

Средняя массовая теплоемкость газов при постоянном давлении, C_p , кДж/(кг·К)

| $t, ^\circ\text{C}$ | O_2 | N_2 | CO | CO_2 | H_2O | SO_2 | Воздух (абсолютно сухой) |
|---------------------|--------------|--------------|-------------|---------------|----------------------|---------------|---|
| 0 | 0,9148 | 1,0304 | 1,0396 | 0,8148 | 1,8594 | 0,607 | 1,0036 |
| 100 | 0,9232 | 1,0316 | 1,0417 | 0,8658 | 1,8728 | 0,636 | 1,0061 |
| 200 | 0,9353 | 1,0346 | 1,0463 | 0,9102 | 1,8937 | 0,662 | 1,0115 |
| 300 | 0,9500 | 1,0400 | 1,0538 | 0,9487 | 1,9192 | 0,687 | 1,0191 |
| 400 | 0,9651 | 1,0475 | 1,0634 | 0,9826 | 1,9477 | 0,708 | 1,0283 |
| 500 | 0,9793 | 1,0567 | 1,0748 | 1,0128 | 1,9778 | 0,724 | 1,0387 |
| 600 | 0,9927 | 1,0668 | 1,0861 | 1,0396 | 2,0092 | 0,737 | 1,0496 |
| 700 | 1,0048 | 1,0777 | 1,0978 | 1,0639 | 2,0419 | 0,754 | 1,0605 |
| 800 | 1,0157 | 1,0881 | 1,1091 | 1,0852 | 2,0754 | 0,762 | 1,0710 |
| 900 | 1,0258 | 1,0982 | 1,1200 | 1,1045 | 2,1097 | 0,775 | 1,0815 |
| 1000 | 1,0350 | 1,1078 | 1,1304 | 1,1225 | 2,1436 | 0,783 | 1,0907 |
| 1100 | 1,0434 | 1,1170 | 1,1401 | 1,1384 | 2,1771 | 0,791 | 1,0999 |
| 1200 | 1,0509 | 1,1258 | 1,4493 | 1,1530 | 2,2106 | 0,795 | 1,1082 |
| 1300 | 1,0580 | 1,1342 | 1,1577 | 1,1660 | 2,2429 | - | 1,1166 |
| 1400 | 1,0647 | 1,1422 | 1,1656 | 1,1782 | 2,2743 | - | 1,1242 |
| 1500 | 1,0714 | 1,1497 | 1,1731 | 1,1895 | 2,3048 | - | 1,1313 |
| 1600 | 1,0773 | 1,1564 | 1,1798 | 1,1995 | 2,3346 | - | 1,1380 |
| 1700 | 1,0831 | 1,1631 | 1,1865 | 1,2091 | 2,3630 | - | 1,1443 |
| 1800 | 1,0886 | 1,1690 | 1,1924 | 1,2179 | 2,3907 | - | 1,1501 |
| 1900 | 1,0940 | 1,1748 | 1,1983 | 1,2259 | 2,4166 | - | 1,1560 |
| 2000 | 1,0990 | 1,1803 | 1,2033 | 1,2334 | 2,4422 | - | 1,1610 |

Средняя массовая теплоемкость газов при постоянном объеме, C_V , кДж/(кг·К)

