R-452A pressure–temperature chart

Opteon XP44 (R-32/125/1234yf) — a zeotropic blend of R-32, R-125 and R-1234yf, 11 / 59 / 30 % by mass. Also written R452A. 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
A1 Lower toxicity, no flame propagation	**2,139** (AR4) · **2,292** (AR6) IPCC, summed from its composition	**0** Montreal Protocol

BUBBLE POINT	DEW POINT	GLIDE
−46.96 °C At 101.325 kPa	**−43.15** °C At 101.325 kPa	**3.80** K Dew less bubble, at 101.325 kPa

	BUBBLE · LIQUID		DEW · VAPOUR	
T (°C)	kPa g	bar g	kPa g	bar g
−70	−73.0	−0.73	−78.8	−0.79
−68	−69.2	−0.69	−75.7	−0.76
−66	−65.1	−0.65	−72.3	−0.72
−64	−60.5	−0.61	−68.5	−0.68
−62	−55.5	−0.56	−64.3	−0.64
−60	−50.0	−0.50	−59.7	−0.60
−58	−44.0	−0.44	−54.7	−0.55
−56	−37.5	−0.37	−49.2	−0.49
−54	−30.3	−0.30	−43.1	−0.43
−52	−22.6	−0.23	−36.6	−0.37
−50	−14.2	−0.14	−29.4	−0.29
−48	−5.0	−0.05	−21.6	−0.22
−46	4.8	0.05	−13.2	−0.13
−44	15.4	0.15	−4.1	−0.04
−42	26.9	0.27	5.8	0.06
−40	39.2	0.39	16.4	0.16
−38	52.4	0.52	27.8	0.28
−36	66.5	0.67	40.1	0.40
−34	81.6	0.82	53.3	0.53
−32	97.8	0.98	67.5	0.67
−30	115.1	1.15	82.6	0.83
−28	133.5	1.33	98.7	0.99
−26	153.0	1.53	116.0	1.16
−24	173.8	1.74	134.4	1.34
−22	195.9	1.96	153.9	1.54
−20	219.2	2.19	174.7	1.75
−18	244.0	2.44	196.7	1.97
−16	270.2	2.70	220.1	2.20
−14	297.8	2.98	244.9	2.45
−12	327.0	3.27	271.1	2.71
−10	357.8	3.58	298.8	2.99
−8	390.2	3.90	328.0	3.28
−6	424.3	4.24	358.9	3.59
−4	460.1	4.60	391.4	3.91
−2	497.8	4.98	425.6	4.26
0	537.3	5.37	461.6	4.62
2	578.7	5.79	499.4	4.99
4	622.0	6.22	539.2	5.39
6	667.4	6.67	580.9	5.81
8	714.9	7.15	624.6	6.25
10	764.5	7.65	670.4	6.70
12	816.4	8.16	718.4	7.18
14	870.4	8.70	768.6	7.69
16	926.8	9.27	821.1	8.21
18	985.6	9.86	875.9	8.76
20	1,046.9	10.47	933.2	9.33
22	1,110.6	11.11	993.0	9.93
24	1,176.9	11.77	1,055.4	10.55
26	1,245.8	12.46	1,120.5	11.20
28	1,317.4	13.17	1,188.2	11.88
30	1,391.8	13.92	1,258.9	12.59
32	1,469.0	14.69	1,332.4	13.32
34	1,549.1	15.49	1,408.9	14.09
36	1,632.2	16.32	1,488.5	14.89
38	1,718.3	17.18	1,571.4	15.71
40	1,807.5	18.07	1,657.4	16.57
42	1,899.9	19.00	1,746.9	17.47
44	1,995.5	19.95	1,839.9	18.40
46	2,094.4	20.94	1,936.5	19.36
48	2,196.7	21.97	2,036.8	20.37
50	2,302.5	23.02	2,141.0	21.41
52	2,411.8	24.12	2,249.2	22.49
54	2,524.8	25.25	2,361.6	23.62
56	2,641.5	26.41	2,478.3	24.78
58	2,761.9	27.62	2,599.6	26.00
60	2,886.3	28.86	2,725.8	27.26
62	3,014.6	30.15	2,857.0	28.57
64	3,146.8	31.47	2,993.6	29.94
66	3,283.2	32.83	3,136.1	31.36
68	3,423.5	34.23	3,285.2	32.85

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 74 °C, or the dew line at 70–72 °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-452a — this table in kPa absolute, and the P–h diagram
kelvin.engineering/tools/superheat-subcooling?r=r-452a — superheat and subcooling calculator

VERIFY

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