



WebElements: the periodic table on the world-wide web

<http://www.webelements.com/>

1 hydrogen 1 H 1.00794(7)	2 helium 2 He 4.002602(2)	3 lithium 3 Li 6.941(2)	4 beryllium 4 Be 9.012182(3)	5 sodium 11 Na 22.989770(2)	6 magnesium 12 Mg 24.3050(6)	7 potassium 19 K 39.0983(1)	8 calcium 20 Ca 40.078(4)	9 rubidium 37 Rb 85.4678(3)	10 strontium 38 Sr 87.62(1)	11 caesium 55 Cs 132.90545(2)	12 barium 56 Ba 137.327(7)	13 francium 87 Fr [223]	14 radium 88 Ra [226]	15 57-70 *	16 57-70 *	17 57-70 *	18 57-70 *	19 scandium 21 Sc 44.955910(8)	20 titanium 22 Ti 47.867(1)	21 vanadium 23 V 50.9415(1)	22 chromium 24 Cr 51.9961(6)	23 manganese 25 Mn 54.938049(9)	24 iron 26 Fe 55.845(2)	25 cobalt 27 Co 58.933200(9)	26 nickel 28 Ni 58.6934(2)	27 copper 29 Cu 63.546(3)	28 zinc 30 Zn 65.409(4)	29 gallium 31 Ga 69.723(1)	30 germanium 32 Ge 72.64(1)	31 arsenic 33 As 74.92160(2)	32 selenium 34 Se 78.96(3)	33 bromine 35 Br 79.904(1)	34 krypton 36 Kr 83.798(2)	35 yttrium 39 Y 88.90585(2)	36 zirconium 40 Zr 91.224(2)	37 niobium 41 Nb 92.90638(2)	38 molybdenum 42 Mo 95.94(1)	39 technetium 43 Tc [98]	40 ruthenium 44 Ru 101.07(2)	41 rhodium 45 Rh 102.90550(2)	42 palladium 46 Pd 106.42(1)	43 silver 47 Ag 107.8682(2)	44 cadmium 48 Cd 112.411(8)	45 indium 49 In 114.818(3)	46 tin 50 Sn 118.710(7)	47 antimony 51 Sb 121.760(1)	48 tellurium 52 Te 127.60(3)	49 iodine 53 I 126.90447(3)	50 xenon 54 Xe 131.293(6)	51 lutetium 71 Lu 174.967(1)	52 hafnium 72 Hf 178.49(2)	53 tantalum 73 Ta 180.9479(1)	54 tungsten 74 W 183.84(1)	55 rhenium 75 Re 186.207(1)	56 osmium 76 Os 190.23(3)	57 iridium 77 Ir 192.217(3)	58 platinum 78 Pt 195.078(2)	59 gold 79 Au 196.96655(2)	60 mercury 80 Hg 200.59(2)	61 thallium 81 Tl 204.3833(2)	62 lead 82 Pb 207.2(1)	63 bismuth 83 Bi 208.98038(2)	64 polonium 84 Po [209]	65 astatine 85 At [210]	66 radon 86 Rn [222]	67 lawrencium 103 Lr [262]	68 rutherfordium 104 Rf [261]	69 dubnium 105 Db [262]	70 seaborgium 106 Sg [266]	71 bohrium 107 Bh [264]	72 hassium 108 Hs [269]	73 meitnerium 109 Mt [268]	74 darmstadtium 110 Ds [271]	75 ununium 111 Uuu [272]	76 unubium 112 Uub [285]	77 ununquadium 114 Uuq [289]
--	--	--	---	--	---	--	--	--	--	--	---	--	--	------------------	------------------	------------------	------------------	---	--	--	---	--	--	---	---	--	--	---	--	---	---	---	---	--	---	---	---	---	---	--	---	--	--	---	--	---	---	--	--	---	---	--	---	--	--	--	---	---	---	--	---	--	--	--	---	---	--	--	---	--	--	---	---	---	---	---

Key:

element name
atomic number
symbol
2001 atomic weight (mean relative mass)

