

Fundamentos de Química. 1° de C. Físicas

$$R_H = 2.179 \cdot 10^{-18} \text{ J} = 1.0974 \cdot 10^7 \text{ m}^{-1} = 13.6 \text{ eV}; \quad h = 6.626 \cdot 10^{-34} \text{ J s};$$

$$m_e = 9.109 \cdot 10^{-31} \text{ kg};$$

$$R = 0.08206 \text{ atm L mol}^{-1} \text{ K}^{-1} = 0.083 \text{ bar L mol}^{-1} \text{ K}^{-1} = 8.3145 \text{ J mol}^{-1} \text{ K}^{-1}; \quad N_A = 6.022 \cdot 10^{23} \text{ mol}^{-1}$$

$$1 \text{ atm} = 101.3 \text{ kPa}; \quad c = 2.9979 \cdot 10^8 \text{ m s}^{-1}; \quad F = 96485 \text{ C/mol};$$

$$\frac{RT}{F} = 0.02569 \text{ V (a } 25^\circ\text{C)}$$

1A												8A											
PERIODIC TABLE OF THE ELEMENTS												13	14	15	16	17	18						
1 H 1.008	2A											3A	4A	5A	6A	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 72.61	33 As 74.92	34 Se 78.97	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 95.95	43 Tc (98)	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 183.8	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 (209)	85 At (210)	86 Rn (222)						
87 Fr (223)	88 Ra (226)	89 Ac (227)	104 Rf (261)	105 Db (262)	106 Sg (263)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 Ds (281)	111 Rg (272)	112 Cn (285)	113 Nh (286)	114 Fl (289)	115 Mc (289)	116 Lv (293)	117 Ts (294)	118 Og (294)						
58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm (145)	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 (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)										

Ecuaciones:

$$E = h\nu = h \frac{c}{\lambda}$$

$$\lambda = \frac{h}{p}$$

$$L = n\hbar = n \frac{h}{2\pi}$$

$$E_n = -R_H \frac{Z^2}{n^2}$$

$$P_T = \sum_i P_i$$

$$P_i = x_i P_T$$

$$\left(P + \frac{an^2}{V^2} \right) (V - nb) = nRT$$

$$\ln P_v = -\frac{\Delta H_{vap}}{nRT} + cte$$

$$S = K_s \cdot P_{gas}$$

$$P_i = y_i \cdot P_i^*$$

$$\pi = \phi_{VH} MRT$$

$$\Delta T_f = -\phi_{VH} \cdot k_f^d \cdot m$$

$$\Delta T_e = \phi_{VH} \cdot k_e^d \cdot m$$

$$\partial W = -P_{ext} \cdot dV$$

$$Q = C\Delta T$$

$$\Delta U = Q + W$$

$$H = U + PV$$

$$\Delta H_{m,T,P} = \sum_i \nu_i H_{m,T,P}(i)$$

$$\Delta H_{T_2,P} - \Delta H_{T_1,P} = \int_{T_1}^{T_2} C_p dT$$

$$\Delta H_{T_2,P} - \Delta H_{T_1,P} = \sum_i \nu_i \int_{T_1}^{T_2} C_p(i) dT$$

$$dS = \left(\frac{\partial Q}{T} \right)_{rev}$$

$$\Delta S_{m,T,P} = \sum_i \nu_i S_{m,T,P}(i)$$

$$\Delta S = \int_{T_1}^{T_2} \frac{C_p}{T} dT$$

$$\Delta S_{T_2,P} - \Delta S_{T_1,P} = \sum_i \nu_i \int_{T_1}^{T_2} \frac{C_p(i)}{T} dT$$

$$G = H - TS$$

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta G_{T,P} = \sum_i \nu_i \Delta G_{T,P}(i)$$

$$k = A \cdot \exp \left(-\frac{E_a}{RT} \right)$$

$$\Delta G = \Delta G^\circ + RT \ln Q$$

$$\ln \frac{K_{T_2}}{K_{T_1}} = -\frac{\Delta H^\circ}{R} \left(\frac{1}{T_2} - \frac{1}{T_1} \right)$$

$$\Delta G = -nFE_{cel}$$

$$E_{cel} = E_{cel}^\circ - \frac{RT}{nF} \ln Q$$