Pressure (thermodynamic property)

@wikipedia

A property of Thermodynamic system measuring a change of internal energy U with respect to the change of its volume V:

(1) $$p = -\left(\frac{\partial U}{\partial V}\right)_{S,N}$$

with entropy S and number of particles N being constant.

It is related to mechanical pressure and measures in the same units:

Symbol	Dimension	SI units	Oil metric units	Oil field units	Additional
p	M L^{-1} T^{-2}	Pa	kPa = 10^3 Pa = 0.145038 psi MPa = 10^3 Pa = 145.038 psi GPa = 10^6 Pa = 145,038 psi	psi = 6894.76 Pa = 6.8 9476 kPa	bar = 10^5 Pa = 100 kPa = 14.5038 psi atm = 101,325 Pa = 101.325 kPa = 14.6959 psi

See also

Natural Science / Physics / Thermodynamics / Thermodynamic system

[Mechanical Pressure]