

**ATOMIC WEIGHTS OF THE ELEMENTS BASED
ON THE CARBON 12 STANDARD**

Symbol	Amu	Abundance	Symbol	Amu	Abundance
H ¹	1.0078	99.99	Ca ⁴⁰	39.9626	96.92
H ²	2.0141	0.02	Ca ⁴²	41.9586	0.64
He ³	3.0160	0.00013	Ca ⁴³	42.9588	0.13
He ⁴	4.0026	100.00	Ca ⁴⁴	43.9555	2.13
Li ⁶	6.0151	7.52	Ca ⁴⁶	45.9537	0.0032
Li	7.0160	92.48	Ca ⁴⁸	47.9525	0.18
Be ⁹	9.0123	100.00	Sc ⁴⁵	44.9559	100.00
B ¹⁰	10.0129	18.98	Ti ⁴⁶	45.9526	7.95
B ¹¹	11.0093	81.02	Ti ⁴⁷	46.9518	7.75
C ¹²	12.0000	98.89	Ti ⁴⁸	47.9479	73.45
C ¹³	13.0034	1.11	Ti ⁴⁹	48.9479	5.51
N ¹⁴	14.0031	99.64	Ti ⁵⁰	49.9448	5.34
N ¹⁵	15.0001	0.37	V ⁵⁰	49.9472	0.24
O ¹⁶	15.9949	95.77	V ⁵¹	50.9440	99.76
O ¹⁷	16.9991	0.04	Cr ⁵⁰	49.9460	4.31
O ¹⁸	17.9992	0.20	Cr ⁵²	51.9405	83.76
F ¹⁹	18.9984	100.00	Cr ⁵³	52.9406	9.55
Ne ²⁰	19.9924	90.92	Cr ⁵⁴	53.9389	2.38
Ne ²¹	20.9939	0.26	Mn ⁵⁵	54.9381	100.00
Ne ²²	21.9914	8.82	Fe ⁵⁴	53.9306	5.90
Na ²³	22.9898	100.00	Fe ⁵⁶	55.9349	91.52
Mg ²⁴	23.9350	78.60	Fe ⁵⁷	56.9354	2.25
Mg ²⁵	24.9858	10.11	Fe ⁵⁸	57.9333	0.33
Mg ²⁶	25.9826	11.29	Co ⁵⁹	58.9332	100.00
Al ²⁷	26.9815	100.00	Ni ⁵⁸	57.9354	67.76
Si ²⁸	27.9769	92.18	Ni ⁶⁰	59.9308	26.16
Si ²⁹	28.9765	4.71	Ni ⁶¹	60.9311	1.25
Si ³⁰	29.9738	3.12	Ni ⁶²	61.3283	3.66
P ³¹	30.9738	100.00	Ni ⁶⁴	63.9280	1.16
S ³²	31.9721	95.02	Cu ⁶³	62.9296	69.09
S ³³	32.9715	0.75	Cu ⁶⁵	64.9278	30.91
S ³⁴	33.9679	4.22	Zn ⁶⁴	63.9291	48.89
S ³⁶	35.9671	0.11	Zn ⁶⁶	65.9260	27.81
Cl ³⁵	34.9689	75.40	Zn ⁶⁷	66.9271	4.11
Cl ³⁷	36.9659	24.60	Zn ⁶⁸	67.9249	18.56
A ³⁶	35.9675	0.34	Zn ⁷⁰	69.9253	0.62
A ³⁸	37.9627	0.063	Ga ⁶⁹	68.9257	60.20
A ⁴⁰	39.9624	99.60	Ga ⁷¹	70.9248	39.80
K ³⁹	38.9637	93.08	Ge ⁷⁰	69.9240	20.52
K ⁴⁰	39.9640	0.012	Ge ⁷²	71.9216	27.43
K ⁴¹	40.9618	6.91	Ge ⁷³	72.9233	7.76

