

Table 1-1

Pressure Unit	Symbol	Conversion Factor
Bar	bar	1bar = 10^5 Pa*
Estándar atmosphere	atm	1 atm = 1.013×10^5 Pa*
Conventional milimeter of mercury	mmHg	1mmHg = (13.5951)(9.80665)Pa*
Torr	torr	1torr = (1.0325×10^5 /760)Pa*
Pound per square inch	Psi	1psi = 6894.7572 Pa*

*Exact conversion factor

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Unidades derivadas			
Cantidad	Unidad	Simbolo	Equivalente en funcion de unidades basicas
Volumen	Litro	L (o lt.)	0.001 m^3 1000 cm^3
Fuerza	Newton (SI) Dina (SI)	N	$1 \text{ kg} \cdot \text{m}/2^2$ $1 \text{ g} \cdot \text{cm}^2$
Presion	Pascal (SI)	Pa	$1 \text{ N}/\text{m}^2$
Energia, trabajo	Joule (SI) Ergio(CGS) Caloria-gramo	J cal	$1 \text{ N} \cdot \text{m} = 1 \text{ Kg} \cdot \text{m}^2/\text{s}^2$ $1 \text{ Dina} \cdot \text{cm} = 1 \text{ g} \cdot \text{cm}^2/\text{s}^2$ $1 \text{ Dina} \cdot \text{cm} = 1 \text{ g} \cdot \text{cm}^2/\text{s}^2$
Potencia	Watt	W	$1 \text{ J}/\text{s} = 1 \text{ kg} \cdot \text{m}^2/\text{s}^3$

PHYSICAL AND CHEMICAL CONSTANTS

Avogadro's number	$N_a = 6.022045 \times 10^{23} \text{ mol}^{-1}$
Electron charge	$e = 4.8030 \times 10^{-10} \text{ abs esu}$ $= 1.6021892 \times 10^{-21} \text{ C}$
Electron mass	$m_e = 9.1091 \times 10^{-31} \text{ Kg}$ $= 5.4860 \times 10^{-4} \text{ amu}$ $= 0.5110 \text{ MeV}$
Proton mass	$m_p = 1.6726485 \times 10^{-27} \text{ Kg}$ $= 1.007276470 \text{ amu}$
Gas constant	$R = 8.31441 \text{ J mol}^{-1} \text{ K}^{-1}$ $= 1.9872 \text{ cal mol}^{-1} \text{ K}^{-1}$ $= 0.08206 \text{ L mol}^{-1} \text{ K}^{-1}$
Ice point	$= 273.15 \text{ K}$
Molar volume	$= 22.414 \times 10^3 \text{ cm}^3 \text{ mol}^{-1}$ $= 2.2414 \times 10^{-2} \text{ m}^3 \text{ mol}^{-1}$
Planck's constant	$h = 6.626176 \times 10^{-34} \text{ J s}$ $= 6.626176 \times 10^{-27} \text{ erg s}$
Boltzmann's constant	$k = 1.380662 \times 10^{-23} \text{ J K}^{-1}$
Rydberg constant	$R_y = 1.097373177 \times 10^{-7} \text{ m}^{-1}$
Faraday's constant	$f = 9.648670 \times 10^4 \text{ C mol}^{-1}$
Speed of light	$c = 2.99792458 \times 10^8 \text{ m s}^{-1}$
Bhor radius	$a_0 = 0.52917706 \times 10^{-10} \text{ m}$
Other numbers	$\pi = 3.14159$ $e = 2.7183$ $\ln 10 = 2.3026$

UNIDAD ENERGÍA	cal/s	kcal/s	W (SI)	kW	Btu/h	Hp	pie-lbf-h
1 cal/s	1	3.6	4.184	$4.184 \cdot 10^3$	14.276	$5.6108 \cdot 10^{-3}$	$1.1109 \cdot 10^4$
1 kcal/s	0.27778	1	1.1622	$1.1622 \cdot 10^{-3}$	3.9657	$1.5586 \cdot 10^{-3}$	3886
1 W(SI)	0.23901	0.86042	1	$1.0 \cdot 10^{-3}$	3.4121	$1.3410 \cdot 10^{-3}$	2655.2
1 KW	239.01	860.42	1000	1	3412.1	1.341	$2.6552 \cdot 10^6$
1 Btu/h	$7.0046 \cdot 10^{-2}$	0.25216	0.29307	$2.9307 \cdot 10^{-4}$	1	3.9301	778.17
Hp	178.23	641.62	745.7	$2.9307 \cdot 10^{-4}$	2544.4	1	$1.98 \cdot 10^6$
pie-lbf-h	$9.0013 \cdot 10^{-5}$	3.2405	$3.7662 \cdot 10^{-4}$	$3.7662 \cdot 10^{-1}$	$1.2851 \cdot 10^{-5}$	$5.0505 \cdot 10^{-1}$	1