Thermal Limit

http://www.reciprocalsystem.com/bpm/bpm05.htm

Dividing the gas constant by Avogadros number, 6.02486 x 1023 per g-mole, we obtain the Bolzman constant, the corresponding value on a single molecule basis: 1.38044 x 10-16 ergs/deg. As indicated earlier, this is two-thirds of the natural unit, and the natural unit of specific heat is therefore 2.07066 x 10-16 ergs/deg. We then divide unit energy, 1.49175 x 10-3 ergs, by this unit of specific heat, which gives us 7.20423 x 1012 degrees Kelvin, the natural unit of temperature in the region outside unit distance (that is, for the gaseous state of matter).

$\frac{8.3182\times10^{7}ergK^{-1}mol^{-1}}{6.02486x10^{23}mol^{-1}} = 1.3806488 \times 10^{-16}ergK^{-1}$

$C_enat = \frac{3}{2}1.3806488 \times 10^{-16}ergK^{-1} = 2.071 \times 10^{-16}ergK^{-1}$

$T_{nat=}\frac{E_{nat}}{C_enat} = \frac{1.49175x10^{-3}erg}{2.071\times10^{-16}ergK^{-1}} = 7.203 \times 10^{12}xK^{-1}$