

Physical Constants of Hydrocarbons

NO.	COMPOUND	FORMULA	MOLECULAR WEIGHT	BOILING POINT AT 14.696 PSIA (°F)	VAPOR PRESSURE AT 100°F (PSIA)	FREEZING POINT AT 14.696 PSIA (°F)	CRITICAL CONSTANTS		SPECIFIC GRAVITY AT 14.696 PSIA	
							Critical Temperature (°F)	Critical Pressure (psia)	Liquid, (3, 4) 60°F/60°F	Gas at 60°F (Air = 1) ⁽¹⁾
1	Methane	CH ₄	16.043	-258.69	(5000) ⁽²⁾	-296.46 ⁽⁵⁾	-116.63	667.8	0.3 ⁽⁸⁾	0.5539
2	Ethane	C ₂ H ₆	30.070	-127.48	(800) ⁽²⁾	-297.89 ⁽⁵⁾	90.09	707.8	0.3564 ⁽⁷⁾	1.0382
3	Propane	C ₃ H ₈	44.097	-43.67	190	-305.84 ⁽⁵⁾	206.01	616.3	0.5077 ⁽⁷⁾	1.5225
4	n-Butane	C ₄ H ₁₀	58.124	31.10	51.6	-217.05	305.65	550.7	0.5844 ⁽⁷⁾	2.0068
5	Isobutane	C ₄ H ₁₀	58.124	10.90	72.2	-255.29	274.98	529.1	0.5631 ⁽⁷⁾	2.0068
6	n-Pentane	C ₅ H ₁₂	72.151	96.92	15.570	-201.51	385.7	488.6	0.6310	2.4911
7	Isopentane	C ₅ H ₁₂	72.151	82.12	20.44	-255.83	369.10	490.4	0.6247	2.4911
8	Neopentane	C ₅ H ₁₂	72.151	49.10	35.9	2.17	321.13	464.0	0.5967 ⁽⁷⁾	2.4911
9	n-Hexane	C ₆ H ₁₄	86.178	155.72	4.956	-139.58	453.7	436.9	0.6640	2.9753
10	2-Methylpentane	C ₆ H ₁₄	86.178	140.47	6.767	-244.63	435.83	436.6	0.6579	2.9753
11	3-Methylpentane	C ₆ H ₁₄	86.178	145.89	6.098	- - -	448.3	453.1	0.6689	2.9753
12	Neohexane	C ₆ H ₁₄	86.178	121.52	9.856	-147.72	420.13	446.8	0.6540	2.9753
13	2, 3-Dimethylbutane	C ₆ H ₁₄	86.178	136.36	7.404	-199.38	440.29	453.5	0.6664	2.9753
14	n-Heptane	C ₇ H ₁₆	100.205	209.17	1.620	-131.05	512.8	396.8	0.6882	3.4596
15	2-Methylhexane	C ₇ H ₁₆	100.205	194.09	2.271	-180.89	495.00	396.5	0.6830	3.4596
16	3-Methylhexane	C ₇ H ₁₆	100.205	197.32	2.130	- - -	503.78	408.1	0.6917	3.4596
17	3-Ethylpentane	C ₇ H ₁₆	100.205	200.25	2.012	-181.48	513.48	419.3	0.7028	3.4596
18	2,2-Dimethylpentane	C ₇ H ₁₆	100.205	174.54	3.492	-190.86	477.23	402.2	0.6782	3.4596
19	2,4-Dimethylpentane	C ₇ H ₁₆	100.205	176.89	3.292	-182.63	475.95	396.9	0.6773	3.4596
20	3,3-Dimethylpentane	C ₇ H ₁₆	100.205	186.91	2.773	-210.01	505.85	427.2	0.6976	3.4596
21	Triptane	C ₇ H ₁₆	100.205	177.58	3.374	-12.82	496.44	428.4	0.6946	3.4596
22	n-Octane	C ₈ H ₁₈	114.232	258.22	0.537	-70.18	564.22	360.6	0.7068	3.9439
23	Disobutyl	C ₈ H ₁₈	114.232	228.39	1.101	-132.07	530.44	360.6	0.6979	3.9439
24	Isooctane	C ₈ H ₁₈	114.232	210.63	1.708	-161.27	519.46	372.4	0.6962	3.9439
