Opteon™

Refrigerants by The Chemours Company

Pressure-Temperature Guide for Refrigeration

Key: Green (in of Hg) = Vacuum
Black (psig) = Saturated Vapor (calculate superheat)
Bold (psig) = Saturated Liquid (calculate subcooling)

DO NOT MIX REFRIGERANTS

Do not use Opteon™ XL refrigerants for retrofits as they are A2L class refrigerants

A2L refrigerants can only be used in new equipment

Always remove liquid from the cylinder

For refrigerant related support, contact our Tech2Tech Support Team:

tech2tech@ chemours.com

866-433-TECH (8324)

To add our Tech2Tech Support as a contact in your mobile device, use the QR Code above.

For more information about Opteon™ refrigerants, visit **opteon.com**

	Freon™ R-22	Freon™ R-407A	Opteon™ XP40 (R-449A)	R-448A	Freon™ R-134a	Opteon™ XP10 (R-513A)	Opteon™ XL10 (R-1234yf)	Freon™ R-404A	Freon™ R-507A	Opteon™ XP44 (R-452A)	Opteon™ XL20 (R-454C)	Opteon™ XL40 (R-454A)
SAFETY GROUP	A1	A1	A1	A1	A1	A1	A2L	A1	A1	A1	A2L	A2L
°F	psig	psig	psig	psig	psig	psig	psig	psig	psig	psig	psig	psig
-50	6.1	9.0	7.3	7.4	18.7	16.3	16.0	0.1	0.9	3.3	9.5	4.6
-45	2.7	5.7	3.8	3.9	16.9	14.2	13.9	2.0	3.0	0.3	6.4	0.9
-40	0.6	2.0	0.0	0.1	14.8	11.8	11.5	4.3	5.4	2.4	3.0	1.6
-35	2.6	1.0	2.1	2.1	12.5	9.1	8.9	6.8	8.1	4.7	0.4	3.9
-30	4.9	3.3	4.4	4.4	9.8	6.1	6.0	9.6	11.0	7.3	2.4	6.4
-25	7.4	5.8	7.0	7.0	6.9	2.8	2.8	12.7	14.1	10.1	4.7	9.1
-20	10.2	8.5	9.9	9.8	3.7	0.4	0.4	16.0	17.6	13.2	7.2	12.1
-18	11.4	9.7	11.1	11.1	2.3	1.2	1.1	17.4	19.1	14.6	8.3	13.4
-16	12.6	10.9	12.3	12.3	0.8	2.0	1.9	18.9	20.6	15.9	9.4	14.8
-14	13.9	12.2	13.7	13.6	0.4	2.8	2.7	20.4	22.2	17.4	10.5	16.2
-12	15.2	13.5	15.0	15.0	1.1	3.6	3.5	22.0	23.8	18.9	11.7	17.6
-10	16.5	14.9	16.4	16.4	1.9	4.5	4.4	23.6	25.5	20.4	13.0	19.1
-8	17.9	16.3	17.9	17.9	2.8	5.5	5.3	25.3	27.2	22.0	14.3	20.6
-6	19.4	17.8	19.4	19.4	3.6	6.4	6.2	27.0	29.0	23.6	15.6	22.2
-4	20.9	19.3	21.0	21.0	4.6	7.4	7.2	28.8	30.9	25.3	17.0	23.9
-2	22.4	20.9	22.6	22.6	5.5	8.4	8.2	30.7	32.8	27.1	18.4	25.6
0	24.0	22.5	24.3	24.3	6.5	9.5	9.2	32.6	34.8	28.9	19.9	27.3
2	25.7	24.2	26.0	26.0	7.5	10.6	10.3	34.6	36.8	30.7	21.4	29.2
4	27.4	26.0	27.8	27.8	8.5	11.8	11.4	36.6	38.9	32.7	23.0	31.1
6	29.2	27.8	29.7	29.7	9.6	13.0	12.5	38.7	41.1	34.7	24.6	33.0
8	31.0	29.7	31.6	31.6	10.8	14.2	13.7	40.9	43.4	36.7	26.3	35.0
10	32.8	31.6	33.6	33.6	11.9	15.5	14.9	43.1	45.7	38.8	28.0	37.1
12	34.8	33.6	35.6	35.7	13.1	16.8	16.2	45.4	48.0	41.0	29.8	39.2
14	36.8	35.7	37.7	37.8	14.4	18.1	17.5	47.8	50.5	43.3	31.7	41.4
16	38.8	37.8	39.9	40.0	15.7	19.5	18.8	50.2	53.0	45.6	33.6	43.7
18	40.9	40.0	42.1	42.2	17.0	21.0	20.2	52.7	55.6	48.0	35.5	46.1
20	43.1	42.3	44.5	44.6	18.4	22.4	21.6	55.3	58.2	50.5	37.6	48.5
22	45.3	44.7	46.8	47.0	19.9	24.0	23.1	58.0	61.0	53.0	39.7	51.0
