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