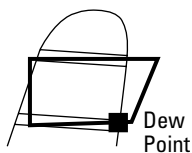


DuPont[™] Suva[®] refrigerants

POCKET REFERENCE GUIDE

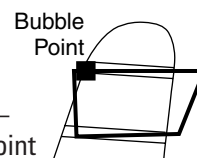
Superheat—
Saturated Vapor
Pressures

Typical
pH Diagram
Superheat—
Reference Point



Subcooling
Saturated Vapor
Pressures

Typical
pH Diagram
Subcooling—
Reference Point



Dew Point—Saturated Vapor (psig)

°F	Suva [®] MP39 (R-401A)	Suva [®] MP66 (R-401B)	Suva [®] HP80 (R-402A)	Suva [®] HP81 (R-402B)	Suva [®] 407C (R-407C)	Suva [®] 408A (R-408A)	Suva [®] 409A (R-409A)	°C
-50	18.4"	17.2"	1.0	1.1"	11.2"	2.5"	18.6"	
-48	17.6"	16.4"	1.8	0.3	10.0"	1.0"	17.9"	-44
-46	16.9"	15.5"	2.7	1.1	8.9"	0.3	17.1"	-43
-44	16.1"	14.7"	3.7	1.9	7.6"	1.1	16.4"	-42
-42	15.2"	13.8"	4.6	2.8	6.3"	1.9	15.6"	-41
-40	14.3"	12.8"	5.6	3.7	4.9"	2.8	14.7"	-40
-38	13.4"	11.8"	6.7	4.7	3.5"	3.7	13.8"	-39
-36	12.4"	10.7"	7.8	5.7	2.0"	4.6	12.9"	-38
-34	11.4"	9.6"	8.9	6.7	0.4"	5.6	11.9"	-37
-32	10.3"	8.5"	10.0	7.8	0.6	6.6	10.9"	-36
-30	9.2"	7.3"	11.3	8.9	1.4	7.6	9.9"	-34
-28	8.1"	6.0"	12.5	10.1	2.3	8.7	8.8"	-33
-26	6.9"	4.7"	13.8	11.3	3.2	9.8	7.6"	-32
-24	5.6"	3.3"	15.2	12.5	4.2	11.0	6.4"	-31
-22	4.3"	1.9"	16.6	13.8	5.2	12.2	5.2"	-30
-20	2.9"	0.4"	18.0	15.2	6.2	13.4	3.8"	-29
-18	1.5"	0.6	19.5	16.6	7.3	14.7	2.5"	-28
-16	0.0	1.3	21.1	18.0	8.4	16.1	1.1"	-27
-14	0.8	2.2	22.7	19.5	9.5	17.5	0.2	-26
-12	1.6	3.0	24.4	21.0	10.7	18.9	0.9	-24
-10	2.4	3.9	26.1	22.6	12.0	20.4	1.7	-23
-8	3.2	4.8	27.9	24.3	13.3	22.0	2.5	-22
-6	4.1	5.8	29.7	26.0	14.6	23.6	3.4	-21
-4	5.0	6.8	31.6	27.7	16.0	25.2	4.3	-20
-2	6.0	7.8	33.5	29.5	17.4	26.9	5.2	-19
0	7.0	8.9	35.6	31.4	18.9	28.7	6.1	-18
2	8.0	10.0	37.6	33.3	20.5	30.5	7.1	-17
4	9.1	11.1	39.8	35.3	22.1	32.3	8.1	-16
6	10.2	12.3	42.0	37.4	23.7	34.3	9.2	-14
8	11.3	13.5	44.3	39.5	25.4	36.3	10.3	-13
10	12.5	14.8	46.6	41.7	27.2	38.3	11.4	-12
12	13.7	16.1	49.0	43.9	29.0	40.4	12.6	-11
14	15.0	17.4	51.5	46.2	30.9	42.6	13.8	-10
16	16.3	18.8	54.0	48.6	32.9	44.9	15.0	-9
18	17.6	20.3	56.7	51.1	34.9	47.2	16.3	-8
20	19.0	21.8	59.4	53.6	37.0	49.5	17.6	-7
22	20.5	23.3	62.2	56.2	39.1	52.0	19.0	-6
24	22.0	24.9	65.0	58.8	41.3	54.5	20.5	-4
26	23.5	26.5	68.0	61.6	43.6	57.1	21.9	-3
28	25.1	28.2	71.0	64.4	46.0	59.8	23.4	-2
30	26.7	30.0	74.1	67.3	48.4	62.5	25.0	-1
32	28.4	31.8	77.3	70.3	50.9	65.3	26.6	0
34	30.1	33.5	80.5	73.3	53.5	68.2	28.3	1
36	31.9	35.5	83.9	76.4	56.2	71.2	30.0	2
38	33.7	37.5	87.3	79.7	58.9	74.2	31.8	3
40	35.6	39.5	90.9	83.0	61.7	77.4	33.6	4
42	37.6	41.6	94.5	86.4	64.6	80.6	35.5	6
44	39.6	43.7	98.2	89.8	67.6	83.9	37.5	7
46	41.7	45.9	102.0	93.4	70.7	87.3	39.5	8
48	43.8	48.2	106.0	97.1	73.8	90.7	41.5	9
50	46.0	50.5	110.0	100.8	77.1	94.3	43.6	10

" Denotes inches of mercury ("Hg)

To obtain the Dew Point of saturated refrigerants above 50°F (10°C), use its Bubble Point temperature *plus* the value listed below:

MP series use 10°F (5°C), 9000 use 11°F (6°C), HP80 and HP81 use 2°F (1°C), 409A use 15°F (8°C), 408A use 1°F (0.6°C).