24	47.6	47.1	49.3	49.4	21.3	25.6	24.6	60.7	63.8	55.6	41.8	53.6
26	50.0	49.6	51.8	52.0	22.9	27.2	26.2	63.5	66.7	58.3	44.0	56.2
28	52.4	52.2	54.5	54.6	24.5	28.9	27.8	66.4	69.6	61.1	46.3	58.9
30	55.0	54.8	57.1	57.3	26.1	30.6	29.4	69.3	72.7	64.0	48.7	61.7
32	57.5	57.6	59.9	60.1	27.8	32.4	31.1	72.4	75.8	66.9	51.1	64.6
34	60.2	60.4	62.8	63.0	29.5	34.3	32.9	75.5	79.0	69.9	53.6	67.6
36	62.9	63.3	65.7	65.9	31.3	36.2	34.7	78.7	82.3	73.0	56.2	70.6
38	65.7	66.3	68.7	69.0	33.1	38.1	36.5	82.0	85.7	76.2	58.8	73.7
40	68.6	69.4	71.8	72.1	35.0	40.1	38.4	85.4	89.2	79.4	61.5	76.9
42	71.5	72.5	75.0	75.3	37.0	42.2	40.4	88.8	92.7	82.8	64.3	80.3
44	74.5	75.8	78.3	78.6	39.0	44.3	42.4	92.4	96.4	86.3	67.2	83.6
46	77.6	79.1	81.7	82.0	41.1	46.5	44.5	96.0	100.1	89.8	70.1	87.1
48	80.8	82.6	85.1	85.4	43.2	48.7	46.6	99.8	104.0	93.4	73.2	90.7
50	84.1	86.1	88.7	89.0	45.4	51.0	48.8	103.6	107.9	97.1	76.3	94.4
52	**87.4**	**108.2**	**110.1**	**112.1**	**47.7**	**53.4**	**51.0**	**109.2**	**112.0**	**114.9**	**103.5**	**118.4**
54	**90.8**	**112.3**	**114.2**	**116.3**	**50.0**	**55.9**	**53.3**	**113.3**	**116.2**	**119.1**	**107.3**	**122.8**
56	**94.4**	**116.5**	**118.5**	**120.5**	**52.4**	**58.4**	**55.7**	**117.4**	**120.4**	**123.5**	**111.2**	**127.2**
58	**98.0**	**120.8**	**122.8**	**124.9**	**54.9**	**60.9**	**58.1**	**121.7**	**124.8**	**127.9**	**115.2**	**131.7**
60	**101.6**	**125.2**	**127.2**	**129.4**	**57.4**	**63.5**	**60.6**	**126.0**	**129.2**	**132.4**	**119.3**	**136.4**
65	**111.3**	**136.7**	**138.8**	**141.1**	**64.0**	**70.4**	**67.0**	**137.3**	**140.8**	**144.3**	**129.9**	**148.4**
70	**121.4**	**148.8**	**151.0**	**153.5**	**71.1**	**77.7**	**73.9**	**149.3**	**153.0**	**156.8**	**141.2**	**161.2**
75	**132.2**	**161.7**	**163.9**	**166.6**	**78.7**	**85.5**	**81.3**	**162.0**	**165.9**	**170.0**	**153.0**	**174.7**
80	**143.6**	**175.3**	**177.6**	**180.5**	**86.7**	**93.8**	**89.0**	**175.4**	**179.6**	**183.9**	**165.6**	**188.9**
82	**148.4**	**181.0**	**183.3**	**186.2**	**90.0**	**97.3**	**92.3**	**181.0**	**185.3**	**189.7**	**170.76**	**194.8**
84	**153.2**	**186.7**	**189.1**	**192.1**	**93.5**	**100.8**	**95.6**	**186.7**	**191.1**	**195.6**	**176.06**	**200.9**
86	**158.2**	**192.7**	**195.0**	**198.1**	**97.0**	**104.4**	**98.9**	**192.5**	**197.1**	**201.7**	**181.47**	**207.0**
88	**163.2**	**198.7**	**201.0**	**204.2**	**100.6**	**108.1**	**102.4**	**198.4**	**203.1**	**207.8**	**187.0**	**213.3**
90	**168.4**	**204.8**	**207.2**	**210.5**	**104.3**	**111.9**	**105.9**	**204.5**	**209.3**	**214.1**	**192.6**	**219.8**
92	**173.7**	**211.1**	**213.5**	**216.9**	**108.1**	**115.8**	**109.6**	**210.7**	**215.6**	**220.6**	**198.4**	**226.3**