Symbol	Amu	Abundance	Symbol	Amu	Abundance
Ge ⁷⁴	73.9210	36.54	Pd ¹⁰⁵	104.9042	22.60
Ge ⁷⁶	75.9213	7.76	Pd ¹⁰⁶	105.9029	27.10
As ⁷⁵	74.9217	100.00	Pd ¹⁰⁸	107.9035	26.70
Se ⁷⁴	73.9225	0.96	Pd ¹¹⁰	109.9045	13.50
Se ⁷⁶	75.9193	9.12	Ag ¹⁰⁷	106.9048	51.35
Se ⁷⁷	76.9200	7.50	Ag ¹⁰⁹	108.9046	48.65
Se ⁷⁸	77.9174	23.61	Cd ¹⁰⁶	105.9059	1.22
Se ⁸⁰	79.9165	49.96	Cd ¹⁰⁸	107.9041	0.89
Se ⁸²	81.9166	8.94	Cd ¹¹⁰	109.9033	12.43
Br ⁷⁹	78.9184	50.57	Cd ¹¹¹	110.9043	12.86
Br ⁸¹	80.9164	49.43	Cd ¹¹²	111.9031	23.79
Kr ⁷⁸	77.9202	0.35	Cd ¹¹³	112.9045	12.34
Kr ⁸⁰	79.9166	2.27	Cd ¹¹⁴	113.9036	28.81
Kr ⁸²	81.9135	11.56	Cd ¹¹⁶	115.9050	7.66
Kr ⁸³	82.9141	11.65	In ¹¹³	112.9043	4.16
Kr ⁸⁴	83.9115	56.90	In ¹¹⁵	114.9036	95.84
Kr ⁸⁶	85.9108	17.37	Sn ¹¹²	111.9051	0.95
Rb ⁸⁵	84.9120	72.15	Sn ¹¹⁴	113.9039	0.65
Rb ⁸⁷	86.9093	27.85	Sn ¹¹⁵	114.9034	0.34
Sr ⁸⁴	83.9133	0.56	Sn ¹¹⁶	115.9022	14.24
Sr ⁸⁶	85.9094	9.86	Sn ¹¹⁷	116.9031	7.67
Sr ⁸⁷	86.9090	7.02	Sn ¹¹⁸	117.9021	24.01
Sr ⁸⁸	87.9060	82.56	Sn ¹¹⁹	118.9032	8.58
Y ⁸⁹	88.9057	100.00	Sn ¹²⁰	119.9022	32.97
Zr ⁹⁰	89.9043	51.46	Sn ¹²²	121.9035	4.71
Zr ⁹¹	90.9053	11.23	Sn ¹²⁴	123.9052	5.98
Zr ⁹²	91.9047	17.11	Sb ¹²¹	120.9037	57.25
Zr ⁹⁴	(98.9076)	17.40	Sb ¹²³	122.9042	42.75
Zr ⁹⁶	95.9093	2.80	Te ¹²⁰	119.9045	0.09
Nb ⁹³	92.9057	100.00	Te ¹²²	121.9029	2.46
Mo ⁹²	91.9086	15.05	Te ¹²³	122.9043	0.87
Mo ⁹⁴	93.9059	9.35	Te ¹²⁴	123.9001	4.61
Mo ⁹⁵	94.0944	14.78	Te ¹²⁵	124.9046	6.83
Mo ⁹⁶	95.9050	16.56	Te ¹²⁶	125.9039	18.71
Mo ⁹⁷	96.9062	9.60	Te ¹²⁸	127.9056	31.79
Mo ⁹⁸	97.9060	24.00	Te ¹³⁰	129.9070	34.49
Mo ¹⁰⁰	99.9065	9.68	I ¹²⁷	126.9047	100.00
Ru ⁹⁶	95.9087	5.68	Xe ¹²⁴	123.9061	0.10
Ru ⁹⁸	(97.9540)	2.22	Xe ¹²⁶	125.9045	0.09
Ru ⁹⁹	98.9061	12.81	Xe ¹²⁸	127.9035	1.92
Ru ¹⁰⁰	(99.9050)	12.70	Xe ¹²⁹	128.9047	26.44
Ru ¹⁰¹	(100.9050)	16.98	Xe ¹³⁰	129.9035	4.08
Ru ¹⁰²	101.9037	31.34	Xe ¹³¹	130.9051	21.18
Ru ¹⁰⁴	103.9042	18.27	Xe ¹³²	131.9042	26.89
Rh ¹⁰³	102.9046	100.00			
Pd ¹⁰²	101.9049	0.80			
Pd ¹⁰⁴	103.9033	9.30			