25	n-Nonane	C ₉ H ₂₀	128.259	303.47	0.179	-64.28	610.68	332	0.7217	4.4282
26	n-Decane	C ₁₀ H ₂₂	142.286	345.48	0.0597	-21.36	652.1	304	0.7342	4.9125
27	Cyclopentane	C ₅ H ₁₀	70.135	120.65	9.914	-136.91	461.5	653.8	0.7504	2.4215
28	Methylcyclopentane	C ₆ H ₁₂	84.162	161.25	4.503	-224.44	499.35	548.9	0.7536	2.9057
29	Cyclohexane	C ₆ H ₁₂	84.162	177.29	3.264	43.77	536.7	591	0.7834	2.9057
30	Methylcyclohexane	C ₇ H ₁₄	98.189	213.68	1.609	-195.98	570.27	503.5	0.7740	3.3900
31	Ethylene	C ₂ H ₄	28.054	-154.62	- - -	-272.45 ⁽⁵⁾	48.58	729.8	- - -	0.9686
32	Propene	C ₃ H ₆	42.081	-53.90	226.4	-301.45 ⁽⁵⁾	196.9	669	0.5220 ⁽⁷⁾	1.4529
33	1-Butene	C ₄ H ₈	56.108	20.75	63.05	-301.63 ⁽⁵⁾	295.6	583	0.6013 ⁽⁷⁾	1.9372
34	Cis-2-Butene	C ₄ H ₈	56.108	38.69	45.54	-218.06	324.37	610	0.6271 ⁽⁷⁾	1.9372
35	Trans-2-Butene	C ₄ H ₈	56.108	33.58	49.80	-157.96	311.86	595	0.6100 ⁽⁷⁾	1.9372
36	Isobutene	C ₄ H ₈	56.108	19.59	63.40	-220.61	292.55	580	0.6004 ⁽⁷⁾	1.9372
37	1-Pentene	C ₅ H ₁₀	70.135	85.93	19.115	-265.39	376.93	590	0.645 ⁽⁷⁾	2.4215
38	1,2-Butadiene	C ₄ H ₆	54.092	51.56	(20) ⁽²⁾	-213.16	(339) ⁽²⁾	(653) ⁽²⁾	0.658 ⁽⁷⁾	1.8676
39	1,3-Butadiene	C ₄ H ₆	54.092	24.06	(60) ⁽²⁾	-164.02	306	628	0.6272 ⁽⁷⁾	1.8676
40	Isoprene	C ₅ H ₈	68.119	93.30	16.672	-230.74	(412) ⁽²⁾	(558.4) ⁽²⁾	0.6861	2.3519
41	Acetylene	C ₂ H ₂	26.038	-119 ⁽⁶⁾	- - -	-114 ⁽⁵⁾	95.31	890.4	0.615 ⁽⁹⁾	0.8990
42	Benzene	C ₆ H ₆	78.114	176.17	3.224	41.96	552.22	710.4	0.8844	2.6969
43	Toluene	C ₇ H ₈	92.141	231.13	1.032	-138.94	605.55	595.9	0.8718	3.1812
44	Ethylbenzene	C ₈ H ₁₀	106.168	277.16	0.371	-138.91	651.24	523.5	0.8718	3.6655
45	o-Xylene	C ₈ H ₁₀	106.168	291.97	0.264	-13.30	675.0	541.4	0.8848	3.6655
46	m-Xylene	C ₈ H ₁₀	106.168	282.41	0.326	-54.12	651.02	513.6	0.8687	3.6655
47	p-Xylene	C ₈ H ₁₀	106.168	281.05	0.342	55.86	649.6	509.2	0.8657	3.6655
48	Styrene	C ₈ H ₈	104.152	293.29	(0.24) ⁽²⁾	-23.10	706.0	580	0.9110	3.5959
49	Isopropylbenzene	C ₉ H ₁₂	120.195	306.34	0.188	-140.82	676.4	465.4	0.8663	4.1498

1. Calculated values.
2. () - Estimated values.
3. Air saturated hydrocarbons.
4. Absolute values from weights in vacuum.
5. At saturation pressure (triple point).
6. Sublimation point.
7. Saturation pressure at 60°F.
8. Apparent value for methane at 60°F.
9. Specific gravity, 119°F/60°F (sublimation point).