94	**179.1**	**217.6**	**219.9**	**223.4**	**112.0**	**119.7**	**113.3**	**217.0**	**222.1**	**227.1**	**204.3**	**233.0**
96	**184.6**	**224.1**	**226.5**	**230.0**	**115.9**	**123.8**	**117.0**	**223.4**	**228.7**	**233.8**	**210.2**	**239.8**
98	**190.2**	**230.8**	**233.2**	**236.8**	**120.0**	**127.9**	**120.9**	**230.0**	**235.4**	**240.6**	**216.3**	**246.8**
100	**195.9**	**237.7**	**240.1**	**243.7**	**124.2**	**132.1**	**124.9**	**236.8**	**242.3**	**247.6**	**222.5**	**253.9**
102	**201.8**	**244.6**	**247.0**	**250.8**	**128.4**	**136.4**	**128.9**	**243.6**	**249.3**	**254.7**	**228.9**	**261.1**
104	**207.7**	**251.7**	**254.2**	**258.0**	**132.8**	**140.9**	**133.0**	**250.6**	**256.5**	**261.9**	**235.3**	**268.5**
106	**213.8**	**259.0**	**261.4**	**265.3**	**137.2**	**145.4**	**137.2**	**257.8**	**263.8**	**269.3**	**241.9**	**276.0**
108	**220.0**	**266.4**	**268.8**	**272.8**	**141.7**	**150.0**	**141.5**	**265.1**	**271.2**	**276.8**	**248.6**	**283.6**
110	**226.4**	**273.9**	**276.4**	**280.5**	**146.4**	**154.7**	**145.9**	**272.5**	**278.8**	**284.5**	**255.5**	**291.4**
112	**232.8**	**281.6**	**284.1**	**288.3**	**151.1**	**159.5**	**150.4**	**280.1**	**286.6**	**292.3**	**262.4**	**299.4**
114	**239.4**	**289.5**	**291.9**	**296.2**	**156.0**	**164.4**	**155.0**	**287.9**	**294.5**	**300.3**	**269.5**	**307.5**
116	**246.1**	**297.5**	**299.9**	**304.3**	**160.9**	**169.4**	**159.6**	**295.8**	**302.6**	**308.4**	**276.7**	**315.8**
118	**253.0**	**305.6**	**308.0**	**312.5**	**166.0**	**174.5**	**164.4**	**303.8**	**310.8**	**316.6**	**284.1**	**324.2**
120	**260.0**	**314.0**	**316.3**	**320.9**	**171.2**	**179.8**	**169.2**	**312.1**	**319.2**	**325.1**	**291.6**	**332.8**
122	**267.1**	**322.4**	**324.8**	**329.5**	**176.5**	**185.1**	**174.2**	**320.4**	**327.8**	**333.7**	**299.2**	**341.5**
124	**274.3**	**331.1**	**333.4**	**338.2**	**181.8**	**190.5**	**179.3**	**329.0**	**336.5**	**342.4**	**306.9**	**350.4**
126	**281.7**	**339.9**	**342.2**	**347.0**	**187.4**	**196.1**	**184.4**	**337.7**	**345.4**	**351.3**	**314.8**	**359.4**
128	**289.2**	**348.8**	**351.1**	**356.1**	**193.0**	**201.7**	**189.7**	**346.6**	**354.5**	**360.4**	**322.8**	**368.6**
130	**296.9**	**357.9**	**360.2**	**365.3**	**198.7**	**207.5**	**195.0**	**355.7**	**363.8**	**369.6**	**331.0**	**378.0**
135	**316.7**	**381.5**	**383.7**	**389.0**	**213.6**	**222.5**	**208.9**	**379.1**	**387.8**	**393.4**	**352.0**	**402.1**
140	**337.4**	**406.2**	**408.3**	**413.8**	**229.2**	**238.2**	**223.4**	**403.7**	**413.0**	**418.3**	**373.9**	**427.4**
150	**381.7**	**458.9**	**460.7**	**466.7**	**263.0**	**271.9**	**254.7**	**456.8**	**467.4**	**471.3**	**420.6**	**481.1**