| $t, ^\circ\text{C}$ | O_2 | N_2 | CO | CO_2 | H_2O | SO_2 | Воздух (абсолютно сухой) |
|---------------------|--------------|--------------|-------------|---------------|----------------------|---------------|---|
| 0 | 0,6548 | 0,7352 | 0,7427 | 0,6259 | 1,3980 | 0,477 | 0,7164 |
| 100 | 0,6632 | 0,7365 | 0,7448 | 0,6770 | 1,4114 | 0,507 | 0,7193 |
| 200 | 0,6753 | 0,7394 | 0,7494 | 0,7214 | 1,4323 | 0,532 | 0,7243 |
| 300 | 0,6900 | 0,7448 | 0,7570 | 0,7599 | 1,4574 | 0,557 | 0,7319 |
| 400 | 0,7015 | 0,7524 | 0,7666 | 0,7938 | 1,4863 | 0,578 | 0,7415 |
| 500 | 0,7193 | 0,7616 | 0,7775 | 0,8240 | 1,5160 | 0,595 | 0,7519 |
| 600 | 0,7827 | 0,7716 | 0,7892 | 0,8508 | 1,5474 | 0,607 | 0,7624 |
| 700 | 0,7448 | 0,7821 | 0,8009 | 0,8746 | 1,5805 | 0,624 | 0,7733 |
| 800 | 0,7557 | 0,7926 | 0,8122 | 0,8964 | 1,6140 | 0,632 | 0,7842 |
| 900 | 0,7658 | 0,8030 | 0,8231 | 0,9157 | 1,6483 | 0,645 | 0,7942 |
| 1000 | 0,7750 | 0,8127 | 0,8336 | 0,9332 | 1,6823 | 0,653 | 0,8039 |
| 1100 | 0,7834 | 0,8219 | 0,8432 | 0,9496 | 1,7158 | 0,662 | 0,8127 |
| 1200 | 0,7913 | 0,8307 | 0,8566 | 0,9638 | 1,7488 | 0,666 | 0,8215 |
| 1300 | 0,7984 | 0,8390 | 0,8608 | 0,9772 | 1,7815 | - | 0,8294 |
| 1400 | 0,8051 | 0,8470 | 0,8688 | 0,9893 | 1,8129 | - | 0,8369 |
| 1500 | 0,8114 | 0,8541 | 0,8763 | 1,0006 | 1,8434 | - | 0,8441 |
| 1600 | 0,8173 | 0,8612 | 0,8830 | 1,0107 | 1,8728 | - | 0,8508 |
| 1700 | 0,8231 | 0,8675 | 0,8893 | 1,0203 | 1,9016 | - | 0,8570 |
| 1800 | 0,8286 | 0,8738 | 0,8956 | 1,0291 | 1,9293 | - | 0,8633 |
| 1900 | 0,8340 | 0,8792 | 0,9014 | 1,0371 | 1,9552 | - | 0,8688 |
| 2000 | 0,8390 | 0,8847 | 0,9064 | 1,0446 | 1,9804 | - | 0,8742 |

Средняя объемная теплоемкость газов при постоянном давлении, C'_p , кДж/(м³·К)

| $t, ^\circ\text{C}$ | O_2 | N_2 | CO | CO_2 | H_2O | SO_2 | Воздух (абсолютно сухой) |
|---------------------|--------------|--------------|-------------|---------------|----------------------|---------------|---|
| 0 | 1,3059 | 1,2946 | 1,2992 | 1,5998 | 1,493 | 1,733 | 1,2971 |
| 100 | 1,3176 | 1,2958 | 1,3017 | 1,7003 | 1,502 | 1,813 | 1,3004 |
| 200 | 1,3352 | 1,2996 | 1,3071 | 1,7873 | 1,5223 | 1,888 | 1,3071 |
| 300 | 1,3561 | 1,3067 | 1,3167 | 1,8627 | 1,5424 | 1,955 | 1,3172 |
| 400 | 1,3775 | 1,3163 | 1,3289 | 1,9297 | 1,5654 | 2,018 | 1,3289 |
| 500 | 1,3980 | 1,3276 | 1,3427 | 1,9887 | 1,5897 | 2,068 | 1,3427 |
| 600 | 1,4168 | 1,3402 | 1,3574 | 2,0411 | 1,6148 | 2,114 | 1,3565 |
| 700 | 1,4344 | 1,3536 | 1,3720 | 2,0884 | 1,6412 | 2,152 | 1,3708 |
| 800 | 1,4499 | 1,3670 | 1,3862 | 2,1311 | 1,6680 | 2,181 | 1,3842 |
| 900 | 1,4645 | 1,3796 | 1,3396 | 2,1692 | 1,6957 | 2,215 | 1,3976 |
| 1000 | 1,4775 | 1,3917 | 1,4126 | 2,2035 | 1,7229 | 2,236 | 1,4097 |
| 1100 | 1,4892 | 1,4034 | 1,4248 | 2,2349 | 1,7501 | 2,261 | 1,4214 |
| 1200 | 1,5005 | 1,4143 | 1,4361 | 2,2638 | 1,7769 | 2,278 | 1,4327 |
| 1300 | 1,5106 | 1,4252 | 1,4465 | 2,2898 | 1,8028 | - | 1,4432 |
| 1400 | 1,5202 | 1,4348 | 1,4566 | 2,3136 | 1,8280 | - | 1,4528 |
| 1500 | 1,5294 | 1,4440 | 1,4658 | 2,3354 | 1,8527 | - | 1,4620 |
| 1600 | 1,5378 | 1,4528 | 1,4746 | 2,3555 | 1,8761 | - | 1,4708 |
| 1700 | 1,5462 | 1,4612 | 1,4825 | 2,3743 | 1,8996 | - | 1,4867 |
| 1800 | 1,5541 | 1,4687 | 1,4901 | 2,3915 | 1,9213 | - | 1,4867 |
| 1900 | 1,5617 | 1,4758 | 1,4972 | 2,4074 | 1,9423 | - | 1,4939 |
| 2000 | 1,5692 | 1,4825 | 1,5039 | 2,4221 | 1,9628 | - | 1,5010 |

