

PERIODENSYSTEM DER ELEMENTE

I										VIII																									
1 H Wasserstoff 1 (99,985%) 1.0079 u 20.268 K 14.025 K 0.0899 g/l										2 He Helium 4 (99,9999%) 4.00260 u 4.215 K 1 K 0.1787 g/l																									
II		III		IV		V		VI		VII		III		IV		V		VI		VII															
3 Li Lithium 7 (92,5%) 6.941 u 1615 K 453.7 K 0.53 g/cm³		4 Be Beryllium 9 (100%) 9.01218 u 2745 K 1560 K 1.85 g/cm³		5 B Bor 11 (80,22%) 10.81 u 4275 K 2300 K 2.34 g/cm³		6 C Kohlenstoff 12 (98,9%) 12.011 u 4470 K 4100 K 2.62 g/cm³		7 N Stickstoff 14 (99,63%) 14.0067 u 77.35 K 63.14 K 1.251 g/l		8 O Sauerstoff 16 (99,762%) 15.9994 u 90.18 K 50.35 K 1.429 g/l		9 F Fluor 19 (100%) 18.998403 u 84.95 K 53.48 K 1.696 g/l		10 Ne Neon 20 (90,51%) 20.179 u 27.096 K 24.553 K 0.901 g/l		11 Na Natrium 23 (100%) 22.98977 u 1156 K 371.0 K 0.97 g/cm³		12 Mg Magnesium 24 (78,99%) 24.305 u 1363 K 922 K 1.74 g/cm³		13 Al Aluminium 27 (100%) 26.98154 u 2793 K 933.25 K 2.70 g/cm³		14 Si Silicium 28 (92,23%) 28.0855 u 3540 K 1685 K 2.33 g/cm³		15 P Phosphor 31 (100%) 30.97376 u 550 K 317.30 K 1.82 g/cm³		16 S Schwefel 32 (95,02%) 32.06 u 717.75 K 388.36 K 2.07 g/cm³		17 Cl Chlor 35 (75,77%) 35.453 u 239.1 K 172.16 K 3.17 g/l		18 Ar Argon 40 (99,6%) 40.9618 u 87.30 K 83.81 K 1.784 g/l					
<p>< Name</p> <p>< Nukleonenzahl (häufigstes Isotop in %)</p> <p>< rel. Atommasse in u = molare Masse (Wert in g/mol)</p> <p>< Siedepunkt (bei 1013,25 hPa)</p> <p>< Schmelzpunkt (bei 1013,25 hPa)</p> <p>< Dichte (bei 293 K / 1013,25 hPa)</p> <p>⊛ alle Isotope radioaktiv ✖ alle Isotope nur künstlich dargestellt</p>																																			
<p>bei Raumtemperatur (298 K) gasförmig</p> <p>bei Raumtemperatur (298 K) flüssig</p> <p>bei Raumtemperatur (298 K) fest</p> <p>Metalle</p> <p>Halbmetalle</p> <p>Nichtmetalle</p>																																			
Nebengruppenelemente																																			
19 K Kalium 39 (93,258%) 39.0983 u 1032 K 336.35 K 0.86 g/cm³		20 Ca Calcium 40 (96,941%) 40.08 u 1757 K 1112 K 1.55 g/cm³		21 Sc Scandium 45 (100%) 44.9559 u 3104 K 1812 K 3.0 g/cm³		22 Ti Titan 48 (73,8 %) 47.90 u 3562 K 1943 K 4.50 g/cm³		23 V Vanadium 51 (99,75%) 50.9415 u 3682 K 2175 K 5.8 g/cm³		24 Cr Chrom 52 (83,79%) 51.996 u 2945 K 2130 K 7.19 g/cm³		25 Mn Mangan 55 (100%) 54.9380 u 2935 K 1517 K 7.43 g/cm³		26 Fe Eisen 56 (91,7%) 55.847 u 3135 K 1809 K 7.86 g/cm³		27 Co Kobalt 59 (100%) 58.9332 u 3201 K 1768 K 8.90 g/cm³		28 Ni Nickel 58 (68,27%) 58.70 u 3187 K 1726 K 8.90 g/cm³		29 Cu Kupfer 63 (69,17%) 63.546 u 3286 K 1357.6 K 8.96 g/cm³		30 Zn Zink 64 (48,6%) 65.38 u 3107 K 692.73 K 7.14 g/cm³		31 Ga Gallium 69 (60,1%) 69.72 u 1180 K 302.90 K 5.91 g/cm³		32 Ge Germanium 74 (36,5%) 72.59 u 2478 K 1210.4 K 5.32 g/cm³		33 As Arsen 75 (100%) 74.9216 u 876 K (subl) 1081 K, 28 atm 5.72 g/cm³		34 Se Selen 79 (49,82%) 79.96 u 2478 K 494 K 4.80 g/cm³		35 Br Brom 80 (50,7%) 79.904 u 3107 K 265.90 K 3.12 g/cm³		36 Kr Krypton 84 (57,0%) 83.80 u 3107 K 119.80 K 115.78 K 3.74 g/l	
