

R-454C pressure–temperature chart

Opteon XL20 (R-32/1234yf) — a zeotropic blend of R-32 and R-1234yf, 21.5 / 78.5 % by mass. Also written R454C. Bubble and dew pressures from −70 to 78 °C, every 2 K, in kPa gauge and bar gauge, computed with CoolProp.

SAFETY CLASS A2L Lower toxicity, lower flammability	GWP, 100-YEAR 145 (AR4) · 166 (AR6) IPCC, summed from its composition	ODP 0 Montreal Protocol
BUBBLE POINT −45.56 °C At 101.325 kPa	DEW POINT −37.75 °C At 101.325 kPa	GLIDE 7.81 K Dew less bubble, at 101.325 kPa

BUBBLE · LIQUID					DEW · VAPOUR				
T (°C)	kPa g	bar g	kPa g	bar g	T (°C)	kPa g	bar g	kPa g	bar g
−70	−74.2	−0.74	−84.6	−0.85	6	600.0	6.00	451.3	4.51
−68	−70.7	−0.71	−82.2	−0.82	8	642.9	6.43	487.7	4.88
−66	−66.8	−0.67	−79.6	−0.80	10	687.6	6.88	525.8	5.26
−64	−62.6	−0.63	−76.7	−0.77	12	734.4	7.34	565.8	5.66
−62	−57.9	−0.58	−73.5	−0.74	14	783.1	7.83	607.8	6.08
−60	−52.8	−0.53	−70.0	−0.70	16	833.8	8.34	651.7	6.52
−58	−47.2	−0.47	−66.1	−0.66	18	886.7	8.87	697.7	6.98
−56	−41.1	−0.41	−61.8	−0.62	20	941.8	9.42	745.7	7.46
−54	−34.5	−0.35	−57.1	−0.57	22	999.0	9.99	796.0	7.96
−52	−27.4	−0.27	−52.0	−0.52	24	1,058.5	10.59	848.4	8.48
−50	−19.6	−0.20	−46.4	−0.46	26	1,120.4	11.20	903.2	9.03
−48	−11.2	−0.11	−40.3	−0.40	28	1,184.6	11.85	960.4	9.60
−46	−2.1	−0.02	−33.7	−0.34	30	1,251.2	12.51	1,020.0	10.20
−44	7.7	0.08	−26.5	−0.26	32	1,320.3	13.20	1,082.1	10.82
−42	18.2	0.18	−18.7	−0.19	34	1,392.0	13.92	1,146.9	11.47
−40	29.5	0.29	−10.3	−0.10	36	1,466.2	14.66	1,214.3	12.14
−38	41.6	0.42	−1.2	−0.01	38	1,543.0	15.43	1,284.5	12.84
−36	54.6	0.55	8.6	0.09	40	1,622.6	16.23	1,357.5	13.58
−34	68.4	0.68	19.2	0.19	42	1,704.9	17.05	1,433.5	14.34
−32	83.2	0.83	30.5	0.30	44	1,790.0	17.90	1,512.6	15.13
−30	99.0	0.99	42.6	0.43	46	1,878.0	18.78	1,594.7	15.95
−28	115.8	1.16	55.6	0.56	48	1,968.8	19.69	1,680.1	16.80
−26	133.6	1.34	69.5	0.69	50	2,062.7	20.63	1,768.9	17.69
−24	152.6	1.53	84.3	0.84	52	2,159.5	21.60	1,861.1	18.61
−22	172.7	1.73	100.1	1.00	54	2,259.5	22.59	1,956.9	19.57
−20	194.0	1.94	117.0	1.17	56	2,362.5	23.63	2,056.4	20.56
−18	216.5	2.16	134.9	1.35	58	2,468.8	24.69	2,159.7	21.60
−16	240.3	2.40	153.9	1.54	60	2,578.2	25.78	2,267.1	22.67
−14	265.4	2.65	174.1	1.74	62	2,691.0	26.91	2,378.6	23.79
−12	291.9	2.92	195.6	1.96	64	2,807.0	28.07	2,494.6	24.95
−10	319.9	3.20	218.3	2.18	66	2,926.5	29.26	2,615.1	26.15
−8	349.3	3.49	242.2	2.42	68	3,049.2	30.49	2,740.4	27.40
−6	380.2	3.80	267.6	2.68	70	3,175.4	31.75	2,870.9	28.71
−4	412.6	4.13	294.4	2.94	72	3,305.0	33.05	3,006.8	30.07
−2	446.7	4.47	322.6	3.23	74	3,437.9	34.38	3,148.7	31.49
0	482.4	4.82	352.4	3.52	76	3,574.0	35.74	3,297.1	32.97
2	519.9	5.20	383.7	3.84	78	3,713.1	37.13	3,452.9	34.53
4	559.0	5.59	416.6	4.17					

NOTES	Gauge pressure is absolute pressure less a standard atmosphere, 101.325 kPa; below it, gauge pressure is negative. Bubble: saturated liquid — read subcooling from it. Dew: saturated vapour — read superheat from it. CoolProp could not solve the dew line at 80 °C. Those rows are left out, not interpolated.
SOURCES	Computed with CoolProp 7.2.1dev (HEOS backend, MIT licence), from published equations of state. Cite: Bell, I.H., Wronski, J., Quoilin, S., Lemort, V. (2014). Pure and pseudo-pure fluid thermophysical property evaluation and the open-source thermophysical property library CoolProp. Ind. Eng. Chem. Res. 53(6), 2498-2508. GWP, ODP, safety class and composition: UNEP RTOC 2018, DCCEEW (Australian Government), IPCC AR4 (2007), IPCC AR6 (2021), Montreal Protocol, ASHRAE refrigerant designations, GHG Protocol (2024).
ONLINE	kelvin.engineering/refrigerants/r-454c — this table in kPa absolute, and the P–h diagram kelvin.engineering/tools/superheat-subcooling?r=r-454c — superheat and subcooling calculator
VERIFY	These figures must be verified by a qualified professional before they're relied on.