.8971	85.6	0.2145	5.1432	85.5	0.2118	-40
-30	8.5185	87.6	0.2252	7.0783	87.5	0.2217	6.0494	87.4	0.2187	5.2777	87.3	0.2160	-30
-20	8.7273	89.4	0.2294	7.2536	89.3	0.2258	6.2009	89.2	0.2228	5.4113	89.1	0.2202	-20
-10	8.9353	91.2	0.2334	7.4282	91.1	0.2299	6.3516	91.0	0.2269	5.5440	91.0	0.2243	-10
0	9.1427	93.0	0.2375	7.6021	92.9	0.2340	6.5016	92.9	0.2310	5.6761	92.8	0.2284	0
10	9.3495	94.9	0.2415	7.7754	94.8	0.2380	6.6510	94.7	0.2350	5.8076	94.7	0.2324	10
20	9.5558	96.8	0.2454	7.9482	96.7	0.2419	6.7999	96.6	0.2390	5.9386	96.6	0.2364	20
30	9.7617	98.7	0.2494	8.1206	98.6	0.2459	6.9484	98.5	0.2429	6.0692	98.5	0.2404	30
40	9.9672	100.6	0.2533	8.2927	100.5	0.2498	7.0965	100.5	0.2468	6.1994	100.4	0.2443	40
50	10.1720	102.5	0.2571	8.4643	102.5	0.2536	7.2442	102.4	0.2507	6.3292	102.4	0.2481	50
60	10.3770	104.5	0.2609	8.6357	104.5	0.2575	7.3917	104.4	0.2545	6.4587	104.4	0.2520	60
70	10.5820	106.5	0.2647	8.8068	106.5	0.2613	7.5388	106.4	0.2584	6.5879	106.4	0.2558	70
80	10.7860	108.5	0.2685	8.9776	108.5	0.2651	7.6857	108.4	0.2621	6.7168	108.4	0.2596	80
90	10.9900	110.6	0.2723	9.1482	110.5	0.2688	7.8324	110.5	0.2659	6.8456	110.4	0.2633	90
100	11.1940	112.6	0.2760	9.3186	112.6	0.2725	7.9789	112.5	0.2696	6.9741	112.5	0.2671	100
110	11.3980	114.7	0.2797	9.4888	114.7	0.2762	8.1252	114.6	0.2733	7.1024	114.6	0.2708	110
120	11.6010	116.8	0.2833	9.6588	116.8	0.2799	8.2713	116.7	0.2770	7.2306	116.7	0.2745	120
130	11.8050	118.9	0.2870	9.8287	118.9	0.2835	8.4172	118.9	0.2806	7.3586	118.8	0.2781	130
140	12.0080	121.1	0.2906	9.9985	121.1	0.2872	8.5631	121.0	0.2843	7.4865	121.0	0.2817	140
150	12.2110	123.3	0.2942	10.1680	123.2	0.2908	8.7087	123.2	0.2879	7.6142	123.2	0.2853	150
160	12.4140	125.5	0.2978	10.3380	125.4	0.2943	8.8543	125.4	0.2914	7.7418	125.4	0.2889	160
170	12.6170	127.7	0.3013	10.5070	127.7	0.2979	8.9998	127.6	0.2950	7.8693	127.6	0.2925	170
180	12.8200	129.9	0.3048	10.6760	129.9	0.3014	9.1451	129.9	0.2985	7.9967	129.8	0.2960	180
190	13.0230	132.2	0.3084	10.8460	132.2	0.3049	9.2904	132.1	0.3020	8.1241	132.1	0.2995	190
200	13.2250	134.5	0.3118	11.0150	134.4	0.3084	9.4356	134.4	0.3055	8.2513	134.4	0.3030	200
210	13.4280	136.8	0.3153	11.1840	136.7	0.3119	9.5807	136.7	0.3090	8.3784	136.7	0.3065	210
220	13.6300	139.1	0.3188	11.3530	139.1	0.3153	9.7257	139.0	0.3124	8.5055	139.0	0.3099	220
230	13.8330	141.4	0.3222	11.5220	141.4	0.3188	9.8707	141.4	0.3159	8.6325	141.4	0.3134	230
240	14.0350	143.8	0.3256	11.6900	143.8	0.3222	10.0160	143.8	0.3193	8.7595	143.7	0.3168	240

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb-R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia													
TEMP. °F	9			10			11			12			TEMP. °F
	(-46.98°F)			(-43.36°F)			(-40.01°F)			(-36.90°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(4.4717)	(84.2)	(0.2064)	(4.0503)	(84.7)	(0.2059)	(3.7032)	(85.2)	(0.2053)	(3.4121)	(85.7)	(0.2049)	
-40	4.5567	85.4	0.2094	4.0874	85.3	0.2073	3.7033	85.2	0.2053	-	-	-	-40
-30	4.6774	87.2	0.2137	4.1970	87.1	0.2116	3.8039	87.0	0.2096	3.4762	87.0	0.2079	-30
-20	4.7970	89.0	0.2179	4.3056	89.0	0.2158	3.9034	88.9	0.2139	3.5682	88.8	0.2121	-20
-10	4.9159	90.9	0.2220	4.4133	90.8	0.2199	4.0021	90.7	0.2180	3.6593	90.6	0.2163	-10
0	5.0341	92.7	0.2261	4.5204	92.7	0.2240	4.1001	92.6	0.2221	3.7497	92.5	0.2204	0
10	5.1517	94.6	0.2301	4.6268	94.5	0.2281	4.1974	94.5	0.2262	3.8395	94.4	0.2245	10
20	5.2687	96.5	0.2341	4.7328	96.4	0.2321	4.2942	96.4	0.2302	3.9287	96.3	0.2285	20
30	5.3853	98.4	0.2381	4.8382	98.4	0.2360	4.3906	98.3	0.2342	4.0175	98.3	0.2325	30
40	5.5015	100.4	0.2420	4.9433	100.3	0.2400	4.4865	100.3	0.2381	4.1058	100.2	0.2364	40
50	5.6174	102.3	0.2459	5.0480	102.3	0.2438	4.5821	102.2	0.2420	4.1938	102.2	0.2403	50
60	5.7329	104.3	0.2497	5.1524	104.3	0.2477	4.6773	104.2	0.2459	4.2815	104.2	0.2442	60
70	5.8482	106.3	0.2536	5.2565	106.3	0.2515	4.7723	106.2	0.2497	4.3688	106.2	0.2480	70
80	5.9632	108.3	0.2573	5.3603	108.3	0.2553	4.8670	108.3	0.2535	4.4559	108.2	0.2518	80
90	6.0780	110.4	0.2611	5.4639	110.4	0.2591	4.9615	110.3	0.2573	4.5428	110.3	0.2556	90
100	6.1926	112.5	0.2648	5.5673	112.4	0.2628	5.0558	112.4	0.2610	4.6295	112.3	0.2593	100
110	6.3069	114.6	0.2685	5.6705	114.5	0.2665	5.1499	114.5	0.2647	4.7159	114.4	0.2630	110
120	6.4211	116.7	0.2722	5.7736	116.6	0.2702	5.2438	116.6	0.2684	4.8022	116.6	0.2667	120
130	6.5352	118.8	0.2759	5.8765	118.8	0.2739	5.3375	118.7	0.2720	4.8884	118.7	0.2704	130
140	6.6491	121.0	0.2795	5.9792	120.9	0.2775	5.4311	120.9	0.2757	4.9744	120.9	0.2740	140
150	6.7629	123.1	0.2831	6.0818	123.1	0.2811	5.5246	123.1	0.2793	5.0602	123.0	0.2776	150
160	6.8766	125.3	0.2867	6.1843	125.3	0.2847	5.6180	125.3	0.2829	5.1460	125.3	0.2812	160
170	6.9901	127.6	0.2902	6.2867	127.5	0.2882	5.7112	127.5	0.2864	5.2316	127.5	0.2848	170
180	7.1035	129.8	0.2938	6.3890	129.8	0.2918	5.8043	129.8	0.2900	5.3171	129.7	0.2883	180
190	7.2169	132.1	0.2973	6.4912	132.0	0.2953	5.8974	132.0	0.2935	5.4026	132.0	0.2918	190
200	7.3302	134.4	0.3008	6.5933	134.3	0.2988	5.9904	134.3	0.2970	5.4879	134.3	0.2953	200
210	7.4434	136.7	0.3043	6.6953	136.6	0.3023	6.0832	136.6	0.3005	5.5732	136.6	0.2988	210
220	7.5565	139.0	0.3077	6.7972	139.0	0.3057	6.1760	138.9	0.3039	5.6584	138.9	0.3023	220
230	7.6695	141.3	0.3111	6.8991	141.3	0.3092	6.2688	141.3	0.3074	5.7435	141.3	0.3057	230
240	7.7825	143.7	0.3146	7.0009	143.7	0.3126	6.3615	143.7	0.3108	5.8286	143.7	0.3091	240
250	7.8954	146.1	0.3179	7.1027	146.1	0.3160	6.4541	146.1	0.3142	5.9136	146.0	0.3125	250
260	8.0083	148.5	0.3213	7.2044	148.5	0.3193	6.5466	148.5	0.3175	5.9985	148.5	0.3159	260

ABSOLUTE PRESSURE, psia													
TEMP. °F	13			14			14.697			15			TEMP. °F
	(-33.99°F)			(-31.25°F)			(-29.42°F)			(-28.66°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(3.1644)	(86.1)	(0.2045)	(2.9510)	(86.5)	(0.2041)	(2.8190)	(86.8)	(0.2039)	(2.7651)	(86.9)	(0.2038)	
-30	3.1989	86.9	0.2062	2.9611	86.8	0.2047	-	-	-	-	-	-	-30
-20	3.2845	88.7	0.2105	3.0413	88.6	0.2089	2.8913	88.6	0.2079	2.8305	88.5	0.2075	-20
-10	3.3693	90.6	0.2146	3.1206	90.5	0.2131	2.9673	90.4	0.2121	2.9051	90.4	0.2117	-10
0	3.4533	92.4	0.2188	3.1991	92.4	0.2173	3.0424	92.3	0.2163	2.9788	92.3	0.2159	0
10	3.5366	94.3	0.2229	3.2770	94.3	0.2214	3.1169	94.2	0.2204	3.0520	94.2	0.2200	10
20	3.6194	96.3	0.2269	3.3543	96.2	0.2254	3.1908	96.2	0.2244	3.1245	96.1	0.2240	20
30	3.7018	98.2	0.2309	3.4311	98.1	0.2294	3.2643	98.1	0.2284	3.1966	98.1	0.2280	30
40	3.7837	100.2	0.2348	3.5076	100.1	0.2334	3.3373	100.1	0.2324	3.2682	100.0	0.2320	40
50	3.8652	102.1	0.2387	3.5836	102.1	0.2373	3.4100	102.0	0.2363	3.3395	102.0	0.2359	50
60	3.9465	104.1	0.2426	3.6593	104.1	0.2412	3.4823	104.0	0.2402	3.4104	104.0	0.2398	60
70	4.0274	106.1	0.2465	3.7347	106.1	0.2450	3.5543	106.1	0.2441	3.4811	106.0	0.2437	70
80	4.1081	108.2	0.2503	3.8099	108.1	0.2488	3.6261	108.1	0.2479	3.5515	108.1	0.2475	80
90	4.1885	110.2	0.2540	3.8848	110.2	0.2526	3.6976	110.2	0.2517	3.6216	110.1	0.2513	90
100	4.2687	112.3	0.2578	3.9595	112.3	0.2564	3.7689	112.2	0.2554	3.6915	112.2	0.2550	100
110	4.3488	114.4	0.2615	4.0340	114.4	0.2601	3.8400	114.3	0.2591	3.7613	114.3	0.2587	110
120	4.4286	116.5	0.2652	4.1084	116.5	0.2638	3.9110	116.5	0.2628	3.8308	116.5	0.2624	120
130	4.5083	118.7	0.2689	4.1826	118.6	0.2674	3.9817	118.6	0.2665	3.9002	118.6	0.2661	130
140	4.5879	120.8	0.2725	4.2566	120.8	0.2711	4.0524	120.8	0.2701	3.9695	120.8	0.2697	140
150	4.6673	123.0	0.2761	4.3305	123.0	0.2747	4.1229	123.0	0.2738	4.0386	123.0	0.2734	150
160	4.7466	125.2	0.2797	4.4043	125.2	0.2783	4.1932	125.2	0.2774	4.1076	125.2	0.2770	160
170	4.8258	127.4	0.2833	4.4780	127.4	0.2818	4.2635	127.4	0.2809	4.1765	127.4	0.2805	170
180	4.9049	129.7	0.2868	4.5515	129.7	0.2854	4.3337	129.6	0.2845	4.2453	129.6	0.2841	180
190	4.9839	132.0	0.2903	4.6250	131.9	0.2889	4.4037	131.9	0.2880	4.3140	131.9	0.2876	190
200	5.0628	134.3	0.2938	4.6984	134.2	0.2924	4.4737	134.2	0.2915	4.3826	134.2	0.2911	200
210	5.1416	136.6	0.2973	4.7717	136.5	0.2959	4.5436	136.5	0.2950	4.4511	136.5	0.2946	210
220	5.2204	138.9	0.3008	4.8449	138.9	0.2994	4.6134	138.9	0.2984	4.5195	138.9	0.2980	220
230	5.2990	141.3	0.3042	4.9181	141.2	0.3028	4.6832	141.2	0.3019	4.5879	141.2	0.3015	230
240	5.3777	143.6	0.3076	4.9912	143.6	0.3062	4.7529	143.6	0.3053	4.6562	143.6	0.3049	240
250	5.4562	146.0	0.3110	5.0642	146.0	0.3096	4.8225	146.0	0.3087	4.7244	146.0	0.3083	250
260	5.5347	148.4	0.3144	5.1372	148.4	0.3130	4.8921	148.4	0.3121	4.7926	148.4	0.3117	260
270	5.6132	150.9	0.3177	5.2101	150.9	0.3163	4.9616	150.8	0.3154	4.8608	150.8	0.3150	270

