

last name

first name

uteid

1											18						
1 H 1.008											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											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 47.87	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 65.38	31 Ga 69.72	32 Ge 72.64	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)	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.76	52 Te 127.60	53 I 126.90	54 Xe 131.29
55 Cs 132.91	56 Ba 137.33	57 La 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.20	83 Bi 208.98	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	89 Ac (227)	104 Rf (267)	105 Db (268)	106 Sg (269)	107 Bh (270)	108 Hs (270)	109 Mt (278)	110 Ds (281)	111 Rg (282)	112 Cn (285)	113 Nh (286)	114 Fl (289)	115 Mc (290)	116 Lv (293)	117 Ts (294)	118 Og (294)

58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.96	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97
90 Th 232.04	91 Pa 231.04	92 U 238.03	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 (266)

Single Bond Energies

	H	C	O	Br
H	436			
C	413	346		
O	463	358	146	
Br	366	285	201	193

all values are kJ/mol

Multiple Bond Energies (kJ/mol)

C=C	602	C=N	615	C=O	799
C≡C	835	C≡N	887	C≡O	1072
N=N	418	N=O	607	C=S	577
N≡N	945	O=O	498		

water data

$C_{s,ice}$	= 2.09 J/g °C
$C_{s,water}$	= 4.184 J/g °C
$C_{s,steam}$	= 2.03 J/g °C
ρ_{water}	= 1.00 g/mL
ρ_{ice}	= 0.9167 g/mL
ΔH_{fus}	= 334 J/g
ΔH_{vap}	= 2260 J/g

some constants

R	= 0.08206 L atm/mol K
R	= 8.314 J/mol K
N_A	= 6.022×10^{23} /mol
h	= 6.626×10^{-34} J·s
c	= 3.00×10^8 m/s

conversions

1 atm	= 760 torr
1 atm	= 101325 Pa
1 lb	= 453.6 g
1 in	= 2.54 cm
1 cal	= 4.184 J

some formulas

PV	= nRT
c	= $\lambda\nu$
E	= $h\nu$
q_{cal}	= $-q_{sys}$

$$q = mC_s\Delta T$$

$$q_{transition} = m\Delta H_{transition}$$

$$q_{cal} = m_{water}C_{s,water}\Delta T + C_{hardware}\Delta T$$

$$\Delta H_{rxn} = \sum BE_{reactants} - \sum BE_{products}$$

$$1 \text{ mi} = 5280 \text{ ft}$$

$$1 \text{ gal} = 3.785 \text{ L}$$

$$1 \text{ fl oz} = 29.6 \text{ mL}$$