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THERMAL CAPACITY OF GASES AT LOW PRESSURE

$$c_p = a + bT + cT^2 + dT^3$$

with T in kelvin and c_p in J/(mol K)

(uncertainty <1% for $300 < T/K < 1500$)

<i>Substance</i>	<i>Formula</i>	<i>a</i>	<i>b</i> ×10 ³	<i>c</i> ×10 ⁶	<i>d</i> ×10 ⁹
Acetylene	C ₂ H ₂	21.8	92.14	-65.27	18.21
Air	-	28.1	1.97	4.8	-1.97
Ammonia	NH ₃	27.6	25.63	9.90	-6.69
Argon	Ar	20.8	0	0	0
Benzene	C ₆ H ₆	-36.2	484.75	-315.7	77.62
n-Butane	C ₄ H ₁₀	4.0	371.5	-183.4	35.00
Carbon dioxide	CO ₂	22.3	59.81	-35.01	7.47
Carbon monoxide	CO	28.2	1.67	5.37	-2.22
Ethane	C ₂ H ₆	6.9	172.7	-64.06	7.28
Ethanol	C ₂ H ₆ O	19.9	209.6	-103.8	20.05
Ethylene	C ₂ H ₄	3.9	156.4	-83.44	17.67
Helium	He	20.8	0	0	0
Hydrogen	H ₂	29.1	-1.92	4.00	-0.87
Methane	CH ₄	19.9	50.24	12.69	-11.01
Methanol	CH ₄ O	19.0	91.52	-12.2	-8.04
Nitrogen dioxide	NO ₂	22.9	57.15	-35.2	7.87
Nitrogen monoxide	NO	29.3	-0.94	9.75	-4.19
Neon	Ne	20.7	0	0	0
Nitrogen	N ₂	28.9	-1.57	8.08	-2.87
Oxygen	O ₂	25.5	15.20	-7.15	1.31
n-Pentane	C ₅ H ₁₂	6.8	454.3	-224.6	42.29
Propane	C ₃ H ₈	-4.0	304.8	-157.2	31.74
Propylene	C ₃ H ₆	3.1	238.3	-121.8	24.62
Sulfur dioxide	SO ₂	25.8	57.95	-38.12	8.61
Water vapour	H ₂ O	32.2	1.92	10.55	-3.60