Средняя объемная теплоемкость газов при постоянном объеме, C'_v , кДж/(м³·К)

| T, °C | O₂ | N₂ | CO | CO₂ | H₂O | SO₂ | Воздух (абсолютно сухой) |
|--------------|----------------------|----------------------|-----------|-----------------------|-----------------------|-----------------------|---|
| 0 | 0,9349 | 0,9236 | 0,9282 | 1,2288 | 1,1237 | 1,361 | 0,9261 |
| 100 | 0,9466 | 0,9249 | 0,9307 | 1,3293 | 1,1342 | 1,440 | 0,9295 |
| 200 | 0,9642 | 0,9286 | 0,9362 | 1,4164 | 1,1514 | 1,516 | 0,9362 |
| 300 | 0,9852 | 0,9357 | 0,9458 | 1,4918 | 1,1715 | 1,587 | 0,9462 |
| 400 | 1,0065 | 0,9454 | 0,9579 | 1,5587 | 1,1945 | 1,645 | 0,9579 |
| 500 | 1,0270 | 0,9567 | 0,9718 | 1,6178 | 1,2188 | 1,700 | 0,9718 |
| 600 | 1,0459 | 0,9692 | 0,9864 | 1,6701 | 1,2439 | 1,742 | 0,9856 |
| 700 | 1,0634 | 0,9826 | 1,0011 | 1,7174 | 1,2703 | 1,779 | 0,9998 |
| 800 | 1,0789 | 0,9960 | 1,0153 | 1,7601 | 1,2971 | 1,813 | 1,0132 |
| 900 | 1,0936 | 1,0086 | 1,0287 | 1,7982 | 1,3247 | 1,842 | 1,0262 |
| 1000 | 1,1066 | 1,0207 | 1,0417 | 1,8326 | 1,3519 | 1,867 | 1,0387 |
| 1100 | 1,1183 | 1,0325 | 1,0538 | 1,8640 | 1,3791 | 1,888 | 1,0505 |
| 1200 | 1,1296 | 1,0434 | 1,0651 | 1,8929 | 1,4059 | 1,905 | 1,0618 |
| 1300 | 1,1396 | 1,0542 | 1,0756 | 1,9188 | 1,4319 | - | 1,0722 |
| 1400 | 1,1493 | 1,0639 | 1,0856 | 1,9427 | 1,4570 | - | 1,0819 |
| 1500 | 1,1585 | 1,0731 | 1,0948 | 1,9644 | 1,4817 | - | 1,0911 |
| 1600 | 1,1669 | 1,0819 | 1,1036 | 1,9845 | 1,5052 | - | 1,0999 |
| 1700 | 1,1752 | 1,0902 | 1,1116 | 2,0034 | 1,5286 | - | 1,1078 |
| 1800 | 1,1832 | 1,0978 | 1,1191 | 2,0205 | 1,5504 | - | 1,1158 |
| 1900 | 1,1907 | 1,1049 | 1,1262 | 2,0365 | 1,5713 | - | 1,1229 |
| 2000 | 1,1978 | 1,1116 | 1,1329 | 2,0511 | 1,5918 | - | 1,1296 |

Средняя молярная теплоемкость газов при постоянном давлении, $\mu_{\text{Ср}}$, кДж/(кмоль·К)