37 Rb Rubidium 85 (72,17%) 85.4678 u 961 K 312.64 K 1.53 g/cm³		38 Sr Strontium 88 (82,58%) 87.62 u 1650 K 1041 K 2.6 g/cm³		39 Y Yttrium 89 (100%) 88.9059 u 3611 K 1799 K 4.5 g/cm³		40 Zr Zirkonium 90 (51,45%) 91.22 u 4682 K 2125 K 6.49 g/cm³		41 Nb Niob 93 (100%) 92.9064 u 5017 K 2740 K 8.55 g/cm³		42 Mo Molybdän 98 (24,13%) 95.94 u 4912 K 2890 K 10.2 g/cm³		43 Tc Technetium 98 ⊛ 97.9072 u 4538 K 2473 K 11.5 g/cm³		44 Ru Ruthenium 102 (31,6%) 101.07 u 4423 K 2523 K 12.2 g/cm³		45 Rh Rhodium 103 (100%) 102.9055 u 3970 K 2236 K 12.4 g/cm³		46 Pd Palladium 106 (27,33%) 106.4 u 3237 K 1825 K 12.0 g/cm³		47 Ag Silber 107 (51,83%) 107.868 u 2436 K 1234 K 10.5 g/cm³		48 Cd Cadmium 114 (28,72%) 112.41 u 1040 K 594.18 K 8.65 g/cm³		49 In Indium 115 (95,7%) 114.82 u 2346 K 429.76 K 7.31 g/cm³		50 Sn Zinn 129 (32,4%) 118.69 u 2876 K 505.06 K 7.30 g/cm³		51 Sb Antimon 121 (57,3%) 121.75 u 1860 K 904 K 6.68 g/cm³		52 Te Tellur 130 (33,8%) 127.60 u 1261 K 722.65 K 6.24 g/cm³		53 I Iod 127 (100%) 126.9045 u 458.4 K 386.7 K 4.92 g/cm³		54 Xe Xenon 131 (26,9%) 131.30 u 165.0 K 161.36 K 5.89 g/l	
55 Cs Cäsium 133 (100%) 132.9054 u 944 K 301.55 K 1.87 g/cm³		56 Ba Barium 138 (71,7%) 137.33 u 2171 K 1002 K 3.5 g/cm³		71 Lu Lutetium 175 (97,4%) 174.967 u 3668 K 1931 K 9.84 g/cm³		72 Hf Hafnium 178 (49,2%) 178.49 u 5731 K 2500 K 13.1 g/cm³		73 Ta Tantal 181 (99,988%) 180.9479 u 5828 K 3287 K 16.6 g/cm³		74 W Wolfram 184 (30,67%) 183.85 u 5828 K 3680 K 19.3 g/cm³		75 Re Rhenium 187 (62,6%) 186.207 u 5285 K 3453 K 21.0 g/cm³		76 Os Osmium 192 (41,0%) 190.2 u 4701 K 3300 K 22.4 g/cm³		77 Ir Iridium 193 (62,7%) 192.22 u 4100 K 2716 K 22.5 g/cm³		78 Pt Platin 195 (33,8%) 195.09 u 4100 K 2045 K 21.4 g/cm³		79 Au Gold 197 (100%) 196.9665 u 3130 K 1337.58 K 19.3 g/cm³		80 Hg Quecksilber 202 (29,8%) 200.59 u 630 K 234.28 K 13.53 g/cm³		81 Tl Thallium 205 (70,5%) 204.37 u 1746 K 577 K 11.85 g/cm³		82 Pb Blei 208 (52,4%) 207.2 u 2023 K 600.6 K 11.4 g/cm³		83 Bi Bismut 209 (100%) 208.9804 u 1837 K 544.52 K 9.8 g/cm³		84 Po Polonium 209 ⊛ 208.9824 u 1235 K 527 K 9.4 g/cm³		85 At Astat 210 ⊛ 209.9871 u 1837 K 575 K 210 g/cm³		86 Rn Radon 222 ⊛ 222.0176 u 211 K 202 K 9.91 g/l	
87 Fr Francium 223 ⊛ 223.0197 u 950 K 300 K		88 Ra Radium 226 ⊛ 226.0254 u 1809 K 973 K 5 g/cm³		103 Lr Lawrencium 262 ⊛ ✖ 262.1087 u 1900 K		104 Rf Rutherfordium 263 ⊛ ✖ 261.1087 u		105 Db Dubnium 262 ⊛ ✖ 262.1144 u		106 Sg Seaborgium 266 ⊛ ✖ 266.1219 u		107 Bh Bohrium 264 ⊛ ✖ 264.1247 u		108 Hs Hassium 269 ⊛ ✖ 269.1341 u		109 Mt Meitnerium 268 ⊛ ✖ 268.1388 u		110 Ds Darmstadtium 271 ⊛ ✖ 271.15 u		111 Rg Roentgenium 272 ⊛ ✖ (277 u)		112 Cn Copernicium 283 ⊛ ✖ (277 u)		113		114		115		116		117		118	

