



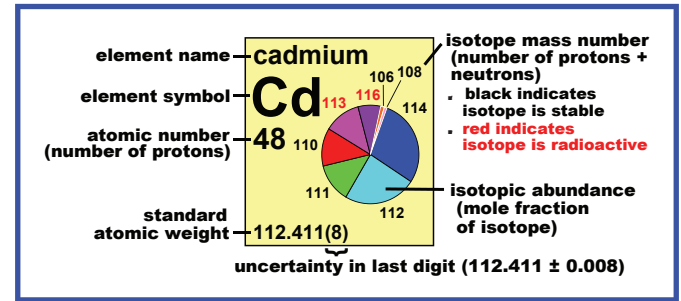


# IUPAC Periodic Table of the Isotopes

## Element Background Color Key

[Standard atomic weights are determined using all stable isotopes and selected radioactive isotopes (having relatively long half-lives and characteristic isotopic abundances) in natural terrestrial substances. Isotopes are considered stable (non-radioactive) if evidence for radioactive decay has not been detected experimentally.]

-  Element has two or more isotopes that are used to determine its standard atomic weight. The isotopic abundances and atomic weights vary in natural terrestrial substances. These variations are well known, and the standard atomic weight is given as lower and upper bounds within square brackets, [ ].
-  Element has two or more isotopes that are used to determine its standard atomic weight. The isotopic abundances and atomic weights vary in natural terrestrial substances, but upper and lower bounds of the standard atomic weight have not been assigned by IUPAC or the variations may be too small to affect the standard atomic weight value. Thus, the standard atomic weight is given as a single value with an uncertainty that includes both measurement uncertainty and uncertainty due to isotopic abundance variations.
-  Element has only one isotope that is used to determine its standard atomic weight. Thus, the standard atomic weight is invariant and is given as a single value with an IUPAC evaluated measurement uncertainty.
-  Element has no standard atomic weight because all of its isotopes are radioactive and, in natural terrestrial substances, no isotope occurs with a characteristic isotopic abundance from which a standard atomic weight can be determined.



1 hydrogen H 1 [1.007 84; 1.008 11]	2 lithium Li 3 [6.938; 6.997]	beryllium Be 4 9.012 182(3)											13 boron B 5 [10.806; 10.821]	14 carbon C 6 [12.0096; 12.0116]	15 nitrogen N 7 [14.006 43; 14.007 28]	16 oxygen O 8 [15.999 03; 15.999 77]	17 fluorine F 9 18.998 4032(5)	18 helium He 2 4.002 602(2)		
sodium Na 11 22.989 769 28(2)	magnesium Mg 12 24.3050(6)	3 potassium K 19 39.0983(1)	4 calcium Ca 20 40.078(4)	5 scandium Sc 21 44.955 912(6)	6 titanium Ti 22 47.867(1)	7 vanadium V 23 50.9415(1)	8 chromium Cr 24 51.9961(6)	9 manganese Mn 25 54.938 045(5)	10 iron Fe 26 55.845(2)	11 cobalt Co 27 58.933 195(5)	12 nickel Ni 28 58.6934(4)	copper Cu 29 63.546(3)	zinc Zn 30 65.38(2)	gallium Ga 31 69.723(1)	germanium Ge 32 72.63(1)	arsenic As 33 74.921 60(2)	selenium Se 34 78.96(3)	bromine Br 35 79.904(1)	krypton Kr 36 83.798(2)	
rubidium Rb 37 85.4678(3)	strontium Sr 38 87.62(1)	yttrium Y 39 88.905 85(2)	zirconium Zr 40 91.224(2)	niobium Nb 41 92.906 38(2)	molybdenum Mo 42 95.96(2)	technetium Tc 43 [ ]	ruthenium Ru 44 101.07(2)	rhodium Rh 45 102.905 50(2)	palladium Pd 46 106.42(1)	silver Ag 47 107.8682(2)	cadmium Cd 48 112.411(8)	indium In 49 114.818(3)	tin Sn 50 118.710(7)	antimony Sb 51 121.760(1)	tellurium Te 52 127.60(3)	iodine I 53 126.904 47(3)	xenon Xe 54 131.293(6)			
caesium (cesium) Cs 55 132.905 4519(2)	barium Ba 56 137.327(7)	57 - 71 lanthanoids	hafnium Hf 72 178.49(2)	tantalum Ta 73 180.947 88(2)	tungsten W 74 183.84(1)	rhenium Re 75 186.207(1)	osmium Os 76 190.23(3)	iridium Ir 77 192.217(3)	platinum Pt 78 195.084(9)	gold Au 79 196.966 569(4)	mercury Hg 80 200.59(2)	thallium Tl 81 [204.382; 204.385]	lead Pb 82 207.2(1)	bismuth Bi 83 208.980 40(1)	polonium Po 84 [ ]	astatine At 85 [ ]	radon Rn 86 [ ]			
francium Fr 87 [ ]	radium Ra 88 [ ]	89 - 103 actinoids	rutherfordium Rf 104 [ ]	dubnium Db 105 [ ]	seaborgium Sg 106 [ ]	bohrium Bh 107 [ ]	hassium Hs 108 [ ]	meitnerium Mt 109 [ ]	darmstadtium Ds 110 [ ]	roentgenium Rg 111 [ ]	copernicium Cn 112 [ ]	ununtrium Uut 113 [ ]	flerovium Fl 114 [ ]	ununpentium Uup 115 [ ]	livermorium Lv 116 [ ]	ununseptium Uus 117 [ ]	ununoctium Uuo 118 [ ]			

lanthanum La 57 138.905 47(7)	cerium Ce 58 140.116(1)	praseodymium Pr 59 140.907 65(2)	neodymium Nd 60 144.242(3)	promethium Pm 61 [ ]	samarium Sm 62 150.36(2)	europium Eu 63 151.964(1)	gadolinium Gd 64 157.25(3)	terbium Tb 65 158.925 35(2)	dysprosium Dy 66 162.500(1)	holmium Ho 67 164.930 32(2)	erbium Er 68 167.259(3)	thulium Tm 69 168.934 21(2)	ytterbium Yb 70 173.054(5)	lutetium Lu 71 174.9668(1)
actinium Ac 89 [ ]	thorium Th 90 232.038 06(2)	protactinium Pa 91 231.035 88(2)	uranium U 92 238.028 91(3)	neptunium Np 93 [ ]	plutonium Pu 94 [ ]	americium Am 95 [ ]	curium Cm 96 [ ]	berkelium Bk 97 [ ]	californium Cf 98 [ ]	einsteinium Es 99 [ ]	fermium Fm 100 [ ]	mendelevium Md 101 [ ]	nobelium No 102 [ ]	lawrencium Lr 103 [ ]