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb·R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia

TEMP. °F	ABSOLUTE PRESSURE, psia												TEMP. °F
	16			17			18			19			
	(-26.20°F)			(-23.86°F)			(-21.63°F)			(-19.49°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(2.6018)	(87.3)	(0.2035)	(2.457)	(87.6)	(0.2032)	(2.3278)	(87.1)	(0.2029)	(2.2117)	(88.3)	(0.2027)		
-20	2.6459	88.4	0.20614	2.4831	88.4	0.2049	2.3382	88.3	0.2037	-	-	-	-20
-10	2.7164	90.3	0.21038	2.5499	90.3	0.2091	2.4019	90.2	0.2079	2.2694	90.1	0.2068	-10
0	2.786	92.2	0.21455	2.6159	92.2	0.2133	2.4646	92.1	0.2121	2.3293	92.0	0.2110	0
10	2.855	94.1	0.21866	2.6812	94.1	0.2174	2.5267	94.0	0.2163	2.3885	93.9	0.2151	10
20	2.9234	96.1	0.22273	2.7460	96.0	0.2215	2.5882	95.9	0.2203	2.447	95.9	0.2192	20
30	2.9913	98.0	0.22674	2.8102	98.0	0.2255	2.6492	97.9	0.2244	2.5051	97.8	0.2233	30
40	3.0588	100.0	0.23071	2.8740	99.9	0.2295	2.7097	99.9	0.2284	2.5627	99.8	0.2273	40
50	3.1259	102.0	0.23464	2.9374	101.9	0.2334	2.7699	101.9	0.2323	2.6199	101.8	0.2312	50
60	3.1927	104.0	0.23853	3.0005	103.9	0.2373	2.8297	103.9	0.2362	2.6768	103.8	0.2351	60
70	3.2591	106.0	0.24239	3.0633	105.9	0.2412	2.8892	105.9	0.2401	2.7334	105.8	0.2390	70
80	3.3253	108.0	0.24621	3.1258	108.0	0.2450	2.9484	107.9	0.2439	2.7897	107.9	0.2428	80
90	3.3913	110.1	0.25	3.1881	110.1	0.2488	3.0074	110.0	0.2477	2.8458	110.0	0.2466	90
100	3.4571	112.2	0.25376	3.2501	112.1	0.2526	3.0662	112.1	0.2515	2.9016	112.1	0.2504	100
110	3.5226	114.3	0.25748	3.3120	114.3	0.2563	3.1248	114.2	0.2552	2.9573	114.2	0.2541	110
120	3.588	116.4	0.26118	3.3737	116.4	0.2600	3.1832	116.3	0.2589	3.0128	116.3	0.2579	120
130	3.6532	118.6	0.26486	3.4352	118.5	0.2637	3.2414	118.5	0.2626	3.0681	118.5	0.2615	130
140	3.7183	120.7	0.2685	3.4966	120.7	0.2673	3.2995	120.7	0.2662	3.1232	120.6	0.2652	140
150	3.7832	122.9	0.27212	3.5578	122.9	0.2710	3.3575	122.9	0.2699	3.1783	122.8	0.2688	150
160	3.848	125.1	0.27572	3.6190	125.1	0.2746	3.4153	125.1	0.2735	3.2332	125.0	0.2724	160
170	3.9127	127.4	0.27929	3.6800	127.3	0.2781	3.4731	127.3	0.2770	3.2879	127.3	0.2760	170
180	3.9773	129.6	0.28284	3.7409	129.6	0.2817	3.5307	129.6	0.2806	3.3426	129.5	0.2796	180
190	4.0418	131.9	0.28637	3.8017	131.9	0.2852	3.5882	131.8	0.2841	3.3972	131.8	0.2831	190
200	4.1062	134.2	0.28987	3.8624	134.2	0.2887	3.6456	134.1	0.2876	3.4517	134.1	0.2866	200
210	4.1705	136.5	0.29335	3.9230	136.5	0.2922	3.703	136.4	0.2911	3.5061	136.4	0.2901	210
220	4.2348	138.8	0.29681	3.9836	138.8	0.2957	3.7603	138.8	0.2946	3.5605	138.8	0.2935	220
230	4.299	141.2	0.30025	4.0441	141.2	0.2991	3.8175	141.1	0.2980	3.6147	141.1	0.2970	230
240	4.3631	143.6	0.30367	4.1045	143.5	0.3025	3.8746	143.5	0.3014	3.6689	143.5	0.3004	240
250	4.4272	146.0	0.30707	4.1649	145.9	0.3059	3.9317	145.9	0.3048	3.7231	145.9	0.3038	250
260	4.4912	148.4	0.31046	4.2252	148.4	0.3093	3.9887	148.3	0.3082	3.7771	148.3	0.3072	260
270	4.5551	150.8	0.31382	4.2854	150.8	0.3127	4.0457	150.8	0.3116	3.8312	150.7	0.3106	270
280	4.619	153.3	0.31716	4.3456	153.2	0.3160	4.1026	153.2	0.3149	3.8852	153.2	0.3139	280

ABSOLUTE PRESSURE, psia

TEMP. °F	ABSOLUTE PRESSURE, psia												TEMP. °F
	20			21			22			23			
	(-17.44°F)			(-15.46°F)			(-13.56°F)			(-11.73°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(2.1069)	(88.6)	(0.2025)	(2.0117)	(-88.9)	(-0.2023)	(1.9249)	(-89.2)	(-0.2021)	(1.8454)	(-89.4)	(-0.2019)		
-10	2.1501	90.0	0.2057	2.0421	89.9	0.2046	1.9440	89.8	0.2036	1.8543	89.8	0.2027	-10
0	2.2074	91.9	0.2099	2.0971	91.9	0.2089	1.9968	91.8	0.2079	1.9052	91.7	0.2069	0
10	2.2640	93.9	0.2141	2.1514	93.8	0.2131	2.0489	93.7	0.2121	1.9554	93.7	0.2111	10
20	2.3200	95.8	0.2182	2.2050	95.7	0.2172	2.1004	95.7	0.2162	2.0049	95.6	0.2153	20
30	2.3754	97.8	0.2222	2.2580	97.7	0.2212	2.1513	97.7	0.2203	2.0539	97.6	0.2194	30
40	2.4304	99.8	0.2262	2.3107	99.7	0.2252	2.2018	99.6	0.2243	2.1024	99.6	0.2234	40
50	2.4850	101.8	0.2302	2.3629	101.7	0.2292	2.2519	101.6	0.2283	2.1505	101.6	0.2274	50
60	2.5393	103.8	0.2341	2.4148	103.7	0.2331	2.3016	103.7	0.2322	2.1982	103.6	0.2313	60
70	2.5932	105.8	0.2380	2.4663	105.8	0.2370	2.3510	105.7	0.2361	2.2457	105.7	0.2352	70
80	2.6469	107.9	0.2418	2.5176	107.8	0.2408	2.4001	107.8	0.2399	2.2928	107.7	0.2390	80
90	2.7003	109.9	0.2456	2.5687	109.9	0.2447	2.4490	109.8	0.2437	2.3397	109.8	0.2429	90
100	2.7535	112.0	0.2494	2.6195	112.0	0.2484	2.4977	111.9	0.2475	2.3864	111.9	0.2466	100
110	2.8065	114.1	0.2531	2.6701	114.1	0.2522	2.5461	114.1	0.2513	2.4329	114.0	0.2504	110
120	2.8594	116.3	0.2569	2.7206	116.2	0.2559	2.5944	116.2	0.2550	2.4792	116.2	0.2541	120
130	2.9120	118.4	0.2605	2.7709	118.4	0.2596	2.6425	118.4	0.2587	2.5253	118.3	0.2578	130
140	2.9646	120.6	0.2642	2.8210	120.6	0.2632	2.6905	120.5	0.2623	2.5713	120.5	0.2615	140
150	3.0169	122.8	0.2678	2.8710	122.8	0.2669	2.7383	122.7	0.2660	2.6171	122.7	0.2651	150
160	3.0692	125.0	0.2714	2.9208	125.0	0.2705	2.7860	124.9	0.2696	2.6628	124.9	0.2687	160
170	3.1213	127.2	0.2750	2.9706	127.2	0.2741	2.8336	127.2	0.2732	2.7084	127.2	0.2723	170
180	3.1734	129.5	0.2786	3.0202	129.5	0.2776	2.8810	129.4	0.2767	2.7539	129.4	0.2759	180
190	3.2253	131.8	0.2821	3.0698	131.8	0.2812	2.9284	131.7	0.2803	2.7993	131.7	0.2794	190
200	3.2772	134.1	0.2856	3.1193	134.0	0.2847	2.9757	134.0	0.2838	2.8446	134.0	0.2829	200
210	3.3289	136.4	0.2891	3.1686	136.4	0.2882	3.0229	136.3	0.2873	2.8898	136.3	0.2864	210
220	3.3806	138.7	0.2926	3.2179	138.7	0.2916	3.0700	138.7	0.2907	2.9350	138.7	0.2899	220
230	3.4323	141.1	0.2960	3.2672	141.1	0.2951	3.1171	141.0	0.2942	2.9800	141.0	0.2933	230
240	3.4838	143.5	0.2994	3.3163	143.4	0.2985	3.1641	143.4	0.2976	3.0250	143.4	0.2968	240
250	3.5353	145.9	0.3028	3.3654	145.8	0.3019	3.2110	145.8	0.3010	3.0700	145.8	0.3002	250
260	3.5867	148.3	0.3062	3.4145	148.3	0.3053	3.2579	148.2	0.3044	3.1149	148.2	0.3036	260
270	3.6381	150.7	0.3096	3.4635	150.7	0.3087	3.3047	150.7	0.3078	3.1597	150.7	0.3069	270
280	3.6895	153.2	0.3129	3.5124	153.2	0.3120	3.3514	153.1	0.3111	3.2045	153.1	0.3103	280
290	3.7408	155.7	0.3163	3.5613	155.6	0.3153	3.3982	155.6	0.3145	3.2492	155.6	0.3136	290

