

absolute zero

Absolute zero is the lowest limit of the thermodynamic temperature scale, a state at which the [enthalpy](#) and [entropy](#) of a cooled ideal gas reach their minimum value, taken as 0. The fundamental particles of nature have minimum vibrational motion, retaining only quantum mechanical, [zero-point](#) energy-induced particle motion. The theoretical [temperature](#) is determined by extrapolating the ideal gas law; by international agreement, **absolute zero** is taken as -273.15° on the Celsius scale (International System of Units), which equals -459.67° on the Fahrenheit scale (United States customary units or Imperial units). The corresponding Kelvin and Rankine temperature scales set their zero points at **absolute zero** by definition.

It is commonly thought of as the lowest temperature possible, but it is not the lowest [enthalpy](#) state possible, because all real substances begin to depart from the ideal gas when cooled as they approach the change of state to liquid, and then to solid; and the sum of the enthalpy of vaporization (gas to liquid) and enthalpy of fusion (liquid to solid) exceeds the ideal gas's change in [enthalpy](#) to **absolute zero**. In the quantum-mechanical description, matter (solid) at **absolute zero** is in its ground state, the point of lowest internal energy.

The [laws of thermodynamics](#) indicate that **absolute zero** cannot be reached using only thermodynamic means, because the temperature of the substance being cooled approaches the temperature of the cooling agent asymptotically, and a system at **absolute zero** still possesses quantum mechanical zero-point energy, the energy of its ground state at **absolute zero**. The kinetic energy of the ground state cannot be removed.

Scientists and technologists routinely achieve temperatures close to **absolute zero**, where matter exhibits quantum effects such as [superconductivity](#) and superfluidity. [Wikipedia]

Russell

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"Conversely, [cold](#) multiplies that [memory](#) which [heat](#) destroys. At **absolute zero**, [polarity](#) and [conductivity](#) are both more intense." [Atomic Suicide, page 186]

Schauberger

higher or lower [temperatures](#) are produced. As the [motion](#) slows, the [temperature](#) drops until ultimately, with the [cessation](#) of all [molecular motion](#), **absolute zero** is reached at -273.15°C (-459.67°F). [The Energy Evolution - Harnessing Free Energy from Nature, The Life-Current in Air and Water]

See Also

Cold

Cycle of Temperature

Heat

Motion

Zero Point

Zero point energy

zero universe of rest

zero universe of stillness