

NATURALLY OCCURRING ISOTOPES

ATOMIC #	ELEMENT	CHEM SYMB	MASS #	%
1	Hydrogen	H	1	99.985
			2	0.014292
2	Helium	He	3	0.000137
			4	99.999863
3	Lithium	Li	6	7.42
			7	92.58
4	Beryllium	Be	9	100
5	Boron	B	10	19.61
			11	80.39
6	Carbon	C	12	98.893
			13	1.107
7	Nitrogen	N	14	99.6337
			15	0.3663
8	Oxygen	O	16	99.759
			17	0.0374
9	Fluorine	F	19	100
			20	90.92
10	Neon	Ne	21	0.26
			22	8.82
11	Sodium	Na	23	100
			24	78.7
12	Magnesium	Mg	25	10.13
			26	11.17
13	Aluminum	Al	27	100
14	Silicon	Si	28	92.21
			29	4.7
15	Phosphorus	P	30	3.09
			31	100
16	Sulfur	S	32	95.0
			33	0.76
17	Chlorine	Cl	34	4.22
			35	75.53
18	Argon	Ar	37	24.47
			36	0.337
19	Potassium	K	38	0.063
			40	99.600
20	Calcium	Ca	39	93.10
			40	0.0118
21	Scandium	Sc	41	6.88
			42	96.97
22	Titanium	Ti	43	0.64
			44	0.15
23	Vanadium	V	45	2.06
			46	0.003
24	Chromium	Cr	47	0.003
			48	0.18

ATOMIC #	ELEMENT	CHEM SYMB	MASS #	%
21	Scandium	Sc	45	100
22	Titanium	Ti	46	7.93
			47	7.28
23	Vanadium	V	48	73.94
			49	5.51
24	Chromium	Cr	50	5.34
			52	99.76
25	Manganese	Mn	50	0.24
			52	99.76
26	Iron	Fe	50	4.31
			52	83.76
27	Cobalt	Co	53	9.55
			54	2.38
28	Nickel	Ni	55	100
			54	5.82
29	Copper	Cu	56	91.66
			57	2.19
30	Zinc	Zn	58	0.33
			59	100
31	Gallium	Ga	58	67.88
			60	26.23
32	Germanium	Ge	57	2.19
			58	0.33
33	Arsenic	As	63	69.09
			65	30.91
34	Selenium	Se	64	48.89
			66	26.23
35	Bromine	Br	67	4.11
			68	18.57
36	Krypton	Kr	70	0.62
			69	60.4
37	Rubidium	Rb	71	39.6
			70	20.52
38	Strontium	Sr	72	27.43
			73	7.76
39	Yttrium	Y	74	36.54
			76	7.76
40	Zirconium	Zr	75	100
			74	0.87
41	Niobium	Nb	76	9.02
			77	7.58
42	Molybdenum	Mo	78	23.52
			80	49.82
43	Technetium	Tc	82	9.19
			79	50.54
44	Ruthenium	Ru	81	49.46
			81	49.46

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ATOMIC #	ELEMENT	CHEM SYMB	MASS #	%
62	Samarium	Sm	144	3.09
			147	14.97
			148	11.24
			149	13.83
			150	7.44
			152	26.72
63	Europium	Eu	151	47.83
			153	52.18
			154	22.71
64	Gadolinium	Gd	152	0.2
			154	2.15
			155	14.73
			156	20.47
65	Terbium	Tb	159	100
66	Dysprosium	Dy	156	0.05
			158	0.09
			160	2.29
			161	18.88
			162	25.53
			163	24.97
			164	28.18
67	Holmium	Ho	165	100
68	Erbium	Er	162	0.14
			164	1.56
			166	33.41
			167	22.94
			168	27.07
			170	14.88
			169	100
			171	14.31
69	Thulium	Tm	168	0.14
			170	3.03
			171	14.31
			172	21.82
			173	16.13
			174	31.84
			176	12.73
71	Lutetium	Lu	175	97.41
			176	2.59
72	Hafnium	Hf	174	0.18
			176	5.2
			177	18.5
			178	27.14
			179	13.75
			180	35.24
			181	99.99
73	Tantalum	Ta	180	0.01
			181	99.99
74	Tungsten	W	180	0.13
			182	26.41
			183	14.4
			184	30.64
			186	28.41
			187	37.07
75	Rhenium	Rh	185	37.07
			187	62.93
76	Osmium	Os	184	0.02
			186	1.59
			187	1.64
			188	13.3
			189	16.1
			190	26.4
			192	41

ATOMIC #	ELEMENT	CHEM SYMB	MASS #	%
77	Iridium	Ir	191	37.3
			193	62.7
78	Platinum	Pt	190	0.01
			192	0.72
			194	32.9
			195	33.8
			196	25.3
			198	7.21
79	Gold	Au	197	100
80	Mercury	Hg	196	0.15
			198	10.02
			199	16.84
			200	23.13
			201	13.22
			202	29.8
			204	6.85
			203	29.5
81	Thallium	Tl	203	29.5
			205	70.5
82	Lead	Pb	204	1.48
			206	23.6
			207	22.6
			208	52.3
			209	100
83	Bismuth	Bi	209	100
84	Polonium	Po	-	-
85	Astatine	At	-	-
86	Radon	Rn	-	-
87	Francium	Fr	-	-
88	Radium	Ra	-	-
89	Actinium	Ac	-	-
90	Thorium	Th	232	100
91	Protactinium	Pa	-	-
92	Uranium	U	234	0.0056
			235	0.7205
			238	99.2739

NATURALLY OCCURRING ISOTOPES

COMPONENTS IN ATMOSPHERIC AIR		
Constituent	Symbol	Content
Nitrogen	N ₂	78.084%
Oxygen	O ₂	20.946%
Argon	Ar	0.934%
Carbon Dioxide	CO ₂	0.033%
Neon	Ne	18.18 ppm
Methane	CH ₄	2.0 ppm
Helium	He	5.24 ppm
Krypton	Kr	1.14 ppm
Hydrogen	H ₂	0.5 ppm
Nitrous Oxide	H ₂ O	0.5 ppm
Xenon	Xe	0.087 ppm

For further information, call your local MKS Sales Engineer or contact the MKS Applications Engineering Group at 800-227-8766.



App. Note #04/02 - 5/05
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