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb-R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia													TEMP. °F
TEMP. °F	24			25			26			27			
	(-9.95°F)			(-8.23°F)			(-6.57°F)			(-4.95°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(1.7723)	(89.7)	(0.2017)	(1.7048)	(89.9)	(0.2016)	(1.6424)	(90.2)	(0.2014)	(1.5844)	(90.4)	(0.2013)		
0	1.8213	91.6	0.2060	1.7440	91.5	0.2051	1.6726	91.5	0.2043	1.6065	91.4	0.2034	0
10	1.8697	93.6	0.2102	1.7907	93.5	0.2094	1.7179	93.4	0.2085	1.6504	93.4	0.2077	10
20	1.9174	95.5	0.2144	1.8368	95.5	0.2135	1.7625	95.4	0.2127	1.6936	95.3	0.2119	20
30	1.9646	97.5	0.2185	1.8824	97.5	0.2176	1.8065	97.4	0.2168	1.7362	97.3	0.2160	30
40	2.0113	99.5	0.2225	1.9274	99.5	0.2217	1.8500	99.4	0.2208	1.7783	99.3	0.2200	40
50	2.0576	101.5	0.2265	1.9721	101.5	0.2256	1.8931	101.4	0.2248	1.8200	101.4	0.2241	50
60	2.1035	103.6	0.2304	2.0163	103.5	0.2296	1.9359	103.5	0.2288	1.8614	103.4	0.2280	60
70	2.1491	105.6	0.2343	2.0603	105.6	0.2335	1.9783	105.5	0.2327	1.9024	105.5	0.2319	70
80	2.1945	107.7	0.2382	2.1040	107.6	0.2374	2.0204	107.6	0.2366	1.9431	107.5	0.2358	80
90	2.2396	109.8	0.2420	2.1474	109.7	0.2412	2.0623	109.7	0.2404	1.9835	109.6	0.2396	90
100	2.2844	111.9	0.2458	2.1906	111.8	0.2450	2.1040	111.8	0.2442	2.0238	111.7	0.2434	100
110	2.3291	114.0	0.2495	2.2336	113.9	0.2487	2.1454	113.9	0.2480	2.0638	113.9	0.2472	110
120	2.3736	116.1	0.2533	2.2764	116.1	0.2525	2.1867	116.0	0.2517	2.1036	116.0	0.2509	120
130	2.4179	118.3	0.2570	2.3190	118.2	0.2562	2.2278	118.2	0.2554	2.1433	118.2	0.2546	130
140	2.4620	120.5	0.2606	2.3615	120.4	0.2598	2.2687	120.4	0.2591	2.1828	120.4	0.2583	140
150	2.5061	122.7	0.2643	2.4039	122.6	0.2635	2.3095	122.6	0.2627	2.2222	122.6	0.2620	150
160	2.5499	124.9	0.2679	2.4461	124.9	0.2671	2.3502	124.8	0.2663	2.2615	124.8	0.2656	160
170	2.5937	127.1	0.2715	2.4882	127.1	0.2707	2.3908	127.1	0.2699	2.3006	127.0	0.2692	170
180	2.6374	129.4	0.2750	2.5302	129.4	0.2743	2.4312	129.3	0.2735	2.3396	129.3	0.2728	180
190	2.6810	131.7	0.2786	2.5721	131.6	0.2778	2.4716	131.6	0.2770	2.3785	131.6	0.2763	190
200	2.7244	134.0	0.2821	2.6139	133.9	0.2813	2.5119	133.9	0.2806	2.4174	133.9	0.2798	200
210	2.7678	136.3	0.2856	2.6556	136.3	0.2848	2.5520	136.2	0.2840	2.4561	136.2	0.2833	210
220	2.8112	138.6	0.2891	2.6973	138.6	0.2883	2.5921	138.6	0.2875	2.4948	138.6	0.2868	220
230	2.8544	141.0	0.2925	2.7389	141.0	0.2917	2.6322	141.0	0.2910	2.5334	140.9	0.2902	230
240	2.8976	143.4	0.2959	2.7804	143.4	0.2952	2.6721	143.3	0.2944	2.5719	143.3	0.2937	240
250	2.9407	145.8	0.2994	2.8218	145.8	0.2986	2.7120	145.7	0.2978	2.6104	145.7	0.2971	250
260	2.9838	148.2	0.3027	2.8632	148.2	0.3020	2.7519	148.2	0.3012	2.6488	148.1	0.3005	260
270	3.0268	150.6	0.3061	2.9045	150.6	0.3053	2.7917	150.6	0.3046	2.6872	150.6	0.3039	270
280	3.0698	153.1	0.3095	2.9458	153.1	0.3087	2.8314	153.1	0.3079	2.7255	153.0	0.3072	280
290	3.1127	155.6	0.3128	2.9871	155.6	0.3120	2.8711	155.6	0.3113	2.7637	155.5	0.3105	290
300	3.1555	158.1	0.3161	3.0283	158.1	0.3153	2.9108	158.1	0.3146	2.8020	158.0	0.3139	300

ABSOLUTE PRESSURE, psia													TEMP. °F
TEMP. °F	28			29			30			31			
	(-3.38°F)			(-1.86°F)			(-0.37°F)			(1.08°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(1.5304)	(90.6)	(0.2012)	(1.4801)	(90.9)	(0.2010)	(1.4329)	(91.1)	(0.2009)	(1.3888)	(91.3)	(0.2008)		
0	1.5451	91.3	0.2026	1.4879	91.2	0.2018	1.4345	91.1	0.2011	-	-	-	0
10	1.5877	93.3	0.2069	1.5293	93.2	0.2061	1.4748	93.1	0.2054	1.4238	93.1	0.2047	10
20	1.6296	95.3	0.2111	1.5700	95.2	0.2103	1.5144	95.1	0.2096	1.4624	95.1	0.2089	20
30	1.6709	97.3	0.2152	1.6101	97.2	0.2145	1.5534	97.2	0.2137	1.5003	97.1	0.2130	30
40	1.7117	99.3	0.2193	1.6497	99.2	0.2185	1.5919	99.2	0.2178	1.5377	99.1	0.2171	40
50	1.7521	101.3	0.2233	1.6889	101.3	0.2226	1.6299	101.2	0.2219	1.5747	101.2	0.2212	50
60	1.7922	103.4	0.2273	1.7277	103.3	0.2265	1.6676	103.3	0.2258	1.6113	103.2	0.2251	60
70	1.8318	105.4	0.2312	1.7662	105.4	0.2305	1.7049	105.3	0.2298	1.6475	105.3	0.2291	70
80	1.8712	107.5	0.2351	1.8044	107.4	0.2343	1.7419	107.4	0.2337	1.6835	107.4	0.2330	80
90	1.9104	109.6	0.2389	1.8423	109.5	0.2382	1.7787	109.5	0.2375	1.7192	109.5	0.2368	90
100	1.9493	111.7	0.2427	1.8799	111.7	0.2420	1.8152	111.6	0.2413	1.7547	111.6	0.2407	100
110	1.9880	113.8	0.2465	1.9174	113.8	0.2458	1.8515	113.7	0.2451	1.7899	113.7	0.2444	110
120	2.0265	116.0	0.2502	1.9547	115.9	0.2495	1.8877	115.9	0.2488	1.8250	115.9	0.2482	120
130	2.0649	118.1	0.2539	1.9918	118.1	0.2532	1.9236	118.1	0.2526	1.8599	118.0	0.2519	130
140	2.1031	120.3	0.2576	2.0288	120.3	0.2569	1.9594	120.3	0.2562	1.8946	120.2	0.2556	140
150	2.1411	122.5	0.2613	2.0656	122.5	0.2606	1.9951	122.5	0.2599	1.9292	122.4	0.2592	150
160	2.1790	124.8	0.2649	2.1023	124.7	0.2642	2.0306	124.7	0.2635	1.9636	124.7	0.2629	160
170	2.2168	127.0	0.2685	2.1388	127.0	0.2678	2.0661	126.9	0.2671	1.9980	126.9	0.2665	170
180	2.2545	129.3	0.2720	2.1753	129.2	0.2714	2.1014	129.2	0.2707	2.0322	129.2	0.2701	180
190	2.2921	131.6	0.2756	2.2117	131.5	0.2749	2.1366	131.5	0.2742	2.0663	131.5	0.2736	190
200	2.3296	133.9	0.2791	2.2479	133.8	0.2784	2.1717	133.8	0.2778	2.1004	133.8	0.2771	200
210	2.3671	136.2	0.2826	2.2841	136.2	0.2819	2.2067	136.1	0.2813	2.1343	136.1	0.2806	210
220	2.4044	138.5	0.2861	2.3202	138.5	0.2854	2.2417	138.5	0.2848	2.1682	138.5	0.2841	220
230	2.4417	140.9	0.2895	2.3563	140.9	0.2889	2.2766	140.9	0.2882	2.2020	140.8	0.2876	230
240	2.4789	143.3	0.2930	2.3922	143.3	0.2923	2.3114	143.2	0.2916	2.2357	143.2	0.2910	240
250	2.5160	145.7	0.2964	2.4281	145.7	0.2957	2.3461	145.7	0.2951	2.2694	145.6	0.2944	250
260	2.5531	148.1	0.2998	2.4640	148.1	0.2991	2.3808	148.1	0.2985	2.3030	148.1	0.2978	260
270	2.5901	150.6	0.3032	2.4998	150.5	0.3025	2.4155	150.5	0.3018	2.3366	150.5	0.3012	270
280	2.6271	153.0	0.3065	2.5355	153.0	0.3058	2.4500	153.0	0.3052	2.3701	153.0	0.3046	280
290	2.6640	155.5	0.3099	2.5712	155.5	0.3092	2.4846	155.5	0.3085	2.4035	155.5	0.3079	290
300	2.7009	158.0	0.3132	2.6069	158.0	0.3125	2.5191	158.0	0.3118	2.4370	158.0	0.3112	300

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb·R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia

TEMP. °F	ABSOLUTE PRESSURE, psia												TEMP. °F
	32			33			34			35			
	(2.49°F)			(3.87°F)			(2.49°F)			(3.87°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(1.3472)	(91.5)	(0.2007)	(1.3081)	(91.7)	(0.2006)	(1.2713)	(91.9)	(0.2005)	(1.2364)	(92.1)	(0.2004)		
10	1.3760	93.0	0.2039	1.3310	92.9	0.2032	1.2887	92.8	0.2026	1.2487	92.8	0.2019	10
20	1.4136	95.0	0.2082	1.3677	94.9	0.2075	1.3245	94.9	0.2068	1.2838	94.8	0.2062	20
30	1.4505	97.0	0.2123	1.4037	97.0	0.2117	1.3597	96.9	0.2110	1.3182	96.8	0.2104	30
40	1.4869	99.1	0.2164	1.4392	99.0	0.2158	1.3943	98.9	0.2151	1.3520	98.9	0.2145	40
50	1.5229	101.1	0.2205	1.4743	101.0	0.2198	1.4285	101.0	0.2192	1.3853	100.9	0.2186	50
60	1.5585	103.2	0.2245	1.5090	103.1	0.2238	1.4623	103.0	0.2232	1.4183	103.0	0.2226	60
70	1.5938	105.2	0.2284	1.5433	105.2	0.2278	1.4957	105.1	0.2272	1.4509	105.1	0.2266	70
80	1.6287	107.3	0.2323	1.5773	107.3	0.2317	1.5289	107.2	0.2311	1.4832	107.2	0.2305	80
90	1.6634	109.4	0.2362	1.6110	109.4	0.2356	1.5617	109.3	0.2349	1.5152	109.3	0.2343	90
100	1.6979	111.5	0.2400	1.6446	111.5	0.2394	1.5943	111.4	0.2388	1.5470	111.4	0.2382	100
110	1.7321	113.7	0.2438	1.6779	113.6	0.2432	1.6268	113.6	0.2426	1.5786	113.5	0.2420	110
120	1.7662	115.8	0.2475	1.7110	115.8	0.2469	1.6590	115.7	0.2463	1.6100	115.7	0.2457	120
130	1.8001	118.0	0.2513	1.7439	118.0	0.2506	1.6910	117.9	0.2500	1.6412	117.9	0.2495	130
140	1.8338	120.2	0.2550	1.7767	120.2	0.2543	1.7229	120.1	0.2537	1.6722	120.1	0.2532	140
150	1.8674	122.4	0.2586	1.8093	122.4	0.2580	1.7546	122.3	0.2574	1.7031	122.3	0.2568	150
160	1.9008	124.6	0.2622	1.8418	124.6	0.2616	1.7862	124.6	0.2610	1.7339	124.5	0.2605	160
170	1.9341	126.9	0.2658	1.8742	126.9	0.2652	1.8177	126.8	0.2647	1.7645	126.8	0.2641	170
180	1.9674	129.2	0.2694	1.9064	129.1	0.2688	1.8491	129.1	0.2682	1.7950	129.1	0.2677	180
190	2.0005	131.5	0.2730	1.9386	131.4	0.2724	1.8804	131.4	0.2718	1.8255	131.4	0.2712	190
200	2.0335	133.8	0.2765	1.9707	133.7	0.2759	1.9116	133.7	0.2753	1.8558	133.7	0.2748	200
210	2.0664	136.1	0.2800	2.0027	136.1	0.2794	1.9427	136.0	0.2788	1.8861	136.0	0.2783	210
220	2.0993	138.4	0.2835	2.0346	138.4	0.2829	1.9737	138.4	0.2823	1.9162	138.4	0.2818	220
230	2.1321	140.8	0.2870	2.0664	140.8	0.2864	2.0046	140.8	0.2858	1.9463	140.7	0.2852	230
240	2.1648	143.2	0.2904	2.0982	143.2	0.2898	2.0355	143.2	0.2892	1.9764	143.1	0.2887	240
250	2.1975	145.6	0.2938	2.1299	145.6	0.2932	2.0663	145.6	0.2926	2.0063	145.5	0.2921	250
260	2.2301	148.0	0.2972	2.1616	148.0	0.2966	2.0971	148.0	0.2960	2.0363	148.0	0.2955	260
270	2.2626	150.5	0.3006	2.1931	150.5	0.3000	2.1278	150.4	0.2994	2.0661	150.4	0.2989	270
280	2.2951	153.0	0.3040	2.2247	152.9	0.3034	2.1584	152.9	0.3028	2.0959	152.9	0.3022	280
290	2.3276	155.4	0.3073	2.2562	155.4	0.3067	2.1890	155.4	0.3061	2.1257	155.4	0.3056	290
300	2.3600	157.9	0.3106	2.2876	157.9	0.3100	2.2196	157.9	0.3094	2.1554	157.9	0.3089	300
310	2.3923	160.5	0.3139	2.3191	160.4	0.3133	2.2501	160.4	0.3127	2.1851	160.4	0.3122	310