Bubble Point—Saturated Liquid (psig)

°F	Suva [®] MP39 (R-401A)	Suva [®] MP66 (R-401B)	Suva [®] HP80 (R-402A)	Suva [®] HP81 (R-402B)	Suva [®] 407C (R-407C)	Suva [®] 408A (R-408A)	Suva [®] 409A (R-409A)	°C
50	58	62	114	106	96	96	61	10
55	64	69	125	116	106	105	67	13
60	71	76	136	126	116	115	74	16
65	78	84	148	138	127	126	82	18
70	86	92	161	150	139	137	90	21
75	94	101	174	162	151	149	98	24
80	103	110	188	175	163	161	107	27
85	112	119	203	189	177	174	116	29
90	122	130	218	204	191	188	126	32
95	132	140	235	220	206	203	137	35
100	143	152	252	236	222	219	148	38
105	154	164	270	253	239	235	159	41
110	166	176	289	271	257	252	172	43
115	179	190	309	290	275	270	184	46
120	192	203	330	310	294	289	198	49
125	206	218	353	330	315	309	212	52
130	220	233	376	352	336	330	227	54
135	236	249	400	375	358	351	242	57
140	252	266	425	399	381	374	258	60
145	268	284	451	423	405	398	275	63
150	286	302	479	449	430	423	293	66

To obtain the Bubble Point of saturated refrigerants below 50°F (10°C), use its Dew Point temperature *minus* the value listed below:

MP series use 10°F (5°C), 9000 use 11°F (6°C), HP80 and HP81 use 2°F (1°C), 409A use 15°F (8°C), 408A use 1°F (0.6°C).

Suva[®] is a registered trademark of DuPont.

DuPont Fluorochemicals
Wilmington, Delaware 19880-0711
(800) 235-SUVA

In Canada (800) USE-SUVA

Saturated Conditions—Pressure (psig)

°F	Freon® 22 (R-22)	Suva® 123 (R-123)	Suva® 134a (R-134a)	Suva® HP62 (R-404A)	Suva® 410A (R-410A)	Suva® 507 (AZ-50) (R-507)	Suva® 95 (R-508B)	°C
-120							3.0	-84.8
-115							5.9	-81.7
-110							9.2	-78.9
-105							12.8	-76.1
-100							16.9	-73.3
-95							21.4	-70.6
-90							26.4	-67.8
-85							31.9	-65.0
-80							37.9	-62.2
-75					10.2"		44.5	-59.4
-70					7.0"		51.5	-56.7
-65					3.4"		59.6	-53.9
-60	12.4"				0.3		68.1	-51.1
-55	9.7"				2.5		77.3	-48.3
-50	6.6"		19.1"	0.2	5.0	0.9	87.3	-45.6
-48	5.3"		18.4"	1.0	6.1	1.8	91.5	-44.4
-46	3.9"		17.7"	1.8	7.2	2.7	95.8	-43.3
-44	2.5"		16.9"	2.7	8.3	3.6	100	-42.2
-42	1.0"		16.1"	3.6	9.5	4.6	105	-41.1
-40	0.5"		15.2"	4.6	10.8	5.6	109	-40.0
-38	1.1		14.3"	5.6	12.1	6.6	114	-38.9
-36	1.9		13.4"	6.6	13.4	7.7	119	-37.8
-34	2.8		12.4"	7.7	14.9	8.8	124	-36.7
-32	3.7		11.3"	8.8	16.3	10.0	129	-35.6
-30	4.7		10.2"	9.9	17.8	11.2	135	-34.4
-28	5.7		9.1"	11.1	19.4	12.5	140	-33.3
-26	6.7		7.9"	12.4	21.0	13.8	146	-32.2
-24	7.8		6.6"	13.7	22.7	15.1	152	-31.1
-22	8.9		5.3"	15.0	24.5	16.5	158	-30.0
-20	10.0		4.0"	16.4	26.3	18.0	164	-28.9
-18	11.2		2.5"	17.8	28.2	19.5	170	-27.8
-16	12.4		1.1"	19.3	30.1	21.0	177	-26.7
-14	13.7		0.2	20.8	32.1	22.6	184	-25.6
-12	15.0		1.0	22.4	34.2	24.3	191	-24.4
-10	16.4		1.9	24.0	36.4	26.0	198	-23.3
-8	17.8		2.7	25.7	38.6	27.8	205	-22.2
-6	19.3		3.6	27.4	40.9	29.6	212	-21.1
-4	20.8		4.5	29.2	43.3	31.4	220	-20.0
-2	22.4		5.5	31.1	45.7	33.4	227	-18.9
0	24		6.5	33.0	48.2	35.4	235	-17.8
2	25.7		7.5	35.0	50.8	37.4	244	-16.7
4	27.4		8.6	37.0	53.5	39.5	252	-15.6
6	29.2		9.7	39.1	56.3	41.7	260	-14.4
8	31.0		10.8	41.3	59.2	44.0	269	-13.3
10	32.9		12.0	43.5	62.1	46.3	278	-12.2
12	34.8		13.2	45.8	65.2	48.6	287	-11.1
14	36.8		14.5	48.2	68.3	51.1	297	-10.0
16	38.9		15.8	50.6	71.5	53.6	307	-8.9
18	41.0		17.2	53.1	74.8	56.2	316	-7.8
20	43.2	22.8"	18.6	55.7	78.2	58.8	326	-6.7
22	45.5	22.4"	20.0	58.4	81.7	61.6	336	-5.6
24	47.8	22.0"	21.5	61.1	85.3	64.4	346	-4.4
26	50.2	21.6"	23.1	63.9	89.1	67.3	357	-3.3
28	52.6	21.2"	24.7	66.8	92.9	70.2	368	-2.2
30	55.1	20.8"	26.3	69.7	96.8	73.3	379	-1.1