Lanthanoide und Actinoide

Lanthanoide

[Elemente 57 - 71]...
...sind innere Nebengruppen-
elemente, die chemisch stark
dem Lanthan ähneln.

Actinoide

[Elemente 87 - 103]...
...sind innere Nebengruppen-
elemente, die chemisch stark
dem Actinium ähneln.

57 La Lanthan 139 (99,91%) 138.9055 u 3730 K 1193 K 6.7 g/cm³		58 Ce Cer 140 (88,48%) 140.12 u 3730 K 1072 K 6.65 g/cm³		59 Pr Praseodym 141 (100%) 140.9077 u 3785 K 1204 K 6.77 g/cm³		60 Nd Neodym 144 (27,13%) 144.24 u 3300 K 1297 K 7.00 g/cm³		61 Pm Promethium 147 > 144.9127 u 2733 K 1441 K 7.22 g/cm³		62 Sm Samarium 152 (26,7%) 150.36 u 2064 K 1350 K 7.54 g/cm³		63 Eu Europium 153 (52,2%) 151.96 u 1870 K 1095 K 5.26 g/cm³		64 Gd Gadolinium 158 (24,84%) 157.25 u 1870 K 1586 K 7.89 g/cm³		65 Tb Terbium 159 (100%) 158.9254 u 162.50 u 2835 K 1685 K 8.27 g/cm³		66 Dy Dysprosium 164 (28,2%) 162.50 u 2835 K 1685 K 8.54 g/cm³		67 Ho Holmium 165 (100%) 164.9304 u 2968 K 1747 K 8.80 g/cm³		68 Er Erbium 166 (33,6%) 167.26 u 3136 K 1802 K 9.05 g/cm³		69 Tm Thulium 169 (100%) 168.9342 u 2220 K 1818 K 9.33 g/cm³		70 Yb Ytterbium 174 (31,8%) 173.04 u 1467 K 1092 K 6.98 g/cm³	
89 Ac Actinium 227 ⊛ ✖ 227.0278 u 3473 K 1323 K 10.07 g/cm³		90 Th Thorium 232 ⊛ 232.0381 u 5063 K 2023 K 11.7 g/cm³		91 Pa Protaktinium 231 ⊛ 231.03588 u 4303 K 1827 K 15.4 g/cm³		92 U Uran 238 ⊛ 238.0289 u 4091 K 1405 K 18.9 g/cm³		93 Np Neptunium 237 ⊛ 237.0482 u 4175 K 903 K 20.4 g/cm³		94 Pu Plutonium 244 ⊛ ✖ 244.0642 u 3505 K 914 K 19.8 g/cm³		95 Am Americium 243 ⊛ ✖ 243.0614 u 2880 K 1613 K 13.7 g/cm³		96 Cm Curium 247 ⊛ ✖ 247.0703 u 3373 K 914 K 13.5 g/cm³		97 Bk Berkelium 247 ⊛ ✖ 247.0703 u 1259 K 1173 K 14.0 g/cm³		98 Cf Californium 251 ⊛ ✖ 251.0796 u 1173 K		99 Es Einsteinium 252 ⊛ ✖ 252.0830 u 1133 K		100 Fm Fermium 257 ⊛ ✖ 257.0951 u		101 Md Mendelevium 258 ⊛ ✖ 258.0984 u		102 No Nobelium 259 ⊛ ✖ 259.1010 u	