ABSOLUTE PRESSURE, psia

TEMP. °F	ABSOLUTE PRESSURE, psia												TEMP. °F
	36			37			38			39			
	(7.83°F)			(9.09°F)			(10.33°F)			(11.54°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(1.2034)	(92.2)	(0.2003)	(1.1722)	(92.4)	(0.20021)	(1.1425)	(92.6)	(0.2001)	(1.1143)	(92.8)	(0.2001)		
10	1.2110	92.7	0.2013	1.1753	92.6	0.2006	—	—	—	—	—	—	10
20	1.2453	94.7	0.2055	1.2089	94.7	0.2049	1.1744	94.6	0.2043	1.1416	94.5	0.2037	20
30	1.2789	96.8	0.2098	1.2418	96.7	0.2091	1.2066	96.6	0.2086	1.1732	96.6	0.2080	30
40	1.3120	98.8	0.2139	1.2741	98.8	0.2133	1.2382	98.7	0.2127	1.2042	98.6	0.2121	40
50	1.3445	100.9	0.2180	1.3060	100.8	0.2174	1.2694	100.8	0.2168	1.2347	100.7	0.2162	50
60	1.3767	102.9	0.2220	1.3374	102.9	0.2214	1.3001	102.8	0.2208	1.2648	102.8	0.2203	60
70	1.4085	105.0	0.2260	1.3685	105.0	0.2254	1.3305	104.9	0.2248	1.2945	104.9	0.2243	70
80	1.4401	107.1	0.2299	1.3993	107.1	0.2293	1.3606	107.0	0.2287	1.3239	107.0	0.2282	80
90	1.4713	109.2	0.2338	1.4297	109.2	0.2332	1.3904	109.1	0.2326	1.3530	109.1	0.2321	90
100	1.5023	111.4	0.2376	1.4600	111.3	0.2370	1.4199	111.3	0.2365	1.3819	111.2	0.2359	100
110	1.5331	113.5	0.2414	1.4900	113.5	0.2408	1.4493	113.4	0.2403	1.4106	113.4	0.2398	110
120	1.5637	115.7	0.2452	1.5199	115.6	0.2446	1.4784	115.6	0.2441	1.4390	115.6	0.2435	120
130	1.5941	117.9	0.2489	1.5495	117.8	0.2483	1.5073	117.8	0.2478	1.4673	117.7	0.2473	130
140	1.6243	120.1	0.2526	1.5790	120.0	0.2520	1.5361	120.0	0.2515	1.4954	120.0	0.2510	140
150	1.6544	122.3	0.2563	1.6084	122.2	0.2557	1.5648	122.2	0.2552	1.5234	122.2	0.2547	150
160	1.6844	124.5	0.2599	1.6376	124.5	0.2594	1.5933	124.4	0.2588	1.5512	124.4	0.2583	160
170	1.7142	126.8	0.2635	1.6667	126.7	0.2630	1.6217	126.7	0.2624	1.5789	126.7	0.2619	170
180	1.7440	129.0	0.2671	1.6957	129.0	0.2666	1.6499	129.0	0.2660	1.6065	129.0	0.2655	180
190	1.7736	131.3	0.2707	1.7246	131.3	0.2701	1.6781	131.3	0.2696	1.6340	131.3	0.2691	190
200	1.8032	133.7	0.2742	1.7534	133.6	0.2737	1.7062	133.6	0.2731	1.6614	133.6	0.2726	200
210	1.8326	136.0	0.2777	1.7821	136.0	0.2772	1.7342	135.9	0.2767	1.6887	135.9	0.2761	210
220	1.8620	138.3	0.2812	1.8107	138.3	0.2807	1.7621	138.3	0.2801	1.7160	138.3	0.2796	220
230	1.8913	140.7	0.2847	1.8392	140.7	0.2841	1.7899	140.7	0.2836	1.7431	140.6	0.2831	230
240	1.9205	143.1	0.2881	1.8677	143.1	0.2876	1.8177	143.1	0.2871	1.7702	143.0	0.2866	240
250	1.9497	145.5	0.2915	1.8961	145.5	0.2910	1.8454	145.5	0.2905	1.7972	145.5	0.2900	250
260	1.9788	148.0	0.2949	1.9245	147.9	0.2944	1.8730	147.9	0.2939	1.8242	147.9	0.2934	260
270	2.0079	150.4	0.2983	1.9528	150.4	0.2978	1.9006	150.4	0.2973	1.8511	150.3	0.2968	270
280	2.0369	152.9	0.3017	1.9811	152.9	0.3012	1.9282	152.8	0.3006	1.8780	152.8	0.3001	280
290	2.0659	155.4	0.3050	2.0093	155.3	0.3045	1.9557	155.3	0.3040	1.9048	155.3	0.3035	290
300	2.0948	157.9	0.3083	2.0374	157.8	0.3078	1.9831	157.8	0.3073	1.9316	157.8	0.3068	300
310	2.1236	160.4	0.3116	2.0655	160.4	0.3111	2.0105	160.4	0.3106	1.9583	160.3	0.3101	310

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb-R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia													
TEMP. °F	40			41			42			43			TEMP. °F
	(12.73°F)			(13.89°F)			(15.03°F)			(16.16°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(1.0875)	(92.9)	(0.2000)	(1.0619)	(93.1)	(0.1999)	(1.0376)	(93.2)	(0.1998)	(1.0143)	(93.4)	(0.1998)	
20	1.1105	94.4	0.2031	1.0809	94.4	0.2026	1.0527	94.3	0.2020	1.0257	94.2	0.2014	20
30	1.1415	96.5	0.2074	1.1113	96.4	0.2068	1.0825	96.4	0.2063	1.0551	96.3	0.2057	30
40	1.1719	98.6	0.2116	1.1411	98.5	0.2110	1.1118	98.4	0.2105	1.0838	98.4	0.2099	40
50	1.2017	100.6	0.2157	1.1704	100.6	0.2151	1.1405	100.5	0.2146	1.1120	100.5	0.2141	50
60	1.2312	102.7	0.2197	1.1992	102.7	0.2192	1.1688	102.6	0.2187	1.1397	102.6	0.2181	60
70	1.2603	104.8	0.2237	1.2277	104.8	0.2232	1.1967	104.7	0.2227	1.1671	104.7	0.2222	70
80	1.2890	106.9	0.2277	1.2559	106.9	0.2271	1.2243	106.8	0.2266	1.1942	106.8	0.2261	80
90	1.3175	109.1	0.2316	1.2838	109.0	0.2310	1.2516	109.0	0.2305	1.2210	108.9	0.2300	90
100	1.3458	111.2	0.2354	1.3114	111.2	0.2349	1.2787	111.1	0.2344	1.2475	111.1	0.2339	100
110	1.3738	113.3	0.2392	1.3388	113.3	0.2387	1.3055	113.3	0.2382	1.2738	113.2	0.2377	110
120	1.4016	115.5	0.2430	1.3660	115.5	0.2425	1.3321	115.4	0.2420	1.2998	115.4	0.2415	120
130	1.4293	117.7	0.2468	1.3931	117.7	0.2462	1.3586	117.6	0.2458	1.3257	117.6	0.2453	130
140	1.4567	119.9	0.2505	1.4199	119.9	0.2500	1.3849	119.8	0.2495	1.3515	119.8	0.2490	140
150	1.4841	122.1	0.2541	1.4467	122.1	0.2536	1.4110	122.1	0.2532	1.3771	122.0	0.2527	150
160	1.5112	124.4	0.2578	1.4732	124.4	0.2573	1.4370	124.3	0.2568	1.4025	124.3	0.2563	160
170	1.5383	126.6	0.2614	1.4997	126.6	0.2609	1.4629	126.6	0.2604	1.4278	126.6	0.2600	170
180	1.5653	128.9	0.2650	1.5260	128.9	0.2645	1.4887	128.9	0.2640	1.4530	128.8	0.2636	180
190	1.5921	131.2	0.2686	1.5523	131.2	0.2681	1.5143	131.2	0.2676	1.4782	131.1	0.2671	190
200	1.6189	133.6	0.2721	1.5784	133.5	0.2716	1.5399	133.5	0.2712	1.5032	133.5	0.2707	200
210	1.6456	135.9	0.2756	1.6045	135.9	0.2752	1.5654	135.8	0.2747	1.5281	135.8	0.2742	210
220	1.6722	138.2	0.2791	1.6305	138.2	0.2787	1.5908	138.2	0.2782	1.5529	138.2	0.2777	220
230	1.6987	140.6	0.2826	1.6564	140.6	0.2821	1.6161	140.6	0.2817	1.5777	140.6	0.2812	230
240	1.7251	143.0	0.2861	1.6822	143.0	0.2856	1.6414	143.0	0.2851	1.6024	143.0	0.2846	240
250	1.7515	145.4	0.2895	1.7080	145.4	0.2890	1.6665	145.4	0.2885	1.6270	145.4	0.2881	250
260	1.7778	147.9	0.2929	1.7337	147.8	0.2924	1.6917	147.8	0.2919	1.6516	147.8	0.2915	260
270	1.8041	150.3	0.2963	1.7594	150.3	0.2958	1.7168	150.3	0.2953	1.6761	150.3	0.2949	270
280	1.8303	152.8	0.2996	1.7850	152.8	0.2992	1.7418	152.8	0.2987	1.7006	152.7	0.2982	280
290	1.8565	155.3	0.3030	1.8105	155.3	0.3025	1.7668	155.2	0.3020	1.7250	155.2	0.3016	290
300	1.8826	157.8	0.3063	1.8360	157.8	0.3058	1.7917	157.8	0.3054	1.7494	157.7	0.3049	300
310	1.9087	160.3	0.3096	1.8615	160.3	0.3091	1.8166	160.3	0.3087	1.7737	160.3	0.3082	310
320	1.9347	162.9	0.3129	1.8869	162.9	0.3124	1.8414	162.8	0.3120	1.7980	162.8	0.3115	320