Symbol	Amu	Abundance	Symbol	Amu	Abundance
Xe ¹³⁴	133.9054	10.44	Dy ¹⁶¹	160.9257	18.88
Xe ¹³⁶	135.9072	8.87	Dy ¹⁶²	161.9256	25.53
Cs ¹³³	132.9051	100.00	Dy ¹⁶³	162.9278	24.87
Ba ¹³⁰	129.9062	0.10	Dy ¹⁶⁴	163.9285	28.18
Ba ¹³²	131.9051	0.10	Ho ¹⁶⁵	164.9291	100.00
Ba ¹³⁴	133.9043	2.42	Er ¹⁶²	161.9287	0.14
Ba ¹³⁵	134.9056	6.59	Er ¹⁶⁴	163.9298	1.56
Ba ¹³⁶	135.9044	7.81	Er ¹⁶⁶	165.9287	33.41
Ba ¹³⁷	136.0956	11.32	Er ¹⁶⁷	166.9305	22.94
Ba ¹³⁸	137.9049	71.66	Er ¹⁶⁸	167.9308	27.07
La ¹³⁸	137.9067	0.09	Er ¹⁷⁰	169.9356	14.88
La ¹³⁹	138.9060	99.91	Tm ¹⁶⁹	168.9343	100.00
Ce ¹³⁶	135.9071	0.19	Yb ¹⁶⁸	167.9339	0.14
Ce ¹³⁸	137.9060	0.25	Yb ¹⁷⁰	(169.9340)	3.03
Ce ¹⁴⁰	139.9053	88.48	Yb ¹⁷¹	(170.9360)	14.31
Ce ¹⁴²	141.9093	11.07	Yb ¹⁷²	(171.9252)	21.82
Pr ¹⁴¹	140.9075	100.00	Yb ¹⁷³	(172.9380)	16.13
Nd ¹⁴²	141.9075	27.09	Yb ¹⁷⁴	(173.9256)	31.84
Nd ¹⁴³	142.9096	12.14	Yb ¹⁷⁶	(175.9427)	12.73
Nd ¹⁴⁴	143.9098	23.83	Lu ¹⁷⁵	(174.9420)	97.40
Nd ¹⁴⁵	144.9121	8.29	Lu ¹⁷⁶	175.9419	2.60
Nd ¹⁴⁶	145.9127	17.26	Hf ¹⁷⁴	(173.9390)	0.20
Nd ¹⁴⁸	147.9165	5.74	Hf ¹⁷⁶	175.9408	5.23
Nd ¹⁵⁰	149.9208	5.63	Hf ¹⁷⁷	176.9425	18.55
Sm ¹⁴⁴	143.9117	3.16	Hf ¹⁷⁸	177.9430	27.23
Sm ¹⁴⁷	146.9145	15.07	Hf ¹⁷⁹	178.9452	13.79
Sm ¹⁴⁸	147.9144	11.27	Hf ¹⁸⁰	179.9461	35.07
Sm ¹⁴⁹	148.9168	13.84	Ta ¹⁸⁰	179.9450	0.01
Sm ¹⁵⁰	149.9169	7.47	Ta ¹⁸¹	180.9458	99.99
Sm ¹⁵²	151.9194	26.63	W ¹⁸⁰	179.9445	0.13
Sm ¹⁵⁴	153.9219	22.53	W ¹⁸²	181.9460	26.31
Eu ¹⁵¹	150.9195	47.77	W ¹⁸³	182.9481	14.28
Eu ¹⁵³	152.9206	52.23	W ¹⁸⁴	183.9489	30.64
Gd ¹⁵²	151.9194	0.20	W ¹⁸⁶	185.9507	28.64
Gd ¹⁵⁴	153.9209	2.15	Re ¹⁸⁵	(184.9480)	37.07
Gd ¹⁵⁵	154.9227	14.73	Re ¹⁸⁷	(186.9530)	62.93
Gd ¹⁵⁶	155.9223	20.47	Os ¹⁸⁴	(183.9460)	0.02
Gd ¹⁵⁷	156.9241	15.68	Os ¹⁸⁶	(185.9520)	1.59
Gd ¹⁵⁸	157.9244	24.87	Os ¹⁸⁷	(186.9560)	1.64
Gd ¹⁶⁰	159.9272	21.90	Os ¹⁸⁸	(187.9569)	13.20
Tb ¹⁵⁹	158.9249	100.00	Os ¹⁸⁹	(188.9585)	16.10
Dy ¹⁵⁶	(155.9140)	0.05	Os ¹⁹⁰	(189.9548)	26.40
Dy ¹⁵⁸	157.9240	0.09	Os ¹⁹²	(191.9622)	41.00
Dy ¹⁶⁰	159.9239	2.29	Ir ¹⁹¹	(190.9634)	38.50

Symbol	Amu	Abundance
Ir ¹⁹³	(192.9667)	61.50
Pt ¹⁹⁰	(189.9640)	0.012
Pt ¹⁹²	(191.9648)	0.78
Pt ¹⁹⁴	(193.9633)	32.80
Pt ¹⁹⁵	(194.9662)	33.70
Pt ¹⁹⁶	(195.9671)	25.40
Pt ¹⁹⁸	197.9646	7.23
Au ¹⁹⁷	196.9672	100.00
Hg ¹⁹⁶	195.9658	0.15
Hg ¹⁹⁸	197.9667	10.02
Hg ¹⁹⁹	198.9682	16.84
Hg ²⁰⁰	199.9683	23.13
Hg ²⁰¹	200.9703	13.22
Hg ²⁰²	201.9706	29.80
Hg ²⁰⁴	203.9735	6.85
Tl ²⁰³	202.9719	29.50
Tl ²⁰⁵	204.9738	70.50
Pb ²⁰⁴	203.9731	1.37
Pb ²⁰⁶	205.9744	25.15
Pb ²⁰⁷	206.9759	21.11
Pb ²⁰⁸	207.9766	52.38
Bi ²⁰⁹	208.9743	100.00
Th ²³²	232.0380	100.00
U ²³⁴	234.0403	0.01
U ²³⁵	235.0428	0.72
U ²³⁸	238.0486	99.28

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Lr	Unq	Unp	Unh	Uns	Uno	Une									
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb				
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No				



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