| $T, ^\circ\text{C}$ | O_2 | N_2 | CO | CO_2 | H_2O | SO_2 | Воздух (абсолютно сухой) |
|---------------------|--------------|--------------|-------------|---------------|----------------------|---------------|---|
| 0 | 29,274 | 29,019 | 29,123 | 35,860 | 33,499 | 38,85 | 29,073 |
| 100 | 29,538 | 29,048 | 29,178 | 38,112 | 33,741 | 40,65 | 29,152 |
| 200 | 29,931 | 29,132 | 29,303 | 40,059 | 34,118 | 42,33 | 29,299 |
| 300 | 30,400 | 29,287 | 29,517 | 41,755 | 34,575 | 43,88 | 29,521 |
| 400 | 30,878 | 29,500 | 29,789 | 43,250 | 35,090 | 45,22 | 29,789 |
| 500 | 31,334 | 29,764 | 30,099 | 44,573 | 35,630 | 46,39 | 30,095 |
| 600 | 31,761 | 30,044 | 30,425 | 45,453 | 36,195 | 47,35 | 30,405 |
| 700 | 32,150 | 30,341 | 30,752 | 46,813 | 36,789 | 48,23 | 30,723 |
| 800 | 32,502 | 30,635 | 31,070 | 47,763 | 37,392 | 48,94 | 31,028 |
| 900 | 32,825 | 30,924 | 31,376 | 48,617 | 38,008 | 49,61 | 31,321 |
| 1000 | 33,118 | 31,196 | 31,665 | 49,392 | 38,619 | 50,16 | 31,598 |
| 1100 | 33,386 | 31,455 | 31,937 | 50,099 | 39,226 | 50,66 | 31,862 |
| 1200 | 33,633 | 31,707 | 32,192 | 50,740 | 39,825 | 51,08 | 32,109 |
| 1300 | 33,863 | 31,941 | 32,427 | 51,322 | 40,407 | - | 32,343 |
| 1400 | 34,076 | 32,163 | 32,653 | 51,858 | 40,976 | - | 32,575 |
| 1500 | 34,282 | 32,372 | 32,858 | 52,348 | 41,525 | - | 32,774 |
| 1600 | 34,474 | 32,565 | 33,051 | 52,800 | 42,056 | - | 32,967 |
| 1700 | 34,658 | 32,749 | 33,231 | 63,218 | 42,576 | - | 33,151 |
| 1800 | 34,834 | 32,917 | 33,402 | 53,504 | 43,070 | - | 33,319 |
| 1900 | 35,006 | 33,080 | 33,561 | 53,959 | 43,539 | - | 33,482 |
| 2000 | 35,169 | 33,231 | 33,708 | 54,290 | 43,995 | - | 33,641 |

Средняя молярная теплоемкость газов при постоянном объеме, μC_v , кДж/(кмоль·К)

| $t, ^\circ\text{C}$ | O_2 | N_2 | CO | CO_2 | H_2O | SO_2 | Воздух (абсолютно сухой) |
|---------------------|--------------|--------------|-------------|---------------|----------------------|---------------|---|
| 0 | 20,959 | 20,704 | 20,808 | 27,545 | 25,184 | 30,52 | 20,758 |
| 100 | 21,223 | 20,733 | 20,863 | 29,797 | 25,426 | 32,52 | 20,838 |
| 200 | 21,616 | 20,800 | 20,988 | 31,744 | 25,803 | 34,00 | 20,984 |
| 300 | 22,085 | 20,972 | 21,202 | 33,440 | 26,260 | 35,55 | 21,206 |
| 400 | 22,563 | 21,185 | 21,474 | 34,905 | 26,775 | 36,89 | 21,474 |
| 500 | 21,019 | 21,449 | 21,784 | 36,258 | 27,315 | 38,06 | 21,780 |
| 600 | 23,446 | 21,729 | 22,110 | 37,438 | 27,880 | 39,02 | 22,090 |
| 700 | 23,835 | 22,027 | 22,437 | 38,498 | 28,474 | 39,90 | 22,408 |
| 800 | 24,187 | 22,320 | 22,755 | 39,448 | 29,071 | 40,61 | 22,713 |
| 900 | 24,510 | 22,609 | 23,061 | 40,302 | 29,693 | 42,28 | 23,006 |
| 1000 | 24,803 | 22,881 | 23,350 | 41,077 | 30,304 | 41,83 | 23,283 |
| 1100 | 25,071 | 23,140 | 23,622 | 41,784 | 30,911 | 42,33 | 23,547 |
| 1200 | 25,318 | 23,322 | 23,877 | 42,425 | 31,510 | 42,75 | 23,794 |
| 1300 | 25,548 | 23,626 | 24,112 | 43,007 | 32,092 | - | 24,028 |
| 1400 | 25,761 | 23,848 | 24,338 | 43,543 | 32,661 | - | 24,250 |
| 1500 | 25,967 | 24,057 | 24,543 | 44,033 | 33,210 | - | 24,459 |
| 1600 | 26,159 | 24,250 | 24,736 | 44,485 | 33,741 | - | 24,652 |
| 1700 | 26,343 | 24,434 | 24,916 | 44,903 | 34,261 | - | 24,836 |
| 1800 | 26,519 | 24,602 | 25,087 | 45,289 | 34,755 | - | 25,004 |
| 1900 | 26,691 | 24,765 | 25,246 | 45,644 | 35,224 | - | 25,167 |
| 2000 | 26,854 | 24,916 | 25,393 | 45,975 | 35,680 | - | 25,326 |