ABSOLUTE PRESSURE, psia													
TEMP. °F	44			45			46			47			TEMP. °F
	(17.26°F)			(18.34°F)			(19.41°F)			(20.46°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.9920)	(93.6)	(0.1997)	(0.9707)	(93.7)	(0.1996)	(0.9502)	(93.9)	(0.1996)	(0.9306)	(94.0)	(0.1995)	
20	1.0000	94.1	0.2009	0.9754	94.1	0.2004	0.9519	94.0	0.1998	—	—	—	20
30	1.0289	96.2	0.2052	1.0038	96.2	0.2047	0.9799	96.1	0.2042	0.9569	96.0	0.2037	30
40	1.0571	98.3	0.2094	1.0316	98.3	0.2089	1.0072	98.2	0.2084	0.9838	98.1	0.2079	40
50	1.0848	100.4	0.2136	1.0588	100.4	0.2131	1.0339	100.3	0.2126	1.0101	100.2	0.2121	50
60	1.1120	102.5	0.2176	1.0855	102.5	0.2171	1.0602	102.4	0.2167	1.0359	102.3	0.2162	60
70	1.1389	104.6	0.2217	1.1119	104.6	0.2212	1.0861	104.5	0.2207	1.0614	104.5	0.2202	70
80	1.1654	106.7	0.2256	1.1380	106.7	0.2251	1.1117	106.6	0.2247	1.0865	106.6	0.2242	80
90	1.1917	108.9	0.2295	1.1637	108.8	0.2291	1.1369	108.8	0.2286	1.1113	108.7	0.2281	90
100	1.2177	111.0	0.2334	1.1892	111.0	0.2329	1.1620	110.9	0.2325	1.1359	110.9	0.2320	100
110	1.2434	113.2	0.2372	1.2145	113.1	0.2368	1.1867	113.1	0.2363	1.1602	113.1	0.2359	110
120	1.2690	115.4	0.2410	1.2395	115.3	0.2406	1.2113	115.3	0.2401	1.1843	115.3	0.2397	120
130	1.2944	117.6	0.2448	1.2644	117.5	0.2443	1.2357	117.5	0.2439	1.2083	117.5	0.2434	130
140	1.3196	119.8	0.2485	1.2891	119.7	0.2481	1.2599	119.7	0.2476	1.2320	119.7	0.2472	140
150	1.3446	122.0	0.2522	1.3136	122.0	0.2518	1.2840	121.9	0.2513	1.2556	121.9	0.2509	150
160	1.3696	124.3	0.2559	1.3381	124.2	0.2554	1.3079	124.2	0.2550	1.2791	124.2	0.2545	160
170	1.3944	126.5	0.2595	1.3624	126.5	0.2591	1.3318	126.5	0.2586	1.3025	126.4	0.2582	170
180	1.4190	128.8	0.2631	1.3865	128.8	0.2627	1.3555	128.8	0.2622	1.3257	128.7	0.2618	180
190	1.4436	131.1	0.2667	1.4106	131.1	0.2662	1.3790	131.1	0.2658	1.3488	131.0	0.2654	190
200	1.4681	133.4	0.2702	1.4346	133.4	0.2698	1.4025	133.4	0.2693	1.3718	133.4	0.2689	200
210	1.4925	135.8	0.2738	1.4585	135.8	0.2733	1.4259	135.7	0.2729	1.3948	135.7	0.2724	210
220	1.5168	138.1	0.2773	1.4823	138.1	0.2768	1.4493	138.1	0.2764	1.4176	138.1	0.2760	220
230	1.5410	140.5	0.2807	1.5060	140.5	0.2803	1.4725	140.5	0.2799	1.4404	140.5	0.2794	230
240	1.5652	142.9	0.2842	1.5297	142.9	0.2837	1.4957	142.9	0.2833	1.4631	142.9	0.2829	240
250	1.5893	145.3	0.2876	1.5533	145.3	0.2872	1.5188	145.3	0.2867	1.4858	145.3	0.2863	250
260	1.6134	147.8	0.2910	1.5768	147.8	0.2906	1.5419	147.7	0.2902	1.5084	147.7	0.2897	260
270	1.6374	150.2	0.2944	1.6003	150.2	0.2940	1.5649	150.2	0.2936	1.5309	150.2	0.2931	270
280	1.6613	152.7	0.2978	1.6237	152.7	0.2973	1.5878	152.7	0.2969	1.5534	152.7	0.2965	280
290	1.6852	155.2	0.3011	1.6471	155.2	0.3007	1.6107	155.2	0.3003	1.5758	155.1	0.2999	290
300	1.7090	157.7	0.3045	1.6704	157.7	0.3040	1.6335	157.7	0.3036	1.5982	157.7	0.3032	300
310	1.7328	160.3	0.3078	1.6937	160.2	0.3073	1.6564	160.2	0.3069	1.6206	160.2	0.3065	310
320	1.7566	162.8	0.3111	1.7170	162.8	0.3106	1.6791	162.8	0.3102	1.6429	162.7	0.3098	320

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb·R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia

TEMP. °F	48			49			50			55			TEMP. °F
	(21.49°F)			(22.50°F)			(23.50°F)			(12.73°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.9118)	(94.2)	(0.1995)	(0.8938)	(94.3)	(0.1994)	(0.8764)	(94.4)	(0.1993)	(0.7988)	(95.1)	(0.1991)	
30	0.9349	96.0	0.2032	0.9138	95.9	0.2027	0.8935	95.8	0.2022	0.8030	95.5	0.1999	30
40	0.9613	98.1	0.2074	0.9398	98.0	0.2069	0.9192	97.9	0.2065	0.8270	97.6	0.2042	40
50	0.9872	100.2	0.2116	0.9653	100.1	0.2111	0.9443	100.1	0.2107	0.8504	99.8	0.2084	50
60	1.0126	102.3	0.2157	0.9903	102.2	0.2152	0.9689	102.2	0.2148	0.8733	101.9	0.2126	60
70	1.0377	104.4	0.2198	1.0149	104.4	0.2193	0.9931	104.3	0.2188	0.8958	104.1	0.2167	70
80	1.0624	106.5	0.2237	1.0392	106.5	0.2233	1.0170	106.5	0.2228	0.9179	106.2	0.2207	80
90	1.0867	108.7	0.2277	1.0632	108.6	0.2272	1.0406	108.6	0.2268	0.9397	108.4	0.2247	90
100	1.1109	110.9	0.2316	1.0869	110.8	0.2311	1.0639	110.8	0.2307	0.9613	110.5	0.2286	100
110	1.1348	113.0	0.2354	1.1104	113.0	0.2350	1.0869	112.9	0.2346	0.9825	112.7	0.2325	110
120	1.1584	115.2	0.2392	1.1336	115.2	0.2388	1.1098	115.1	0.2384	1.0036	114.9	0.2363	120
130	1.1819	117.4	0.2430	1.1567	117.4	0.2426	1.1325	117.3	0.2421	1.0245	117.2	0.2401	130
140	1.2053	119.6	0.2467	1.1796	119.6	0.2463	1.1550	119.6	0.2459	1.0452	119.4	0.2439	140
150	1.2284	121.9	0.2504	1.2023	121.8	0.2500	1.1773	121.8	0.2496	1.0657	121.6	0.2476	150
160	1.2515	124.1	0.2541	1.2250	124.1	0.2537	1.1995	124.1	0.2533	1.0861	123.9	0.2513	160
170	1.2744	126.4	0.2577	1.2474	126.4	0.2573	1.2216	126.3	0.2569	1.1064	126.2	0.2550	170
180	1.2972	128.7	0.2614	1.2698	128.7	0.2609	1.2435	128.6	0.2605	1.1265	128.5	0.2586	180
190	1.3198	131.0	0.2649	1.2921	131.0	0.2645	1.2654	131.0	0.2641	1.1465	130.8	0.2622	190
200	1.3424	133.3	0.2685	1.3142	133.3	0.2681	1.2871	133.3	0.2677	1.1665	133.1	0.2658	200
210	1.3649	135.7	0.2720	1.3363	135.7	0.2716	1.3088	135.6	0.2712	1.1863	135.5	0.2693	210
220	1.3873	138.0	0.2755	1.3583	138.0	0.2751	1.3304	138.0	0.2747	1.2061	137.9	0.2728	220
230	1.4097	140.4	0.2790	1.3802	140.4	0.2786	1.3519	140.4	0.2782	1.2258	140.3	0.2763	230
240	1.4320	142.8	0.2825	1.4020	142.8	0.2821	1.3733	142.8	0.2817	1.2454	142.7	0.2798	240
250	1.4542	145.3	0.2859	1.4238	145.2	0.2855	1.3947	145.2	0.2851	1.2649	145.1	0.2832	250
260	1.4763	147.7	0.2893	1.4455	147.7	0.2889	1.4160	147.7	0.2885	1.2844	147.5	0.2866	260
270	1.4984	150.2	0.2927	1.4672	150.1	0.2923	1.4373	150.1	0.2919	1.3038	150.0	0.2900	270
280	1.5204	152.6	0.2961	1.4888	152.6	0.2957	1.4585	152.6	0.2953	1.3232	152.5	0.2934	280
290	1.5424	155.1	0.2994	1.5104	155.1	0.2990	1.4796	155.1	0.2986	1.3425	155.0	0.2968	290
300	1.5644	157.6	0.3028	1.5319	157.6	0.3024	1.5007	157.6	0.3020	1.3618	157.5	0.3001	300
310	1.5863	160.2	0.3061	1.5534	160.2	0.3057	1.5218	160.1	0.3053	1.3811	160.1	0.3034	310
320	1.6081	162.7	0.3094	1.5748	162.7	0.3090	1.5428	162.7	0.3086	1.4003	162.6	0.3067	320
330	1.6299	165.3	0.3127	1.5962	165.3	0.3123	1.5638	165.3	0.3119	1.4194	165.2	0.3100	330

ABSOLUTE PRESSURE, psia

TEMP. °F	60			65			70			75			TEMP. °F
	(32.74°F)			(36.93°F)			(40.88°F)			(44.62°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.7336)	(95.7)	(0.1989)	(0.6782)	(96.3)	(0.1987)	(0.6304)	(96.8)	(0.1985)	(0.5887)	(97.3)	(0.1987)	
40	0.7500	97.3	0.2021	0.6847	96.9	0.2001	—	—	—	—	—	—	40
50	0.7721	99.4	0.2064	0.7057	99.1	0.2044	0.6486	98.8	0.2025	0.5990	98.5	0.2008	50
60	0.7936	101.6	0.2106	0.7260	101.3	0.2087	0.6680	101.0	0.2069	0.6176	100.7	0.2051	60
70	0.8146	103.8	0.2147	0.7459	103.5	0.2128	0.6868	103.2	0.2111	0.6356	103.0	0.2094	70
80	0.8353	106.0	0.2188	0.7653	105.7	0.2169	0.7053	105.4	0.2152	0.6531	105.2	0.2136	80
90	0.8557	108.1	0.2228	0.7844	107.9	0.2210	0.7233	107.7	0.2193	0.6703	107.4	0.2176	90
100	0.8757	110.3	0.2267	0.8033	110.1	0.2249	0.7411	109.9	0.2233	0.6872	109.7	0.2217	100
110	0.8955	112.5	0.2306	0.8218	112.3	0.2289	0.7586	112.1	0.2272	0.7038	111.9	0.2256	110
120	0.9151	114.7	0.2345	0.8401	114.5	0.2327	0.7759	114.3	0.2311	0.7201	114.1	0.2296	120
130	0.9345	117.0	0.2383	0.8583	116.8	0.2366	0.7929	116.6	0.2349	0.7362	116.4	0.2334	130
140	0.9537	119.2	0.2421	0.8762	119.0	0.2404	0.8098	118.9	0.2388	0.7522	118.7	0.2372	140
150	0.9727	121.5	0.2458	0.8940	121.3	0.2441	0.8264	121.1	0.2425	0.7679	121.0	0.2410	150
160	0.9916	123.7	0.2495	0.9116	123.6	0.2478	0.8430	123.4	0.2462	0.7835	123.3	0.2448	160
170	1.0103	126.0	0.2532	0.9291	125.9	0.2515	0.8594	125.7	0.2499	0.7990	125.6	0.2485	170
180	1.0290	128.3	0.2568	0.9464	128.2	0.2551	0.8756	128.0	0.2536	0.8143	127.9	0.2521	180
190	1.0475	130.7	0.2604	0.9637	130.5	0.2588	0.8918	130.4	0.2572	0.8295	130.2	0.2558	190
200	1.0659	133.0	0.2640	0.9808	132.9	0.2623	0.9079	132.7	0.2608	0.8446	132.6	0.2594	200
210	1.0842	135.4	0.2675	0.9979	135.2	0.2659	0.9238	135.1	0.2644	0.8596	135.0	0.2629	210
220	1.1025	137.8	0.2711	1.0148	137.6	0.2694	0.9397	137.5	0.2679	0.8746	137.4	0.2665	220
230	1.1207	140.1	0.2746	1.0317	140.0	0.2729	0.9555	139.9	0.2714	0.8894	139.8	0.2700	230
240	1.1388	142.6	0.2780	1.0485	142.4	0.2764	0.9712	142.3	0.2749	0.9042	142.2	0.2735	240
250	1.1568	145.0	0.2815	1.0653	144.9	0.2799	0.9868	144.8	0.2784	0.9189	144.7	0.2770	250
260	1.1748	147.4	0.2849	1.0820	147.3	0.2833	1.0024	147.2	0.2818	0.9335	147.1	0.2804	260
270	1.1927	149.9	0.2883	1.0986	149.8	0.2867	1.0180	149.7	0.2852	0.9481	149.6	0.2838	270
280	1.2105	152.4	0.2917	1.1152	152.3	0.2901	1.0334	152.2	0.2886	0.9626	152.1	0.2872	280
290	1.2283	154.9	0.2951	1.1317	154.8	0.2935	1.0488	154.7	0.2920	0.9770	154.6	0.2906	290
300	1.2461	157.4	0.2984	1.1482	157.3	0.2968	1.0642	157.2	0.2953	0.9915	157.1	0.2940	300
310	1.2638	160.0	0.3017	1.1646	159.9	0.3001	1.0795	159.8	0.2987	1.0058	159.7	0.2973	310
320	1.2815	162.5	0.3050	1.1810	162.4	0.3035	1.0948	162.3	0.3020	1.0202	162.3	0.3006	320
330	1.2991	165.1	0.3083	1.1973	165.0	0.3067	1.1101	164.9	0.3053	1.0345	164.8	0.3039	330
340	1.3167	167.7	0.3116	1.2137	167.6	0.3100	1.1253	167.5	0.3086	1.0487	167.4	0.3072	340

