Tabla periódica de los elementos

1 1A																	18 8A
1 **H** 1.008	2 2A											13 3A	14 4A	15 5A	16 6A	17 7A	2 **He** 4.003
3 **Li** 6.941	4 **Be** 9.012											5 **B** 10.81	6 **C** 12.01	7 **N** 14.01	8 **O** 16.00	9 **F** 19.00	10 **Ne** 20.18
11 **Na** 22.99	12 **Mg** 24.31	3 3B	4 4B	5 5B	6 6B	7 7B	8 8B	9 8B	10 8B	11 1B	12 2B	13 **Al** 26.98	14 **Si** 28.09	15 **P** 30.97	16 **S** 32.07	17 **Cl** 35.45	18 **Ar** 39.95
19 **K** 39.10	20 **Ca** 40.08	21 **Sc** 44.96	22 **Ti** 47.88	23 **V** 50.94	24 **Cr** 52.00	25 **Mn** 54.94	26 **Fe** 55.85	27 **Co** 58.93	28 **Ni** 58.69	29 **Cu** 63.55	30 **Zn** 65.39	31 **Ga** 69.72	32 **Ge** 72.59	33 **As** 74.92	34 **Se** 78.96	35 **Br** 79.90	36 **Kr** 83.80
37 **Rb** 85.47	38 **Sr** 87.62	39 **Y** 88.91	40 **Zr** 91.22	41 **Nb** 92.91	42 **Mo** 95.94	43 **Tc** 98.91	44 **Ru** 101.1	45 **Rh** 102.9	46 **Pd** 106.4	47 **Ag** 107.9	48 **Cd** 112.4	49 **In** 114.8	50 **Sn** 118.7	51 **Sb** 121.8	52 **Te** 127.6	53 **I** 126.9	54 **Xe** 131.3
55 **Cs** 132.9	56 **Ba** 137.3	57 ***La** 138.9	72 **Hf** 178.5	73 **Ta** 180.9	74 **W** 183.9	75 **Re** 186.2	76 **Os** 190.2	77 **Ir** 192.2	78 **Pt** 195.1	79 **Au** 197.0	80 **Hg** 200.6	81 **Tl** 204.4	82 **Pb** 207.2	83 **Bi** 209.0	84 **Po** (210)	85 **At** (210)	86 **Rn** (222)
87 **Fr** (223)	88 **Ra** (226)	89 **♦Ac** 227.0	104 **Rf** (261)	105 **Db** (262)	106 **Sg** (263)	107 **Bh** (262)	108 **Hs** (265)	109 **Mt** (266)	110 (269)	111 (272)	112 (277)		114 (289)		116 (289)		118 (293)

*	58 **Ce** 140.1	59 **Pr** 140.9	60 **Nd** 144.2	61 **Pm** 144.9	62 **Sm** 150.4	63 **Eu** 152.0	64 **Gd** 157.3	65 **Tb** 158.9	66 **Dy** 162.5	67 **Ho** 164.9	68 **Er** 167.3	69 **Tm** 168.9	70 **Yb** 173.0	71 **Lu** 175.0
♦	90 **Th** 232.0	91 **Pa** 231.0	92 **U** 238.0	93 **Np** 237	94 **Pu** 239.1	95 **Am** 243.1	96 **Cm** 247.1	97 **Bk** 247.1	98 **Cf** 252.1	99 **Es** 252.1	100 **Fm** 257.1	101 **Md** 256.1	102 **No** 259.1	103 **Lr** 260.1

TABLA DE EQUIVALENCIAS DE UNIDADES

LONGITUD

1 m = 3.2808 ft = 100 cm = 39.3701 in
1 cm = 10^{-2} m = 0.393701 in = 0.032808 ft
1 mm = 10^{-3} m
1 μm (1 micra) = 10^{-6} m
1 Å (1 Angstrom) = 10^{-10} m = 10^{-8} cm
1 in = 2.54 cm = 0.0254 m
1 ft = 30.48 cm = 12 in = 0.3048 m
1 yd = 0.91459841 m
1 mi = 1.609 km = 1609.34 m = 5280 ft

NOTA:
in: inch (pulgada) plg
ft: feet (pies)
yd: yard (yarda)
mi: mille (milla)

MASA

1 kg = 1000 g = 2.2046 lb
1 lb = 0.453593 kg = 453.593 g = 16 oz
1 ton métrica = 1000 kg = 2205 lb
1 ton corta = 2000 lb
1 ton larga = 2240 lb
1 oz = 28.35 g = 0.02835 kg
1slug = 32.1739 lb

VOLUMEN

1 m^3 = 1000 L = 35.3147 ft^3 = 264.17 gal = 61023.7 in^3 = 10^3 dm^3 = 10^6 cm^3
1 in^3 = 16.39 cm^3
1 ft^3 = 28.3168 L = 0.02831 m^3 = 28316.8 cm^3
1 gal = 4.546 L = 0.004546 m^3 = 277.42 in^3
1 L = 1000 cm^3 = 1000 mL = 1 dm^3
1 cm^3 = 1 mL