" Denotes inches of mercury ("Hg)

Saturated Conditions—Pressure (psig)

°F	Freon® 22 (R-22)	Suva® 123 (R-123)	Suva® 134a (R-134a)	Suva® HP62 (R-404A)	Suva® 410A (R-410A)	Suva® 507 (AZ-50) (R-507)	Suva® 95 (R-508B)	°C
32	57.7	20.3"	28.0	72.8	101	76.4	390	0
34	60.4	19.9"	29.7	75.9	105	79.6	402	1.1
36	63.1	19.4"	31.5	79.1	109	82.9	414	2
38	65.9	18.8"	33.4	82.4	114	86.2	426	3.3
40	68.7	18.3"	35.3	85.7	118	89.7	438	4.4
42	71.7	17.7"	37.3	89.2	123	93.2	451	5.6
44	74.7	17.1"	39.3	92.7	127	96.9	464	6.7
46	77.8	16.5"	41.4	96.4	132	100.6	477	7.8
48	81.0	15.9"	43.5	100.1	137	104.4	490	8.9
50	84.2	15.2"	45.7	103.9	142	108.3	504	10.0
55	92.7	13.4"	51.5	114	156	119	539	12.8
60	102	11.4"	57.7	124	170	129		15.6
65	111	9.3"	64.3	136	185	141		18.3
70	122	6.9"	71.3	148	200	153		21.1
75	132	4.3"	78.9	160	217	166		23.9
80	144	1.5"	86.9	174	235	180		26.7
85	156	0.8	95.4	188	254	194		29.4
90	168	2.4	104	203	274	210		32.2
95	182	4.2	114	218	295	226		35.0
100	196	6.1	124	235	317	243		37.8
105	210	8.1	135	252	340	261		40.6
110	226	10.3	146	270	364	280		43.3
115	242	12.7	158	290	390	300		46.1
120	260	15.2	171	310	417	322		48.9
125	278	17.8	184	331	445	344		51.7
130	296	20.7	199	353	475	368		54.4
135	316	23.7	213	376	506	392		57.2
140	337	27.0	229	401	538	418		60.0
145	359	30.4	246	426	573	446		62.8
150	381	34.0	263	453	608	475		65.6

Eight Easy Steps to Retrofit

**From CFC-12 to Suva® MP-39, Suva® 409A, or Suva® MP66
From R-502 to Suva® HP-80, Suva® 408A, or Suva® HP81**

- 1. Establish baseline performance with CFC.**
 - 2. Remove CFC from the system into a recovery cylinder.**
Weigh the amount removed if possible.
 - 3. Drain mineral oil from the system and measure the volume removed.**
(Skip steps 3 and 4 if alkylbenzene is already in the system or you are not changing the mineral oil.) Field experience has shown that Suva® MP39, 409A, MP66, and HP81 work successfully with the existing mineral oil in many unitary and other close-coupled systems where oil return is not a concern.
 - 4. Add alkylbenzene lubricant; use the same volume as removed in step 3.**
 - 5. Replace filter/drier.**
 - 6. Evacuate system and check for leaks.**
 - 7. Charge with Suva® refrigerant.**
 - Remove liquid only from charging cylinder
 - Typical charge is 75–90% of CFC charge
 - 8. Start up the system.**
 - Adjust charge size
- Label system for the refrigerant and lubricant used