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb-R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia													
TEMP. °F	80			85			90			95			TEMP. °F
	(48.17°F)			(51.56°F)			(54.81°F)			(57.92°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.5521)	(97.7)	(0.1982)	(0.5196)	(98.1)	(0.1981)	(0.4907)	(98.6)	(0.19798)	(0.4646)	(98.9)	(0.1979)	
50	0.5554	98.1	0.1990	—	—	—	—	—	—	—	—	—	50
60	0.5733	100.4	0.2035	0.5342	100.1	0.2019	0.4993	99.8	0.2003	0.4680	99.4	0.1988	60
70	0.5906	102.7	0.2078	0.5509	102.4	0.2062	0.5155	102.1	0.2047	0.4837	101.8	0.2033	70
80	0.6074	104.9	0.2120	0.5671	104.7	0.2105	0.5311	104.4	0.2090	0.4989	104.1	0.2076	80
90	0.6239	107.2	0.2161	0.5828	106.9	0.2146	0.5463	106.7	0.2132	0.5135	106.4	0.2119	90
100	0.6400	109.4	0.2202	0.5982	109.2	0.2187	0.5611	108.9	0.2173	0.5278	108.7	0.2160	100
110	0.6558	111.7	0.2242	0.6134	111.5	0.2227	0.5756	111.2	0.2214	0.5418	111.0	0.2201	110
120	0.6713	113.9	0.2281	0.6282	113.7	0.2267	0.5898	113.5	0.2254	0.5555	113.3	0.2241	120
130	0.6866	116.2	0.2320	0.6428	116.0	0.2306	0.6038	115.8	0.2293	0.5689	115.6	0.2280	130
140	0.7017	118.5	0.2358	0.6572	118.3	0.2345	0.6176	118.1	0.2332	0.5822	117.9	0.2319	140
150	0.7167	120.8	0.2396	0.6714	120.6	0.2383	0.6312	120.4	0.2370	0.5952	120.3	0.2358	150
160	0.7315	123.1	0.2434	0.6855	122.9	0.2420	0.6446	122.8	0.2408	0.6081	122.6	0.2396	160
170	0.7461	125.4	0.2471	0.6994	125.3	0.2458	0.6579	125.1	0.2445	0.6208	124.9	0.2433	170
180	0.7606	127.7	0.2508	0.7132	127.6	0.2495	0.6711	127.4	0.2482	0.6333	127.3	0.2470	180
190	0.7750	130.1	0.2544	0.7269	130.0	0.2531	0.6841	129.8	0.2519	0.6458	129.7	0.2507	190
200	0.7893	132.5	0.2580	0.7404	132.3	0.2567	0.6970	132.2	0.2555	0.6581	132.0	0.2544	200
210	0.8035	134.8	0.2616	0.7539	134.7	0.2603	0.7098	134.6	0.2591	0.6704	134.4	0.2580	210
220	0.8175	137.2	0.2652	0.7672	137.1	0.2639	0.7225	137.0	0.2627	0.6825	136.9	0.2615	220
230	0.8316	139.7	0.2687	0.7805	139.5	0.2674	0.7352	139.4	0.2662	0.6945	139.3	0.2651	230
240	0.8455	142.1	0.2722	0.7937	142.0	0.2709	0.7477	141.9	0.2697	0.7065	141.7	0.2686	240
250	0.8594	144.5	0.2757	0.8069	144.4	0.2744	0.7602	144.3	0.2732	0.7184	144.2	0.2721	250
260	0.8732	147.0	0.2791	0.8199	146.9	0.2779	0.7726	146.8	0.2767	0.7303	146.7	0.2756	260
270	0.8869	149.5	0.2825	0.8329	149.4	0.2813	0.7850	149.3	0.2801	0.7420	149.2	0.2790	270
280	0.9006	152.0	0.2859	0.8459	151.9	0.2847	0.7973	151.8	0.2835	0.7537	151.7	0.2824	280
290	0.9142	154.5	0.2893	0.8588	154.4	0.2881	0.8095	154.3	0.2869	0.7654	154.2	0.2858	290
300	0.9278	157.0	0.2927	0.8716	156.9	0.2915	0.8217	156.9	0.2903	0.7770	156.8	0.2892	300
310	0.9413	159.6	0.2960	0.8844	159.5	0.2948	0.8338	159.4	0.2936	0.7886	159.3	0.2926	310
320	0.9548	162.2	0.2993	0.8972	162.1	0.2981	0.8460	162.0	0.2970	0.8001	161.9	0.2959	320
330	0.9683	164.8	0.3026	0.9099	164.7	0.3014	0.8580	164.6	0.3003	0.8116	164.5	0.2992	330
340	0.9817	167.4	0.3059	0.9226	167.3	0.3047	0.8700	167.2	0.3036	0.8230	167.1	0.3025	340
350	0.9951	170.0	0.3092	0.9353	169.9	0.3080	0.8820	169.8	0.3068	0.8344	169.7	0.3057	350

ABSOLUTE PRESSURE, psia													
TEMP. °F	100			110			120			130			TEMP. °F
	(60.92°F)			(66.58°F)			(71.86°F)			(76.83°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.4411)	(99.3)	(0.1978)	(0.4002)	(100.0)	(0.1976)	(0.3659)	(100.6)	(0.1974)	(0.3367)	(101.2)	(0.1972)	
70	0.4550	101.5	0.2019	0.4052	100.8	0.1991	—	—	—	—	—	—	70
80	0.4698	103.8	0.2063	0.4193	103.2	0.2036	0.3770	102.6	0.2011	0.3408	102.0	0.1987	80
90	0.4840	106.1	0.2105	0.4328	105.6	0.2080	0.3900	105.0	0.2056	0.3535	104.4	0.2033	90
100	0.4979	108.5	0.2147	0.4459	108.0	0.2123	0.4025	107.4	0.2099	0.3655	106.9	0.2077	100
110	0.5114	110.8	0.2188	0.4586	110.3	0.2164	0.4146	109.8	0.2142	0.3771	109.3	0.2120	110
120	0.5246	113.1	0.2229	0.4710	112.7	0.2205	0.4263	112.2	0.2183	0.3883	111.7	0.2162	120
130	0.5375	115.4	0.2268	0.4832	115.0	0.2245	0.4377	114.6	0.2224	0.3992	114.2	0.2203	130
140	0.5502	117.7	0.2307	0.4950	117.4	0.2285	0.4489	117.0	0.2264	0.4099	116.6	0.2244	140
150	0.5628	120.1	0.2346	0.5067	119.7	0.2324	0.4599	119.3	0.2303	0.4203	119.0	0.2283	150
160	0.5751	122.4	0.2384	0.5182	122.1	0.2362	0.4707	121.7	0.2342	0.4304	121.4	0.2322	160
170	0.5873	124.8	0.2422	0.5295	124.4	0.2400	0.4813	124.1	0.2380	0.4404	123.8	0.2361	170
180	0.5994	127.1	0.2459	0.5407	126.8	0.2438	0.4918	126.5	0.2418	0.4503	126.2	0.2399	180
190	0.6113	129.5	0.2496	0.5517	129.2	0.2475	0.5021	128.9	0.2455	0.4600	128.6	0.2437	190
200	0.6231	131.9	0.2532	0.5627	131.6	0.2511	0.5123	131.3	0.2492	0.4696	131.0	0.2474	200
210	0.6349	134.3	0.2569	0.5735	134.0	0.2548	0.5223	133.8	0.2529	0.4790	133.5	0.2511	210
220	0.6465	136.7	0.2604	0.5842	136.5	0.2584	0.5323	136.2	0.2565	0.4884	135.9	0.2547	220
230	0.6580	139.2	0.2640	0.5949	138.9	0.2620	0.5422	138.7	0.2601	0.4977	138.4	0.2583	230
240	0.6695	141.6	0.2675	0.6054	141.4	0.2655	0.5520	141.1	0.2636	0.5068	140.9	0.2619	240
250	0.6808	144.1	0.2710	0.6159	143.9	0.2690	0.5618	143.6	0.2672	0.5159	143.4	0.2654	250
260	0.6921	146.6	0.2745	0.6263	146.3	0.2725	0.5714	146.1	0.2707	0.5250	145.9	0.2689	260
270	0.7034	149.1	0.2780	0.6366	148.9	0.2760	0.5810	148.6	0.2741	0.5339	148.4	0.2724	270
280	0.7146	151.6	0.2814	0.6469	151.4	0.2794	0.5905	151.2	0.2776	0.5428	151.0	0.2759	280
290	0.7257	154.1	0.2848	0.6572	153.9	0.2828	0.6000	153.7	0.2810	0.5517	153.5	0.2793	290
300	0.7368	156.7	0.2882	0.6673	156.5	0.2862	0.6094	156.3	0.2844	0.5604	156.1	0.2827	300
310	0.7478	159.2	0.2915	0.6775	159.0	0.2896	0.6188	158.9	0.2878	0.5692	158.7	0.2861	310
320	0.7588	161.8	0.2948	0.6875	161.6	0.2929	0.6281	161.4	0.2911	0.5779	161.3	0.2894	320
330	0.7698	164.4	0.2982	0.6976	164.2	0.2962	0.6374	164.1	0.2944	0.5865	163.9	0.2928	330
340	0.7807	167.0	0.3014	0.7076	166.9	0.2995	0.6467	166.7	0.2977	0.5951	166.5	0.2961	340
350	0.7916	169.7	0.3047	0.7176	169.5	0.3028	0.6559	169.3	0.3010	0.6037	169.2	0.2994	350
360	0.8024	172.3	0.3080	0.7275	172.1	0.3061	0.6651	172.0	0.3043	0.6122	171.8	0.3026	360
370	0.8133	175.0	0.3112	0.7374	174.8	0.3093	0.6742	174.7	0.3075	0.6208	174.5	0.3059	370

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb·R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia

