

R-449A pressure–temperature chart

Opteon XP40 (R-32/125/1234yf/134a) — a zeotropic blend of R-32, R-125, R-1234yf and R-134a, 24.3 / 24.7 / 25.3 / 25.7 % by mass. Also written R449A. Bubble and dew pressures from −70 to 74 °C, every 2 K, in kPa gauge and bar gauge, computed with CoolProp.

SAFETY CLASS A1 Lower toxicity, no flame propagation	GWP, 100-YEAR 1,396 (AR4) · 1,504 (AR6) IPCC, summed from its composition	ODP 0 Montreal Protocol
BUBBLE POINT −45.72 °C At 101.325 kPa	DEW POINT −39.94 °C At 101.325 kPa	GLIDE 5.79 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	−74.8	−0.75	−83.4	−0.83	4	592.8	5.93	485.3	4.85
−68	−71.3	−0.71	−80.9	−0.81	6	636.8	6.37	524.9	5.25
−66	−67.4	−0.67	−78.0	−0.78	8	683.0	6.83	566.4	5.66
−64	−63.1	−0.63	−74.8	−0.75	10	731.3	7.31	609.9	6.10
−62	−58.4	−0.58	−71.2	−0.71	12	781.7	7.82	655.6	6.56
−60	−53.2	−0.53	−67.3	−0.67	14	834.4	8.34	703.5	7.03
−58	−47.6	−0.48	−63.0	−0.63	16	889.4	8.89	753.6	7.54
−56	−41.4	−0.41	−58.2	−0.58	18	946.8	9.47	806.1	8.06
−54	−34.6	−0.35	−53.0	−0.53	20	1,006.5	10.07	860.9	8.61
−52	−27.3	−0.27	−47.2	−0.47	22	1,068.8	10.69	918.3	9.18
−50	−19.3	−0.19	−41.0	−0.41	24	1,133.6	11.34	978.2	9.78
−48	−10.7	−0.11	−34.1	−0.34	26	1,201.1	12.01	1,040.7	10.41
−46	−1.4	−0.01	−26.7	−0.27	28	1,271.2	12.71	1,105.9	11.06
−44	8.7	0.09	−18.6	−0.19	30	1,344.1	13.44	1,174.0	11.74
−42	19.6	0.20	−9.8	−0.10	32	1,419.7	14.20	1,244.9	12.45
−40	31.3	0.31	−0.3	0.00	34	1,498.3	14.98	1,318.7	13.19
−38	43.9	0.44	9.9	0.10	36	1,579.8	15.80	1,395.6	13.96
−36	57.3	0.57	21.0	0.21	38	1,664.3	16.64	1,475.7	14.76
−34	71.8	0.72	32.9	0.33	40	1,751.9	17.52	1,559.0	15.59
−32	87.2	0.87	45.7	0.46	42	1,842.7	18.43	1,645.6	16.46
−30	103.7	1.04	59.5	0.59	44	1,936.7	19.37	1,735.7	17.36
−28	121.3	1.21	74.2	0.74	46	2,034.0	20.34	1,829.3	18.29
−26	140.0	1.40	89.9	0.90	48	2,134.7	21.35	1,926.6	19.27
−24	159.9	1.60	106.8	1.07	50	2,238.8	22.39	2,027.6	20.28
−22	181.1	1.81	124.7	1.25	52	2,346.5	23.47	2,132.6	21.33
−20	203.5	2.04	143.9	1.44	54	2,457.8	24.58	2,241.6	22.42
−18	227.3	2.27	164.3	1.64	56	2,572.7	25.73	2,354.8	23.55
−16	252.5	2.52	185.9	1.86	58	2,691.5	26.91	2,472.4	24.72
−14	279.1	2.79	208.9	2.09	60	2,814.1	28.14	2,594.4	25.94
−12	307.3	3.07	233.3	2.33	62	2,940.6	29.41	2,721.2	27.21
−10	336.9	3.37	259.1	2.59	64	3,071.1	30.71	2,853.0	28.53
−8	368.2	3.68	286.5	2.86	66	3,205.7	32.06	2,989.9	29.90
−6	401.2	4.01	315.4	3.15	68	3,344.4	33.44	3,132.3	31.32
−4	435.8	4.36	345.9	3.46	70	3,487.4	34.87	3,280.6	32.81
−2	472.3	4.72	378.1	3.78	72	3,634.6	36.35	3,435.1	34.35
0	510.5	5.11	412.0	4.12	74	3,786.0	37.86	3,596.6	35.97
2	550.7	5.51	447.7	4.48					

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 80 °C, or the dew line at 76–78 °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, DCEEW (Australian Government), IPCC AR4 (2007), IPCC AR6 (2021), Montreal Protocol, ASHRAE refrigerant designations, GHG Protocol (2024).
ONLINE	kelvin.engineering/refrigerants/r-449a — this table in kPa absolute, and the P–h diagram kelvin.engineering/tools/superheat-subcooling?r=r-449a — superheat and subcooling calculator
VERIFY	These figures must be verified by a qualified professional before they're relied on.