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PERIODENSYSTEM DER ELEMENTE

										VIII																																																													
I											II											III	IV	V	VI	VII	VIII																																												
1H											2He											5B	6C	7N	8O	9F	10Ne																																												
Wasserstoff 1s ¹ 37, 154 (-1) 1318 kJ/mol 2,20 / 0,00V											Helium 1s ² 93, --- 2379 kJ/mol											Bor 1s ² 2s ² p ¹ 3 79, 23 (+3) 807 kJ/mol 2,04	Kohlenstoff 1s ² 2s ² p ² 4, 2 77, 16 (+4) 1093 kJ/mol 2,55	Stickstoff 1s ² 2s ² p ³ 5, 4, 2 73, 171 (-3) 1407 kJ/mol 3,04	Sauerstoff 1s ² 2s ² p ⁴ 2 74, 140 (-2) 1320 kJ/mol 3,44	Fluor 1s ² 2s ² p ⁵ -1 71, 131 (-1) 1687 kJ/mol 3,98 / 2,87V	Neon 1s ² 2s ² p ⁶ 71, --- 2087 kJ/mol											Aluminium [Ne]3s ² p ¹ 3 143, 51 (+3) 584 kJ/mol 1,61 / -1,71V	Silicium [Ne]3s ² p ² 4 118, 42 (+4) 793 kJ/mol 1,90	Phosphor [Ne]3s ² p ³ 5, 4 110, 44 (3+) 1018 kJ/mol 2,19	Schwefel [Ne]3s ² p ⁴ 4, 6 102, 184 (-2) 1006 kJ/mol 2,58	Chlor [Ne]3s ² p ⁵ 3, 5, 7 99, 181 (-1) 1257 kJ/mol 3,16 / 1,36V	Argon [Ne]3s ² p ⁶ 98, --- 1527 kJ/mol											11Na	12Mg											13Al	14Si	15P	16S	17Cl	18Ar
3Li	4Be											19K	20Ca	21Sc	22Ti	23V	24Cr	25Mn	26Fe	27Co	28Ni	29Cu	30Zn	31Ga	32Ge	33As	34Se	35Br	36Kr																																										
Lithium 1s ² 2s ¹ 1 152, 74 (+1) 526 kJ/mol 0,98 / -3,05V	Beryllium 1s ² 2s ² 2 112, 35 (+2) 905 kJ/mol 1,57 / -1,85V											Kalium [Ar]4s ¹ 1 227, 138 (+1) 425 kJ/mol 0,82 / -2,92V	Calcium [Ar]3d ¹ 4s ² 2 197, 99 (+2) 596 kJ/mol 1,00 / -2,87V	Scandium [Ar]3d ¹ 4s ² 3 161, 75 (+3) 637 kJ/mol 1,36	Titan [Ar]3d ² 4s ² 4, 3 145, 61 (+4) 663 kJ/mol 1,54	Vanadium [Ar]3d ³ 4s ² 5, 4, 3, 2 131, 54 (+V) 656 kJ/mol 1,63	Chrom [Ar]3d ⁴ 4s ¹ 6, 3, 2 125, 52 (+VI) 659 kJ/mol 1,66 / -0,74V	Mangan [Ar]3d ⁵ 4s ² 7, 6, 4, 2, 3 137, 46 (+VII) 724 kJ/mol 1,55 / -1,18V	Eisen [Ar]3d ⁶ 4s ² 2, 3 124, 64 (+3) 766 kJ/mol 1,83 / -0,40V	Kobalt [Ar]3d ⁷ 4s ² 2, 3 125, 75 (+2) 764 kJ/mol 1,88 / -0,28V	Nickel [Ar]3d ⁸ 4s ² 2, 3 125, 69 (+2) 743 kJ/mol 1,91 / -0,25V	Kupfer [Ar]3d ¹⁰ 4s ¹ 2, 1 128, 72 (+2) 752 kJ/mol 1,9 / 0,34V	Zink [Ar]3d ¹⁰ 4s ² 2 133, 74 (+2) 913 kJ/mol 1,65 / -0,76V	Gallium [Ar]3d ¹⁰ 4s ² p ¹ 3 122, 62 (+3) 585 kJ/mol 1,81 / -0,56V	Germanium [Ar]3d ¹⁰ 4s ² p ² 4 123, 53 (+4) 768 kJ/mol 2,01	Arsen [Ar]3d ¹⁰ 4s ² p ³ 5 125, 58 (+3) 953 kJ/mol 2,18	Selen [Ar]3d ¹⁰ 4s ² p ⁴ -2, 4, 6 116, 198 (-2) 947 kJ/mol 2,55	Brom [Ar]3d ¹⁰ 4s ² p ⁵ -1, 5 114, 196 (-1) 1146 kJ/mol 2,96 / 1,07V	Krypton [Ar]3d ¹⁰ 4s ² p ⁶ 112, --- 1357 kJ/mol											37Rb	38Sr	39Y	40Zr	41Nb	42Mo	43Tc	44Ru	45Rh	46Pd	47Ag	48Cd	49In	50Sn	51Sb	52Te	53I	54Xe														
Rubidium [Kr]5s ¹ 1 248, 149 (+1) 409 kJ/mol 0,82 / -2,93V	Strontium [Kr]5s ² 2 215, 112 (+2) 556 kJ/mol 0,95 / -2,89V	Yttrium [Kr]4d ¹ 5s ² 3 178, 90 (+3) 622 kJ/mol 1,22	Zirkonium [Kr]4d ² 5s ² 4 159, 72 (+4) 666 kJ/mol 1,33	Niob [Kr]4d ⁴ 5s ¹ 5, 3 143, 64 (+V) 670 kJ/mol 1,60	Molybdän [Kr]4d ⁵ 5s ¹ 6, 5, 4, 3, 2 136, 60 (+VI) 691 kJ/mol 2,16	Technetium [Kr]4d ⁵ 5s ² 7 135, 56 (+VII) 708 kJ/mol 1,90	Ruthenium [Kr]4d ⁷ 5s ¹ 2, 3, 4, 6, 8 133, 62 (+4) 717 kJ/mol 2,20	Rhodium [Kr]4d ⁸ 5s ¹ 2, 3, 4 134, 68 (+3) 726 kJ/mol 2,28	Palladium [Kr]4d ¹⁰ 5s ¹ 2, 4 138, 86 (+2) 811 kJ/mol 2,20	Silber [Kr]4d ¹⁰ 5s ¹ 1 144, 115 (+1) 874 kJ/mol 1,93 / 0,80V	Cadmium [Kr]4d ¹⁰ 5s ² 2 149, 98 (+2) 874 kJ/mol 1,69 / -0,40V	Indium [Kr]4d ¹⁰ 5s ² p ¹ 3 136, 81 (+3) 565 kJ/mol 1,78 / -0,34V	Zinn [Kr]4d ¹⁰ 5s ² p ² 4, 2 151, 69 (+4) 840 kJ/mol 1,96 / -0,14V	Antimon [Kr]4d ¹⁰ 5s ² p ³ 5 145, 76 (+3) 840 kJ/mol 2,05	Tellur [Kr]4d ¹⁰ 5s ² p ⁴ -2, 4, 6 143, 221 (-2) 876 kJ/mol 2,10	Iod [Kr]4d ¹⁰ 5s ² p ⁵ -1, 5, 7 133, 220 (-1) 1015 kJ/mol 2,66 / 0,54V	Xenon [Kr]4d ¹⁰ 5s ² p ⁶ 131, --- 1177 kJ/mol											55Cs	56Ba	71Lu	72Hf	73Ta	74W	75Re	76Os	77Ir	78Pt	79Au	80Hg	81Tl	82Pb	83Bi	84Po	85At	86Rn																										