TEMP. °F	ABSOLUTE PRESSURE, psia												TEMP. °F
	140			150			160			170			
	(81.52°F)			(85.96°F)			(90.18°F)			(94.21°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(0.3115)	(101.7)	(0.1971)	(0.2895)	(102.1)	(0.1969)	(0.2702)	(102.6)	(0.1967)	(0.2530)	(103.0)	(0.1966)		
90	0.3220	103.8	0.2010	0.2944	103.2	0.1988	—	—	—	—	—	—	90
100	0.3337	106.3	0.2056	0.3059	105.8	0.2035	0.2814	105.2	0.2014	0.2595	104.5	0.1994	100
110	0.3449	108.8	0.2099	0.3168	108.3	0.2079	0.2921	107.7	0.2060	0.2701	107.2	0.2041	110
120	0.3557	111.3	0.2142	0.3273	110.8	0.2123	0.3023	110.3	0.2104	0.2801	109.8	0.2086	120
130	0.3661	113.7	0.2184	0.3373	113.3	0.2165	0.3121	112.8	0.2147	0.2896	112.3	0.2129	130
140	0.3763	116.1	0.2225	0.3471	115.7	0.2206	0.3215	115.3	0.2189	0.2988	114.8	0.2172	140
150	0.3862	118.6	0.2265	0.3566	118.2	0.2247	0.3307	117.8	0.2230	0.3077	117.4	0.2214	150
160	0.3959	121.0	0.2304	0.3659	120.6	0.2287	0.3396	120.2	0.2270	0.3163	119.9	0.2254	160
170	0.4054	123.4	0.2343	0.3749	123.1	0.2326	0.3483	122.7	0.2310	0.3247	122.4	0.2294	170
180	0.4147	125.9	0.2381	0.3838	125.5	0.2365	0.3568	125.2	0.2349	0.3329	124.9	0.2333	180
190	0.4239	128.3	0.2419	0.3926	128.0	0.2403	0.3652	127.7	0.2387	0.3409	127.3	0.2372	190
200	0.4330	130.7	0.2457	0.4012	130.4	0.2441	0.3734	130.1	0.2425	0.3488	129.8	0.2410	200
210	0.4419	133.2	0.2494	0.4097	132.9	0.2478	0.3815	132.6	0.2462	0.3565	132.3	0.2448	210
220	0.4507	135.7	0.2530	0.4180	135.4	0.2514	0.3894	135.1	0.2499	0.3642	134.9	0.2485	220
230	0.4594	138.2	0.2567	0.4263	137.9	0.2551	0.3973	137.6	0.2536	0.3717	137.4	0.2522	230
240	0.4681	140.6	0.2602	0.4345	140.4	0.2587	0.4051	140.1	0.2572	0.3791	139.9	0.2558	240
250	0.4766	143.2	0.2638	0.4426	142.9	0.2623	0.4128	142.7	0.2608	0.3864	142.4	0.2594	250
260	0.4851	145.7	0.2673	0.4506	145.4	0.2658	0.4204	145.2	0.2644	0.3937	145.0	0.2630	260
270	0.4935	148.2	0.2708	0.4585	148.0	0.2693	0.4279	147.8	0.2679	0.4009	147.5	0.2665	270
280	0.5019	150.7	0.2743	0.4664	150.5	0.2728	0.4354	150.3	0.2714	0.4080	150.1	0.2700	280
290	0.5102	153.3	0.2777	0.4743	153.1	0.2762	0.4428	152.9	0.2748	0.4151	152.7	0.2735	290
300	0.5184	155.9	0.2811	0.4820	155.7	0.2797	0.4502	155.5	0.2783	0.4221	155.3	0.2769	300
310	0.5266	158.5	0.2845	0.4898	158.3	0.2831	0.4575	158.1	0.2817	0.4290	157.9	0.2804	310
320	0.5348	161.1	0.2879	0.4974	160.9	0.2864	0.4647	160.7	0.2851	0.4359	160.5	0.2837	320
330	0.5429	163.7	0.2912	0.5051	163.5	0.2898	0.4720	163.4	0.2884	0.4427	163.2	0.2871	330
340	0.5509	166.3	0.2945	0.5126	166.2	0.2931	0.4791	166.0	0.2917	0.4496	165.8	0.2905	340
350	0.5590	169.0	0.2978	0.5202	168.8	0.2964	0.4863	168.7	0.2951	0.4563	168.5	0.2938	350
360	0.5670	171.7	0.3011	0.5277	171.5	0.2997	0.4934	171.3	0.2983	0.4631	171.2	0.2971	360
370	0.5749	174.4	0.3044	0.5352	174.2	0.3030	0.5004	174.0	0.3016	0.4698	173.9	0.3003	370
380	0.5828	177.1	0.3076	0.5426	176.9	0.3062	0.5075	176.7	0.3049	0.4764	176.6	0.3036	380
390	0.5907	179.8	0.3108	0.5501	179.6	0.3094	0.5145	179.5	0.3081	0.4831	179.3	0.3068	390

ABSOLUTE PRESSURE, psia

TEMP. °F	ABSOLUTE PRESSURE, psia												TEMP. °F
	180			190			200			220			
	(98.07°F)			(101.77°F)			(105.32°F)			(112.05°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
(0.2377)	(103.3)	(0.1964)	(0.2239)	(103.6)	(0.1962)	(0.2114)	(103.9)	(0.1960)	(0.1897)	(104.5)	(0.1957)		
100	0.2398	103.9	0.1973	—	—	—	—	—	—	—	—	—	100
110	0.2504	106.6	0.2022	0.2326	105.9	0.2003	0.2163	105.3	0.1984	—	—	—	110
120	0.2603	109.2	0.2068	0.2424	108.7	0.2050	0.2261	108.1	0.2033	0.1976	106.8	0.1998	120
130	0.2696	111.8	0.2112	0.2516	111.3	0.2096	0.2353	110.8	0.2079	0.2068	109.7	0.2046	130
140	0.2786	114.4	0.2156	0.2604	113.9	0.2139	0.2440	113.4	0.2124	0.2153	112.4	0.2093	140
150	0.2872	116.9	0.2198	0.2688	116.5	0.2182	0.2522	116.1	0.2167	0.2234	115.1	0.2137	150
160	0.2956	119.5	0.2239	0.2770	119.1	0.2224	0.2602	118.7	0.2209	0.2310	117.8	0.2181	160
170	0.3037	122.0	0.2279	0.2849	121.6	0.2265	0.2679	121.2	0.2250	0.2384	120.4	0.2223	170
180	0.3116	124.5	0.2319	0.2925	124.2	0.2304	0.2753	123.8	0.2291	0.2455	123.1	0.2264	180
190	0.3193	127.0	0.2358	0.3000	126.7	0.2344	0.2826	126.3	0.2330	0.2524	125.7	0.2304	190
200	0.3269	129.5	0.2396	0.3073	129.2	0.2382	0.2897	128.9	0.2369	0.2591	128.2	0.2344	200
210	0.3344	132.0	0.2434	0.3145	131.8	0.2421	0.2966	131.4	0.2408	0.2657	130.8	0.2383	210
220	0.3417	134.6	0.2471	0.3216	134.3	0.2458	0.3034	134.0	0.2445	0.2721	133.4	0.2421	220
230	0.3489	137.1	0.2508	0.3285	136.8	0.2495	0.3101	136.6	0.2483	0.2784	136.0	0.2459	230
240	0.3560	139.6	0.2545	0.3353	139.4	0.2532	0.3167	139.1	0.2520	0.2845	138.6	0.2496	240
250	0.3630	142.2	0.2581	0.3421	141.9	0.2568	0.3232	141.7	0.2556	0.2906	141.2	0.2533	250
260	0.3700	144.7	0.2617	0.3487	144.5	0.2604	0.3296	144.3	0.2592	0.2966	143.8	0.2570	260
270	0.3768	147.3	0.2652	0.3553	147.1	0.2640	0.3360	146.9	0.2628	0.3025	146.4	0.2606	270
280	0.3836	149.9	0.2687	0.3618	149.7	0.2675	0.3422	149.5	0.2663	0.3083	149.0	0.2641	280
290	0.3904	152.5	0.2722	0.3683	152.3	0.2710	0.3484	152.1	0.2698	0.3141	151.6	0.2676	290
300	0.3971	155.1	0.2757	0.3747	154.9	0.2745	0.3545	154.7	0.2733	0.3198	154.3	0.2711	300
310	0.4037	157.7	0.2791	0.3810	157.5	0.2779	0.3606	157.3	0.2768	0.3254	156.9	0.2746	310
320	0.4103	160.3	0.2825	0.3873	160.2	0.2813	0.3667	160.0	0.2802	0.3310	159.6	0.2780	320
330	0.4168	163.0	0.2859	0.3935	162.8	0.2847	0.3726	162.6	0.2836	0.3365	162.3	0.2814	330
340	0.4233	165.7	0.2892	0.3997	165.5	0.2881	0.3786	165.3	0.2869	0.3420	165.0	0.2848	340
350	0.4297	168.3	0.2925	0.4059	168.2	0.2914	0.3845	168.0	0.2903	0.3474	167.7	0.2882	350
360	0.4361	171.0	0.2959	0.4120	170.9	0.2947	0.3903	170.7	0.2936	0.3529	170.4	0.2915	360
370	0.4425	173.7	0.2991	0.4181	173.6	0.2980	0.3962	173.4	0.2969	0.3582	173.1	0.2948	370
380	0.4488	176.4	0.3024	0.4242	176.3	0.3012	0.4019	176.1	0.3002	0.3636	175.8	0.2981	380
390	0.4552	179.2	0.3056	0.4302	179.0	0.3045	0.4077	178.9	0.3034	0.3689	178.6	0.3014	390

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb-R (Saturated Vapor Properties in parentheses)