PRESIÓN

1 Pa = 1 N/m^2
1 bar = 10^5 Pa = 100 kPa = 0.1 MPa = 0.986923 atm = 14.5038 psia = 1.0197 kg_f/cm^2
= 750.062 mm Hg = 75.0062 cm Hg = 750.062 torr = 401.48 in H_2O = 10^8 barias
1 atm = 1.01325 bar = 101.325 kPa = 0.101325 MPa = 101325 Pa = 14.696 lb_f/in^2 (psi)
= 1.0332 kg_f/cm^2 = 76 cm Hg = 760 mm Hg = 406.8 in H_2O = 33.9 ft H_2O
= 1.05 x 10^4 mm H_2O = 1.05 x 10^3 cm H_2O = 1013250 $dina/cm^2$ = 760 torr = 29.9212 in Hg
1 mm Hg = 13.6 mm H_2O = 1.33 mbar = 133.322 Pa = 1 torr = 0.1 cm Hg = 0.03937 in Hg
1 lb_f/in^2 (psi) = 68948 $dina/cm^2$ = 703.1 kg_f/m^2 = 6894.8 Pa = 0.0680 atm = 2.036 in Hg = 0.0689 bar

NOTA:
psi: pounds per squared inch (libras *fuerza* sobre pulgada cuadrada)
psia: pounds per squared inch absolute (libras *fuerza* sobre pulgada cuadrada absolutas)
psig: pounds per squared inch gauge (libras *fuerza* sobre pulgada cuadrada manométricas)
torr: torricelli

FUERZA

1 N = 1 kg m/s^2
1 dina = 1 g cm/s^2
1 lb_f = 32.174 lb ft/s^2 = 4.4482 N
1 kg_f =1000 g_f = 9.807 kg m/s^2 = 9.807 N

ENERGÍA

1 J = 1 kg m^2/s^2 = 1 N m = 1 Pa m^3
1 erg = 1 g cm^2/s^2 = 1 dina cm
1 J = 0.239 cal = 10^7 erg = 1 N m = 9.48 x 10^{-4} Btu = 9.87 x 10^{-3} L atm = 2.778 x 10^{-2} kW h
1 kJ = 1000 J = 10^3 Pa m^3 = 10^4 bar cm^3 = 239.01 cal = 0.94845 Btu = 737.562 lb_f ft
= 1.0197 x 10^4 kg_f cm = 9.86923 x 10^3 atm cm^3
1 Btu = 1055.04 J = 252 cal = 778.161 lb_f ft = 10.412 L atm
1 cal = 4.184 J = 3.968 x 10^{-3} Btu = 4.19 x 10^7 erg = 4.13 x 10^{-2} L atm = 3.086 lb_f ft
1 L atm = 24.2 cal = 1.01 x 10^9 erg = 101 J = 0.096 Btu = 74.735 lb_f ft
0.082 L atm = 1.987 cal = 8.314 J

NOTA:
Btu: British thermal unit (unidad térmica británica)

POTENCIA

1 W = 1 J/s = 1 N m/s = 1 kg m^2/s^3
1 W = 0.23901 cal/s = 0.8064 kcal/h = 0.7376 ft lb_f/s = 9.486 x 10^{-4} Btu/s = 3.4144 Btu/h
= 1.341 x 10^{-3} hp
1 kW = 1000 W

NOTA:
hp: horse power (caballo de fuerza)

CANTIDAD DE SUSTANCIA

1 mol = 1000 mmol = 10^{-3} kgmol
1 kgmol (kmol) = 1000 mol = 10^6 mmol = 2.02462 lbmol
1 lbmol = 453.59 mol = 453 590 mmol

RELACIONES DE ESCALAS TERMOMÉTRICAS

$$\frac{t(°C)}{100} = \frac{t(°F)-32}{180} = \frac{T(K)-273.15}{100} = \frac{T(R)-491.69}{180}$$

RELACIONES DE DIFERENCIAS DE TEMPERATURAS

$$\frac{\Delta t(°C)}{100} = \frac{\Delta t(°F)}{180} = \frac{\Delta T(K)}{100} = \frac{\Delta T(R)}{180}$$

Ejemplo: El factor para convertir de mm Hg a Pa es $\left(\frac{101325\ Pa}{760\ mm\ Hg}\right)$

Elaboraron:
I. Q. Susana Alicia Flores Almazán
M. en C. Gerardo Omar Hernández Segura

UNIDADES COMUNES EN LAS QUE SE EXPRESA LA CONSTANTE UNIVERSAL DE LOS GASES

R = 0.082 L atm/mol K
= 82.06 cm^3 atm/mol K
= 8.314 m^3 Pa/mol K
= 0.0834 L bar/mol K
= 8 314 cm^3 kPa/mol K
= 8.314 J/mol K
= 8.314 x 10^7 erg/mol K
= 83.14 cm^3 bar/mol K
= 62 356 cm^3 torr/mol K
= 62 356 cm^3 mm Hg/mol K
= 62.356 L mm Hg/mol K
= 1.987 cal/mol K
= 0.7302 ft^3 atm/lbmol R
= 1.987 Btu/lbmol R
= 10.73 ft^3 psia/lbmol R

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