Chemours™

OPTXLPTREF-2 05/22

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SAFETY GROUP	A1	A1	A1	A1	A1	A1	A2L	A1	A1	A1	A2L	A2L
°C	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g	bar_g
-50	-0.37	-0.46	-0.41	-0.41	-0.72	-0.65	-0.64	-0.20	-0.15	-0.29	-0.46	-0.33
-48	-0.30	-0.39	-0.34	-0.34	-0.68	-0.60	-0.60	-0.12	-0.06	-0.22	-0.40	-0.26
-46	-0.22	-0.32	-0.26	-0.27	-0.64	-0.56	-0.55	-0.03	0.04	-0.13	-0.34	-0.18
-44	-0.14	-0.24	-0.18	-0.19	-0.60	-0.51	-0.50	0.07	0.14	-0.04	-0.26	-0.09
-42	-0.06	-0.16	-0.10	-0.10	-0.55	-0.45	-0.45	0.18	0.25	0.06	-0.19	0.01
-40	0.04	-0.07	0.00	0.00	-0.50	-0.39	-0.39	0.30	0.37	0.16	-0.10	0.11
-38	0.14	0.03	0.10	0.10	-0.45	-0.33	-0.33	0.42	0.50	0.28	-0.01	0.22
-36	0.25	0.14	0.21	0.21	-0.38	-0.26	-0.26	0.55	0.64	0.40	0.09	0.34
-34	0.37	0.25	0.33	0.33	-0.32	-0.19	-0.19	0.70	0.79	0.53	0.19	0.47
-32	0.49	0.37	0.46	0.46	-0.25	-0.11	-0.11	0.85	0.95	0.67	0.30	0.60
-30	0.63	0.51	0.60	0.60	-0.17	-0.02	-0.02	1.01	1.12	0.82	0.43	0.75
-28	0.77	0.65	0.75	0.75	-0.09	0.07	0.07	1.18	1.29	0.99	0.56	0.91
-26	0.92	0.80	0.90	0.90	0.00	0.17	0.16	1.37	1.49	1.16	0.69	1.07
-24	1.08	0.97	1.07	1.07	0.10	0.28	0.27	1.56	1.69	1.34	0.84	1.25
-22	1.26	1.14	1.25	1.25	0.20	0.39	0.38	1.77	1.90	1.54	1.00	1.44
-20	1.44	1.33	1.45	1.45	0.31	0.52	0.50	1.99	2.13	1.74	1.17	1.65
-18	1.63	1.53	1.65	1.65	0.43	0.65	0.62	2.22	2.37	1.97	1.35	1.86
-16	1.84	1.74	1.87	1.87	0.56	0.78	0.75	2.47	2.63	2.20	1.54	2.09
-14	2.06	1.97	2.10	2.10	0.69	0.93	0.90	2.73	2.90	2.45	1.74	2.33
-12	2.29	2.21	2.34	2.35	0.84	1.09	1.05	3.00	3.18	2.71	1.96	2.59
-10	2.53	2.46	2.60	2.61	0.99	1.25	1.20	3.29	3.48	2.98	2.18	2.86
-8	2.79	2.73	2.87	2.88	1.16	1.43	1.37	3.60	3.80	3.28	2.42	3.14
-6	3.06	3.01	3.16	3.17	1.33	1.61	1.55	3.92	4.13	3.59	2.68	3.45
-4	3.35	3.32	3.47	3.48	1.51	1.81	1.74	4.26	4.48	3.91	2.94	3.76
-2	3.65	3.63	3.79	3.80	1.71	2.02	1.94	4.62	4.84	4.25	3.23	4.10
0	3.97	3.97	4.13	4.14	1.91	2.24	2.15	4.99	5.23	4.61	3.52	4.45
2	4.30	4.32	4.49	4.50	2.13	2.47	2.36	5.38	5.63	4.99	3.84	4.83
4	4.65	4.70	4.87	4.88	2.36	2.71	2.60	5.79	6.05	5.39	4.17	5.22
6	5.01	5.09	5.26	5.28	2.61	2.97	2.84	6.22	6.49	5.80	4.51	5.63
8	5.40	5.50	5.68	5.70	2.86	3.24	3.09	6.67	6.96	6.24	4.88	6.06
10	5.80	**7.18**	**7.31**	**7.45**	3.13	**3.52**	3.36	**7.14**	**7.44**	**7.64**	**6.88**	**7.87**
12	6.22	**7.68**	**7.82**	**7.96**	3.42	**3.82**	3.64	**7.64**	**7.95**	**8.15**	**7.34**	**8.40**
14	6.65	**8.21**	**8.35**	**8.49**	3.72	**4.13**	3.94	**8.15**	**8.47**	**8.70**	**7.83**	**8.96**
16	7.11	**8.75**	**8.90**	**9.05**	4.03	**4.45**	4.25	**8.69**	**9.02**	**9.26**	**8.34**	**9.53**
18	7.59	**9.32**	**9.47**	**9.63**	4.36	**4.80**	4.57	**9.25**	**9.60**	**9.85**	**8.87**	**10.13**