*lanthanoids

**actinoids

lanthanum 57 La 138.9055(2)	cerium 58 Ce 140.116(1)	praseodymium 59 Pr 140.90765(2)	neodymium 60 Nd 144.24(3)	promethium 61 Pm [145]	samarium 62 Sm 150.36(3)	europium 63 Eu 151.964(1)	gadolinium 64 Gd 157.25(3)	terbium 65 Tb 158.92534(2)	dysprosium 66 Dy 162.500(1)	holmium 67 Ho 164.93032(2)	erbium 68 Er 167.259(3)	thulium 69 Tm 168.93421(2)	ytterbium 70 Yb 173.04(3)
actinium 89 Ac [227]	thorium 90 Th 232.0381(1)	protactinium 91 Pa 231.03588(2)	uranium 92 U 238.02891(3)	neptunium 93 Np [237]	plutonium 94 Pu [244]	americium 95 Am [243]	curium 96 Cm [247]	berkelium 97 Bk [247]	californium 98 Cf [251]	einsteinium 99 Es [252]	fermium 100 Fm [257]	mendelevium 101 Md [258]	nobelium 102 No [259]

Element symbols and names: symbols, names, and spellings are those recommended by IUPAC (<http://www.iupac.org/>). After controversy, the names of elements 101-110 are now confirmed (Pure & Appl. Chem., 1997, **69**, 2471-2473). Names have yet to be proposed for the elements 111-112, and 114 - those used here are IUPAC's temporary systematic names (Pure & Appl. Chem., 1979, **51**, 381-384). In the USA and some other countries, the spellings **aluminum** and **cesium** are normal while in the UK and elsewhere the usual spelling is **sulphur**.

Atomic weights (mean relative masses): Apart from the heaviest elements, these are IUPAC 2001 values (Pure & Appl. Chem., 2001, **73**, 667-683). Elements with values given in brackets have no stable nuclides and are represented by 5-figure values for the longest-lived isotope. The elements thorium, protactinium, and uranium have characteristic terrestrial abundances and these are the values quoted. The last significant figure of each value is considered reliable to ± 1 except where a larger uncertainty is given in parentheses.

Periodic table organisation: for a justification of the positions of the elements La, Ac, Lu, and Lr in the WebElements periodic table see W.B. Jensen, "The positions of lanthanum (actinium) and lutetium (lawrencium) in the periodic table", J. Chem. Ed., 1982, **59**, 634-636.

Group labels: the numeric system (1-18) used here is the current IUPAC convention. For a discussion of this and other common systems see: W.C. Fernelius and W.H. Powell, "Confusion in the periodic table of the elements", J. Chem. Ed., 1982, **59**, 504-508.

©2003 Dr Mark J Winter | WebElements Ltd and University of Sheffield. All rights reserved. For updates to this table see <http://www.webelements.com/webelements/support/media/pdf/>. Version date: 17 March 2003.

The WebElements™ printable periodic table

Printing the WebElements printable periodic table

You can use this Adobe Acrobat file to print single or multiple copies of the periodic table. For printing advice, consult the Adobe Acrobat documentation. The **WEB_ELEM.PDF** file has been used successfully to print on A4 paper but should also print on US letter sized paper.

Web Links

If you are connected to the InterNet and your Adobe Acrobat software is sufficiently current, click on any of the elements in the periodic table from within the Adobe Acrobat reader to retrieve information about that element from the WebElements site. To do this, you will need an appropriate Web browser program. You may need to update your Adobe Acrobat Reader program [<http://www.adobe.com/acrobat/>].

WebElements

WebElements is the periodic table on the world-wide web. WebElements is located at <http://www.webelements.com/>.

Updates

For updates to this table see <http://www.webelements.com/webelements/support/media/pdf/>. This version of the WebElements printable periodic table is dated 17 March 2003.

Conditions of use

The author endeavours to ensure the information in the WebElements printable periodic table is correct but a condition of your use of it is that you accept the author has no liability for problems arising from your use of the WebElements printable periodic table.

You are free to distribute this file **WEB_ELEM.PDF** by any means provided you do not charge for the file or its distribution, and you do not change the name of the file or change it in any other way. Proposals regarding commercial distribution of this file should be made to the author. You may print and distribute as many copies of the periodic table from the **WEB_ELEM.PDF** file as you wish for any purpose provided you do not charge for those copies. Proposals regarding commercial distribution of printed copies of the periodic table generated from the **WEB_ELEM.PDF** file should be made to the author.

Copyright

©2003 Dr Mark J Winter [webelements@sheffield.ac.uk], WebElements Ltd. and University of Sheffield.
Department of Chemistry
The University
Sheffield S3 7HF, England

The author retains copyright on this WebElements printable periodic table file. You are licensed on a non-exclusive basis to use the file but you do not own the **WEB_ELEM.PDF** file and the copyright owner reserves all rights worldwide.