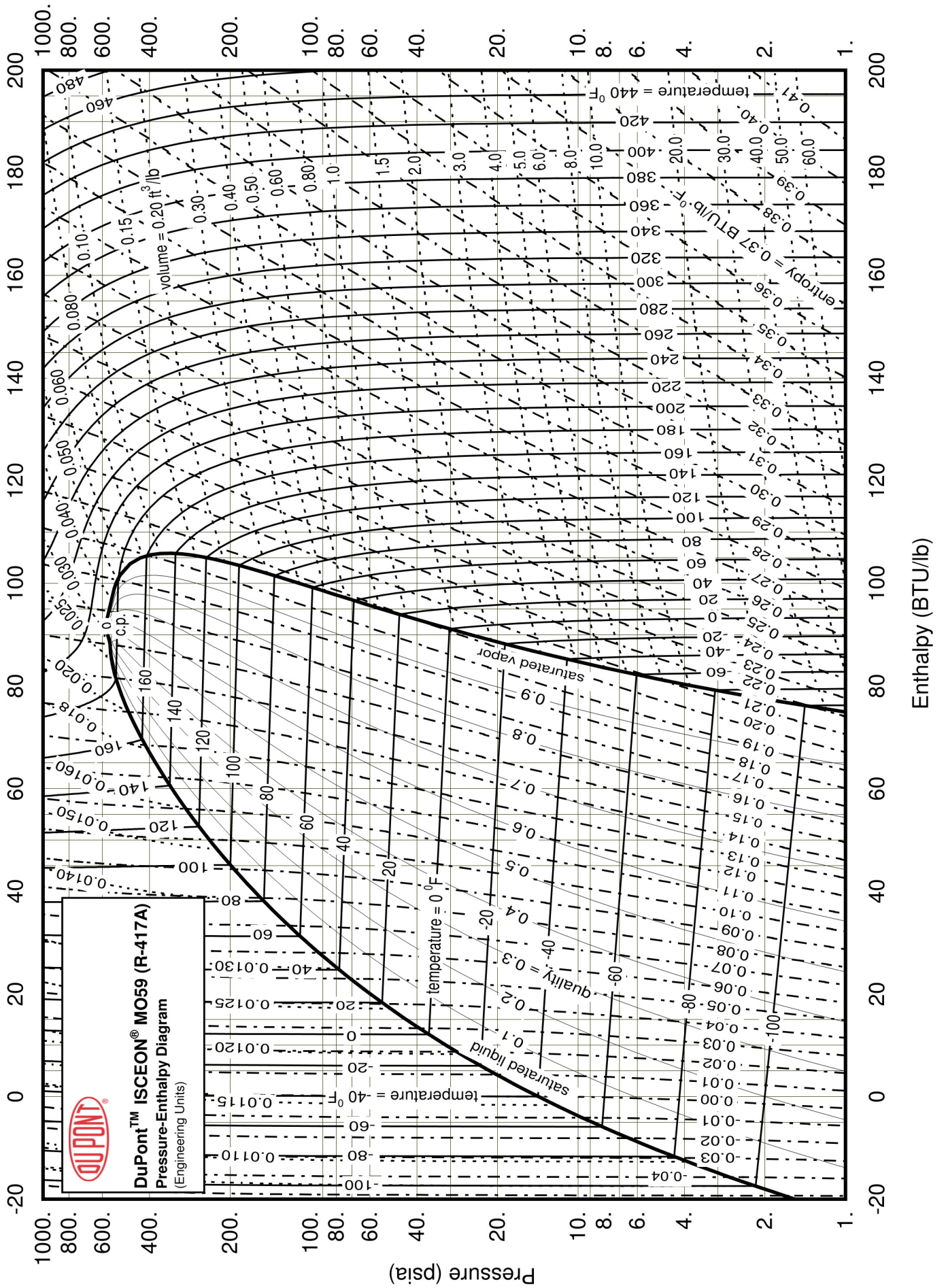
ABSOLUTE PRESSURE, psia													
TEMP. °F	240			260			280			300			TEMP. °F
	(118.33°F)			(124.22°F)			(129.78°F)			(135.04°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1715)	(104.9)	(0.1953)	(0.1558)	(105.3)	(0.1948)	(0.1423)	(105.5)	(0.1943)	(0.1304)	(105.7)	(0.1938)	
120	0.1731	105.4	0.1962	—	—	—	—	—	—	—	—	—	120
130	0.1825	108.5	0.2013	0.16138	107.12	0.19799	0.1425	105.6	0.1945	—	—	—	130
140	0.1911	111.4	0.2062	0.17014	110.19	0.20316	0.1517	108.9	0.2000	0.1352	107.5	0.1968	140
150	0.1990	114.2	0.2109	0.17812	113.13	0.20801	0.1599	112.0	0.2052	0.1437	110.8	0.2022	150
160	0.2065	116.9	0.2153	0.18556	115.97	0.21264	0.1674	115.0	0.2100	0.1513	113.9	0.2073	160
170	0.2137	119.6	0.2197	0.19257	118.76	0.2171	0.1743	117.9	0.2146	0.1583	116.9	0.2121	170
180	0.2205	122.3	0.2239	0.19926	121.5	0.22141	0.1809	120.7	0.2190	0.1648	119.8	0.2167	180
190	0.2272	124.9	0.2280	0.20566	124.2	0.22561	0.1871	123.4	0.2233	0.1710	122.6	0.2211	190
200	0.2336	127.6	0.2320	0.21184	126.88	0.22971	0.1931	126.2	0.2275	0.1769	125.4	0.2253	200
210	0.2398	130.2	0.2360	0.21783	129.55	0.23372	0.1989	128.9	0.2316	0.1825	128.2	0.2295	210
220	0.2459	132.8	0.2398	0.22365	132.21	0.23766	0.2045	131.6	0.2356	0.1879	130.9	0.2336	220
230	0.2518	135.4	0.2437	0.22933	134.86	0.24153	0.2100	134.3	0.2395	0.1932	133.7	0.2375	230
240	0.2577	138.1	0.2474	0.23488	137.51	0.24534	0.2153	137.0	0.2434	0.1983	136.4	0.2414	240
250	0.2634	140.7	0.2512	0.24032	140.15	0.2491	0.2205	139.6	0.2472	0.2033	139.1	0.2453	250
260	0.2690	143.3	0.2548	0.24565	142.8	0.25281	0.2256	142.3	0.2509	0.2082	141.8	0.2491	260
270	0.2746	145.9	0.2585	0.2509	145.46	0.25647	0.2306	145.0	0.2546	0.2130	144.5	0.2528	270
280	0.2800	148.6	0.2620	0.25606	148.11	0.26009	0.2355	147.7	0.2582	0.2177	147.2	0.2565	280
290	0.2854	151.2	0.2656	0.26116	150.78	0.26366	0.2404	150.3	0.2618	0.2223	149.9	0.2601	290
300	0.2907	153.9	0.2691	0.26618	153.45	0.26721	0.2451	153.0	0.2654	0.2269	152.6	0.2637	300
310	0.2960	156.5	0.2726	0.27114	156.13	0.27071	0.2498	155.7	0.2689	0.2313	155.3	0.2673	310
320	0.3012	159.2	0.2761	0.27605	158.82	0.27419	0.2545	158.4	0.2724	0.2358	158.0	0.2708	320
330	0.3064	161.9	0.2795	0.2809	161.53	0.27763	0.2591	161.2	0.2759	0.2401	160.8	0.2742	330
340	0.3115	164.6	0.2829	0.28571	164.24	0.28104	0.2636	163.9	0.2793	0.2444	163.5	0.2777	340
350	0.3166	167.3	0.2862	0.29047	166.96	0.28443	0.2681	166.6	0.2827	0.2487	166.3	0.2811	350
360	0.3216	170.0	0.2896	0.29519	169.7	0.28778	0.2725	169.4	0.2861	0.2529	169.0	0.2845	360
370	0.3266	172.8	0.2929	0.29988	172.44	0.29112	0.2770	172.1	0.2894	0.2571	171.8	0.2879	370
380	0.3316	175.5	0.2962	0.30453	175.2	0.29442	0.2813	174.9	0.2928	0.2612	174.6	0.2912	380
390	0.3365	178.3	0.2995	0.30914	177.98	0.29771	0.2857	177.7	0.2961	0.2654	177.4	0.2945	390

ABSOLUTE PRESSURE, psia													
TEMP. °F	320			340			360			380			TEMP. °F
	(140.03°F)			(144.78°F)			(149.32°F)			(153.66°F)			
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.1199)	(105.8)	(0.1932)	(0.1105)	(105.9)	(0.1926)	(0.1020)	(105.8)	(0.1919)	(0.0943)	(105.7)	(0.1911)	
150	0.1291	109.5	0.1992	0.1156	107.9	0.1960	0.1027	106.1	0.1924	—	—	—	150
160	0.1370	112.8	0.2046	0.1240	111.5	0.2018	0.1120	110.1	0.1988	0.1007	108.5	0.1956	160
170	0.1441	115.9	0.2096	0.1313	114.8	0.2071	0.1196	113.6	0.2045	0.1089	112.3	0.2017	170
180	0.1506	118.9	0.2143	0.1379	117.9	0.2120	0.1264	116.9	0.2096	0.1159	115.8	0.2072	180
190	0.1567	121.8	0.2189	0.1440	120.9	0.2167	0.1326	120.0	0.2145	0.1222	119.1	0.2123	190
200	0.1625	124.7	0.2232	0.1497	123.9	0.2212	0.1383	123.1	0.2191	0.1280	122.2	0.2170	200
210	0.1680	127.5	0.2275	0.1552	126.8	0.2255	0.1437	126.0	0.2235	0.1334	125.2	0.2216	210
220	0.1733	130.3	0.2316	0.1604	129.6	0.2297	0.1488	128.9	0.2278	0.1384	128.2	0.2260	220
230	0.1785	133.0	0.2356	0.1654	132.4	0.2338	0.1538	131.8	0.2320	0.1433	131.1	0.2302	230
240	0.1834	135.8	0.2396	0.1702	135.2	0.2378	0.1585	134.6	0.2361	0.1479	134.0	0.2344	240
250	0.1883	138.5	0.2435	0.1749	138.0	0.2418	0.1630	137.4	0.2401	0.1524	136.8	0.2384	250
260	0.1930	141.3	0.2473	0.1795	140.7	0.2456	0.1675	140.2	0.2440	0.1567	139.6	0.2424	260
270	0.1976	144.0	0.2511	0.1839	143.5	0.2494	0.1718	143.0	0.2478	0.1609	142.5	0.2463	270
280	0.2021	146.7	0.2548	0.1883	146.2	0.2532	0.1760	145.8	0.2516	0.1650	145.3	0.2501	280
290	0.2065	149.4	0.2584	0.1926	149.0	0.2569	0.1801	148.5	0.2553	0.1690	148.1	0.2538	290
300	0.2109	152.2	0.2621	0.1967	151.7	0.2605	0.1842	151.3	0.2590	0.1729	150.9	0.2575	300
310	0.2152	154.9	0.2656	0.2009	154.5	0.2641	0.1882	154.1	0.2626	0.1768	153.6	0.2612	310
320	0.2194	157.7	0.2692	0.2049	157.3	0.2677	0.1921	156.8	0.2662	0.1805	156.4	0.2648	320
330	0.2235	160.4	0.2727	0.2089	160.0	0.2712	0.1959	159.6	0.2697	0.1842	159.2	0.2684	330
340	0.2276	163.2	0.2761	0.2128	162.8	0.2747	0.1997	162.4	0.2732	0.1879	162.0	0.2719	340
350	0.2317	165.9	0.2796	0.2167	165.6	0.2781	0.2034	165.2	0.2767	0.1915	164.8	0.2754	350
360	0.2357	168.7	0.2830	0.2206	168.3	0.2815	0.2071	168.0	0.2802	0.1950	167.7	0.2788	360
370	0.2397	171.5	0.2864	0.2244	171.1	0.2849	0.2107	170.8	0.2836	0.1985	170.5	0.2822	370
380	0.2437	174.3	0.2897	0.2281	173.9	0.2883	0.2143	173.6	0.2869	0.2020	173.3	0.2856	380
390	0.2476	177.1	0.2930	0.2319	176.8	0.2916	0.2179	176.5	0.2903	0.2054	176.1	0.2890	390

Table 2 (continued)
DuPont™ ISCEON® MO59 (R-417A) Superheated Vapor—Constant Pressure Tables

V = Volume in ft³/lb H = Enthalpy in BTU/lb S = Entropy in BTU/lb·R (Saturated Vapor Properties in parentheses)

ABSOLUTE PRESSURE, psia													
TEMP. °F	400			450			500						TEMP. °F
	(157.82°F)			(167.48°F)			(176.20°F)						
	V	H	S	V	H	S	V	H	S	V	H	S	
	(0.0872)	(105.5)	(0.1902)	(0.0715)	(104.5)	(0.1875)	(0.0575)	(102.6)	(0.1834)	()	()	()	
160	0.0896	106.6	0.1920	—	—	—	—	—	—				160
170	0.0988	110.9	0.1989	0.0748	106.1	0.1900	—	—	—				170
180	0.1063	114.6	0.2047	0.0845	111.1	0.1978	0.0637	105.8	0.1885				180
190	0.1127	118.1	0.2100	0.0919	115.2	0.2041	0.0738	111.5	0.1973				190
200	0.1186	121.3	0.2150	0.0982	118.8	0.2097	0.0810	115.9	0.2040				200
210	0.1240	124.4	0.2197	0.1038	122.2	0.2148	0.0871	119.7	0.2098				210
220	0.1290	127.4	0.2242	0.1089	125.5	0.2196	0.0924	123.3	0.2150				220
230	0.1338	130.4	0.2285	0.1136	128.6	0.2242	0.0972	126.6	0.2199				230
240	0.1384	133.3	0.2327	0.1181	131.7	0.2286	0.1017	129.9	0.2246				240
250	0.1428	136.2	0.2368	0.1224	134.7	0.2329	0.1059	133.0	0.2291				250
260	0.1470	139.1	0.2408	0.1264	137.6	0.2370	0.1099	136.1	0.2334				260
270	0.1511	141.9	0.2447	0.1304	140.6	0.2411	0.1137	139.1	0.2376				270
280	0.1551	144.8	0.2486	0.1341	143.5	0.2451	0.1173	142.1	0.2417				280
290	0.1590	147.6	0.2524	0.1378	146.4	0.2489	0.1208	145.1	0.2457				290
300	0.1628	150.4	0.2561	0.1414	149.2	0.2528	0.1242	148.1	0.2496				300
310	0.1665	153.2	0.2598	0.1449	152.1	0.2565	0.1275	151.0	0.2534				310
320	0.1702	156.0	0.2634	0.1483	155.0	0.2602	0.1308	153.9	0.2572				320
330	0.1738	158.8	0.2670	0.1516	157.8	0.2638	0.1339	156.8	0.2609				330
340	0.1773	161.7	0.2706	0.1549	160.7	0.2674	0.1370	159.7	0.2645				340
350	0.1808	164.5	0.2741	0.1581	163.6	0.2710	0.1400	162.6	0.2681				350
360	0.1842	167.3	0.2775	0.1613	166.4	0.2745	0.1430	165.5	0.2717				360
370	0.1876	170.1	0.2810	0.1644	169.3	0.2780	0.1459	168.4	0.2752				370
380	0.1909	173.0	0.2844	0.1675	172.2	0.2814	0.1487	171.3	0.2787				380
390	0.1942	175.8	0.2877	0.1705	175.0	0.2848	0.1516	174.2	0.2821				390



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