R-454B pressure–temperature chart

Opteon XL41 (R-32/1234yf) — a zeotropic blend of R-32 and R-1234yf, 68.9 / 31.1 % by mass. Also written R454B. Bubble and dew pressures from −70 to 68 °C, every 2 K, in kPa gauge and bar gauge, computed with CoolProp.

SAFETY CLASS	GWP, 100-YEAR	ODP
A2L Lower toxicity, lower flammability	**465** (AR4) · **531** (AR6) IPCC, summed from its composition	**0** Montreal Protocol

BUBBLE POINT	DEW POINT	GLIDE
−50.49 °C At 101.325 kPa	**−49.49** °C At 101.325 kPa	**1.00** K Dew less bubble, at 101.325 kPa

	BUBBLE · LIQUID		DEW · VAPOUR	
T (°C)	kPa g	bar g	kPa g	bar g
−70	−67.2	−0.67	−69.1	−0.69
−68	−62.8	−0.63	−64.8	−0.65
−66	−57.9	−0.58	−60.2	−0.60
−64	−52.4	−0.52	−55.0	−0.55
−62	−46.5	−0.46	−49.3	−0.49
−60	−40.0	−0.40	−43.1	−0.43
−58	−32.9	−0.33	−36.3	−0.36
−56	−25.1	−0.25	−28.9	−0.29
−54	−16.6	−0.17	−20.8	−0.21
−52	−7.4	−0.07	−12.1	−0.12
−50	2.5	0.03	−2.5	−0.03
−48	13.3	0.13	7.8	0.08
−46	25.0	0.25	18.9	0.19
−44	37.6	0.38	31.0	0.31
−42	51.1	0.51	43.9	0.44
−40	65.7	0.66	57.9	0.58
−38	81.3	0.81	72.8	0.73
−36	98.1	0.98	88.9	0.89
−34	116.0	1.16	106.1	1.06
−32	135.2	1.35	124.4	1.24
−30	155.7	1.56	144.1	1.44
−28	177.5	1.77	165.0	1.65
−26	200.7	2.01	187.2	1.87
−24	225.4	2.25	210.9	2.11
−22	251.6	2.52	236.1	2.36
−20	279.3	2.79	262.8	2.63
−18	308.8	3.09	291.0	2.91
−16	339.9	3.40	321.0	3.21
−14	372.8	3.73	352.7	3.53
−12	407.6	4.08	386.1	3.86
−10	444.3	4.44	421.4	4.21
−8	482.9	4.83	458.6	4.59
−6	523.6	5.24	497.8	4.98
−4	566.4	5.66	539.1	5.39
−2	611.4	6.11	582.5	5.82
0	658.6	6.59	628.1	6.28
2	708.2	7.08	676.0	6.76
4	760.1	7.60	726.2	7.26
6	814.5	8.15	778.8	7.79
8	871.5	8.72	833.9	8.34
10	931.1	9.31	891.6	8.92
12	993.4	9.93	952.0	9.52
14	1,058.5	10.58	1,015.0	10.15
16	1,126.4	11.26	1,080.9	10.81
18	1,197.2	11.97	1,149.7	11.50
20	1,271.1	12.71	1,221.5	12.22
22	1,348.0	13.48	1,296.4	12.96
24	1,428.2	14.28	1,374.4	13.74
26	1,511.6	15.12	1,455.7	14.56
28	1,598.4	15.98	1,540.3	15.40
30	1,688.6	16.89	1,628.3	16.28
32	1,782.3	17.82	1,720.0	17.20
34	1,879.7	18.80	1,815.2	18.15
36	1,980.7	19.81	1,914.2	19.14
38	2,085.6	20.86	2,017.1	20.17
40	2,194.4	21.94	2,123.9	21.24
42	2,307.2	23.07	2,234.8	22.35
44	2,424.2	24.24	2,349.9	23.50
46	2,545.3	25.45	2,469.4	24.69
48	2,670.8	26.71	2,593.3	25.93
50	2,800.7	28.01	2,721.9	27.22
52	2,935.2	29.35	2,855.2	28.55
54	3,074.4	30.74	2,993.4	29.93
56	3,218.3	32.18	3,136.7	31.37
58–66 °C: not solved by CoolProp — left out, not interpolated				
68	4,191.4	41.91	4,115.7	41.16

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 bubble line at 58–66 °C and 76 °C, or the dew line at 70–74 °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-454b — this table in kPa absolute, and the P–h diagram
kelvin.engineering/tools/superheat-subcooling?r=r-454b — superheat and subcooling calculator

VERIFY

These figures must be verified by a qualified professional before they're relied on.