Cäsium [Xe]6s ¹ 1 265, 167 (+1) 382 kJ/mol 0,79 / -2,93V	Barium [Xe]6s ² 2 217, 134 (+2) 509 kJ/mol 0,89 / -2,91	Lutetium [Xe]4f ¹⁴ 5d ¹ 6s ² 3 172, 86 (+3) 530 kJ/mol 1,10	Hafnium [Xe]4f ¹⁴ 5d ² 6s ² 4 156, 71 (+4) 680 kJ/mol 1,30	Tantal [Xe]4f ¹⁴ 5d ³ 6s ² 5 143, 64 (+V) 767 kJ/mol 1,50	Wolfram [Xe]4f ¹⁴ 5d ⁴ 6s ² 6, 5, 4, 3, 2 137, 60 (+VI) 776 kJ/mol 2,36	Rhenium [Xe]4f ¹⁴ 5d ⁵ 6s ² 7, 6, 4, 2, -1 137, 56 (+VII) 766 kJ/mol 1,90	Osmium [Xe]4f ¹⁴ 5d ⁶ 6s ² 2, 3, 4, 6, 8 134, 63 (+4) 850 kJ/mol 2,20	Iridium [Xe]4f ¹⁴ 5d ⁷ 6s ² 2, 3, 4, 6 136, 63 (+4) 880 kJ/mol 2,20	Platin [Xe]4f ¹⁴ 5d ⁹ 6s ¹ 2, 4 139, 80 (+2) 870 kJ/mol 2,28 / 1,20V	Gold [Xe]4f ¹⁴ 5d ¹⁰ 6s ¹ 3, 1 144, 137 (+1) 896 kJ/mol 2,54 / 1,42V	Quecksilber [Xe]4f ¹⁴ 5d ¹⁰ 6s ² 2, 1 150, 110 (+2) 1013 kJ/mol 2,00 / 0,85V	Thallium [Xe]4f ¹⁴ 5d ¹⁰ 6s ² p ¹ 3, 1 170, 95 (+3) 596 kJ/mol 2,04 / -0,34V	Blei [Xe]4f ¹⁴ 5d ¹⁰ 6s ² p ² 4, 2 175, 78 (+4) 722 kJ/mol 2,33 / -0,13V	Bismut [Xe]4f ¹⁴ 5d ¹⁰ 6s ² p ³ 3, 5 155, 102 (+3) 710 kJ/mol 2,02	Polonium [Xe]4f ¹⁴ 5d ¹⁰ 6s ² p ⁴ 4, 2 167, 67 (+V) 818 kJ/mol 2,00	Astat [Xe]4f ¹⁴ 5d ¹⁰ 6s ² p ⁵ -1, 3, 5, 7 145, 64 (+VII) 2,20	Radon [Xe]4f ¹⁴ 5d ¹⁰ 6s ² p ⁶ 1043 kJ/mol											87Fr	88Ra	103Lr	104Rf	105Db	106Sg	107Bh	108Hs	109Mt	110Ds	111Rg	112Cn	113	114	115	116	117	118																										
Francium [Rn]7s ¹ 1 ---, 180 (+1) 0,70	Radium [Rn]7s ² 2 ---, 210 (+2) 509 kJ/mol 0,9 / -2,92V	Lawrencium [Rn]5f ¹⁴ 6d ¹ 7s ² 3 1,30	Rutherfordium [Rn]5f ¹⁴ 6d ² 7s ²	Dubnium [Rn]5f ¹⁴ 6d ³ 7s ²	Seaborgium [Rn]5f ¹⁴ 6d ⁴ 7s ²	Bohrium [Rn]5f ¹⁴ 6d ⁵ 7s ²	Hassium [Rn]5f ¹⁴ 6d ⁶ 7s ²	Meitnerium [Rn]5f ¹⁴ 6d ⁷ 7s ²	Darmstadtium [Rn]5f ¹⁴ 6d ⁸ 7s ¹	Roentgenium [Rn]5f ¹⁴ 6d ⁹ 7s ¹	Copernicium [Rn]5f ¹⁴ 6d ¹⁰ 7s ²	113	114	115	116	117	118																																																						