20	8.09	**9.92**	**10.07**	**10.24**	4.70	**5.15**	4.90	**9.83**	**10.20**	**10.46**	**9.42**	**10.76**
22	8.61	**10.54**	**10.69**	**10.87**	5.07	**5.53**	5.26	**10.44**	**10.82**	**11.09**	**9.99**	**11.41**
24	9.15	**11.19**	**11.34**	**11.53**	5.44	**5.92**	5.62	**11.07**	**11.47**	**11.76**	**10.59**	**12.08**
26	9.71	**11.86**	**12.01**	**12.21**	5.84	**6.33**	6.01	**11.73**	**12.14**	**12.45**	**11.20**	**12.79**
28	10.30	**12.56**	**12.71**	**12.92**	6.26	**6.75**	6.41	**12.42**	**12.84**	**13.16**	**11.85**	**13.52**
30	10.91	**13.28**	**13.44**	**13.66**	6.69	**7.20**	6.82	**13.13**	**13.57**	**13.91**	**12.51**	**14.28**
32	11.54	**14.04**	**14.20**	**14.42**	7.14	**7.66**	7.26	**13.87**	**14.33**	**14.68**	**13.20**	**15.06**
34	12.20	**14.82**	**14.99**	**15.22**	7.61	**8.14**	7.71	**14.64**	**15.12**	**15.48**	**13.92**	**15.88**
36	12.88	**15.64**	**15.80**	**16.05**	8.11	**8.65**	8.18	**15.44**	**15.94**	**16.31**	**14.66**	**16.72**
38	13.59	**16.48**	**16.65**	**16.90**	8.62	**9.17**	8.66	**16.27**	**16.79**	**17.17**	**15.43**	**17.60**
40	14.32	**17.36**	**17.52**	**17.79**	9.15	**9.71**	9.17	**17.13**	**17.67**	**18.06**	**16.23**	**18.51**
42	15.08	**18.26**	**18.43**	**18.71**	9.71	**10.28**	9.70	**18.03**	**18.58**	**18.98**	**17.05**	**19.45**
44	15.87	**19.21**	**19.37**	**19.66**	10.29	**10.86**	10.24	**18.95**	**19.53**	**19.94**	**17.90**	**20.42**
46	16.69	**20.18**	**20.35**	**20.64**	10.89	**11.47**	10.81	**19.92**	**20.51**	**20.93**	**18.78**	**21.43**
48	17.54	**21.19**	**21.35**	**21.66**	11.52	**12.10**	11.40	**20.91**	**21.53**	**21.95**	**19.69**	**22.47**
50	18.41	**22.23**	**22.39**	**22.72**	12.17	**12.76**	12.01	**21.94**	**22.58**	**23.00**	**20.63**	**23.54**
52	19.32	**23.31**	**23.47**	**23.80**	12.84	**13.44**	12.64	**23.01**	**23.67**	**24.10**	**21.60**	**24.65**
54	20.26	**24.43**	**24.59**	**24.93**	13.54	**14.15**	13.30	**24.12**	**24.81**	**25.23**	**22.60**	**25.80**
56	21.23	**25.58**	**25.74**	**26.09**	14.27	**14.88**	13.98	**25.27**	**25.98**	**26.39**	**23.63**	**26.98**
58	22.23	**26.77**	**26.92**	**27.29**	15.02	**15.63**	14.68	**26.46**	**27.19**	**27.60**	**24.69**	**28.21**
60	23.26	**28.00**	**28.15**	**28.53**	15.81	**16.42**	15.41	**27.70**	**28.45**	**28.84**	**25.78**	**29.47**
62	24.33	**29.28**	**29.42**	**29.81**	16.62	**17.23**	16.16	**28.98**	**29.76**	**30.12**	**26.91**	**30.76**
64	25.43	**30.59**	**30.72**	**31.12**	17.45	**18.07**	16.94	**30.31**	**31.12**	**31.44**	**28.07**	**32.10**
66	26.57	**31.94**	**32.07**	**32.48**	18.32	**18.94**	17.74	**31.69**	**32.53**	**32.80**	**29.27**	**33.48**

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