Periode 1
 Periode 2
 Periode 3
 Periode 4
 Periode 5
 Periode 6
 Periode 7

< Name
 < Elektronenkonfiguration
 < Oxidationszahlen (häufigste rot)
 < Atomradius, Ionenradius in pm (± Ladung bzw. in röm. Ziffern: Oxidationsstufe)
 < 1. Ionisierungsenergie (kJ/mol; bei 298 K)
 < Elektronegativität nach Pauling / Normalpotential (in V)

☉ alle Isotope radioaktiv ☿ alle Isotope nur künstlich dargestellt

Nebengruppenelemente

Lanthanoide und Actinoide

Lanthanoide

[Elemente 57 - 71]...
...sind innere Nebengruppenelemente, die chemisch stark dem Lanthan ähneln.

Actinoide

[Elemente 87 - 111]...
...sind innere Nebengruppenelemente, die chemisch stark dem Actinium ähneln.

57La	58Ce	59Pr	60Nd	61Pm	62Sm	63Eu	64Gd	65Tb	66Dy	67Ho	68Er	69Tm	70Yb
Lanthan [Xe]5d ¹ 6s ² 3 187, 103 (+3) 544 kJ/mol 1,10	Cer [Xe]4f ¹ 6s ² 3, 4 183, 101 (+3) 534 kJ/mol 1,12	Praseodym [Xe]4f ² 6s ² 3, 4 132, 100 (+3) 529 kJ/mol 1,13	Neodym [Xe]4f ³ 6s ² 3 181, 98 (+3) 536 kJ/mol 1,14	Promethium [Xe]4f ⁵ 6s ² 3 163, 97 (+3) 542 kJ/mol 1,14	Samarium [Xe]4f ⁶ 6s ² 2, 3 179, 96 (+3) 549 kJ/mol 1,17	Europium [Xe]4f ⁷ 6s ² 2, 3 199, 117 (+2) 553 kJ/mol 1,20	Gadolinium [Xe]4f ⁷ 5d ¹ 6s ² 3 179, 94 (+3) 598 kJ/mol 1,29	Terbium [Xe]4f ⁹ 6s ² 3, 4 176, 94 (+3) 570 kJ/mol 1,20	Dysprosium [Xe]4f ¹⁰ 6s ² 3 175, 91 (+3) 578 kJ/mol 1,22	Holmium [Xe]4f ¹¹ 6s ² 3 174, 90 (+3) 586 kJ/mol 1,23	Erbium [Xe]4f ¹² 6s ² 3 173, 89 (+3) 595 kJ/mol 1,24	Thulium [Xe]4f ¹³ 6s ² 2, 3 156, 87 (+3) 601 kJ/mol 1,25	Ytterbium [Xe]4f ¹⁴ 6s ² 2, 3 194, 86 (+3) 610 kJ/mol 1,10
89Ac	90Th	91Pa	92U	93Np	94Pu	95Am	96Cm	97Bk	98Cf	99Es	100Fm	101Md	102No
Actinium [Rn]6d ¹ 7s ² 3 188, 118 (+3) 672 kJ/mol 1,10	Thorium [Rn]6d ² 7s ² 3, 4, 5, 6 180, 100 (+4) 672 kJ/mol 1,10	Protaktinium [Rn]5f ² 6d ¹ 7s ² 4, 5 161, 113 (+3) 568 kJ/mol 1,50	Uran [Rn]5f ³ 6d ¹ 7s ² 3, 4, 5, 6 139, 97 (+4) 593 kJ/mol 1,38	Neptunium [Rn]5f ⁴ 6d ¹ 7s ² 3, 4, 5, 6 130, 101 (+3) 577 kJ/mol 1,36	Plutonium [Rn]5f ⁶ 7s ² 3, 4, 5, 6 151, 100 (+3) 584 kJ/mol 1,28	Americium [Rn]5f ⁷ 7s ² 3, 4, 5, 6 182, 98 (+3) 577 kJ/mol 1,30	Curium [Rn]5f ⁸ 7s ² 3, 4 ---, 97 (+3) 580 kJ/mol 1,30	Berkellium [Rn]5f ⁹ 7s ² 3, 4 ---, 96 (+3) 600 kJ/mol 1,30	Californium [Rn]5f ¹⁰ 7s ² 3, 4 ---, 95 (+3) 607 kJ/mol 1,30	Einsteinium [Rn]5f ¹¹ 7s ² 3 619 kJ/mol 1,30	Fermium [Rn]5f ¹² 7s ² 3 626 kJ/mol 1,30	Mendelevium [Rn]5f ¹³ 7s ² 3 634 kJ/mol 1,30	Nobelium [Rn]5f ¹⁴ 7s ² 2, 3 641 kJ/mol 1,30

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