

Periodensystem der Elemente

Periodic Table of the Elements

1 H Wasserstoff Hydrogen [1,0078; 1,0082] -1,1 13,99° / 20,271° 0,084 2,2 / 7,18	2 He Helium Helium 1s ² 4,0026 0 - / 4,222 0,170	
3 Li Lithium Lithium [He] 2s [6,938; 6,997] 2 453,65 / 1603 530 0,98 / 3,01	4 Be Beryllium Beryllium [He] 2s ² 9,0122 2 1560 / 2742 1850 1,57 / 4,9	
11 Na Natrium Sodium [Ne] 3s 22,990 1 370,944 / 1156,09 970 0,93 / 2,85	12 Mg Magnesium Magnesium [Ne] 3s ² [24,304; 24,307] 2 923 / 1363 1740 1,31 / 3,75	
19 K Kalium Potassium [Ar] 4s 39,098 1 336,7 / 1032 860 0,82 / 2,42	20 Ca Calcium Calcium [Ar] 3d ⁴ 4s ² 40,078(4) 2 1115 / 1757 860 1 / 2,2	21 Sc Scandium Scandium [Ar] 3d ³ 4s ² 44,956 3 1814 / 3109 860 1,36 / 3,34
37 Rb Rubidium Rubidium [Kr] 5s 85,468 1 312,45 / 961 1530 0,82 / 2,34	38 Sr Strontium Strontium [Kr] 5s ² 87,62 2 1050 / 1650 2630 0,95 / 2	39 Y Yttrium Yttrium [Kr] 4d ⁵ s ² 88,906 3 1799 / 3203 4470 1,22 / 3,19
55 Cs Cäsium Caesium [Xe] 6s 132,91 1 301,7 / 944 1900 0,79 / 2,18	56 Ba Barium Barium [Xe] 6s ² 137,33 2 1000 / 1910 3650 0,89 / 2,4	57 La Lanthan Lanthanum [Xe] 5d ⁶ s ² 138,91 3 1193 / 3737 6160 1,1 / 3,1
87 Fr Francium Francium [Rn] 7s [223] 1 300 / (ca.) 950 348	88 Ra Radium Radium [Rn] 7s ² [226] 1 973 / 2010 5500	89 Ac Actinium Actinium [Rn] 6d ⁷ s ² [227] 3 (ca) 1323 / 3471 10070

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Wissenschaftliche Beratung und Redaktion von Dr. Lars Röglin
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Ergänzungen
H * H₂
C * Graphit, subl.
N * N₂
O * O₂
F * F₂
P * weiß (rot, subl.: 883)
* weiß (rot, subl.: 704)
S * orthorhombisch, alpha
Cl * Cl₂
Ti * hexagonal
As * grau
Se * hexagonal, grau
Br * Br₂
Sn * weiß
I * I₂

22 Ti Titan Titanium [Ar] 3d ² 4s ² 47,867 2,3,4 1941* / 3560* 4510 1,54 / 3,45	23 V Vanadium Vanadium [Ar] 3d ³ 4s ² 50,942 2,3,4,5 2183 / 3680 6090 1,63 / 3,6	24 Cr Chrom Chromium [Ar] 3d ⁵ 4s ¹ 51,996 2,3,4,5,6 2180 / 2755 7440 1,66 / 3,72	25 Mn Mangan Manganese [Ar] 3d ⁵ 4s ² 54,938 2,3,4,5,6 -1,0,2,3,4,6,7 1519 / 2334 7440 1,55 / 3,72	26 Fe Eisen Iron [Ar] 3d ⁶ 4s ² 55,845(2) 2,3,4 -1,0,2,3,4,6 1811 / 3134 7870 1,83 / 4,06	27 Co Cobalt Cobalt [Ar] 3d ⁷ 4s ² 58,933 1,2,3,4 1768 / 3200 8890 1,88 / 4,3	28 Ni Nickel Nickel [Ar] 3d ⁸ 4s ² 58,639 2,3,4 1728 / 3003 8910 1,91 / 4,4	29 Cu Kupfer Copper [Ar] 3d ¹⁰ 4s 63,546(3) 2,3,4 1357,77 / 2835 7140 1,9 / 4,48	30 Zn Zink Zinc [Ar] 3d ¹⁰ 4s ² 65,38(2) 2,3,4 692,68 / 1180 8920 1,65 / 4,45	31 Ga Gallium Gallium [Ar] 3d ¹⁰ 4s ² 4p 69,723 1,2 302,9146 / 2673 1,81 / 3,2	32 Ge Germanium Germanium [Ar] 3d ¹⁰ 4s ² 4p ² 72,630(8) 2,4 1211,4 / 3106 5320 2,01 / 4,6	33 As Arsen Arsenic [Ar] 3d ¹⁰ 4s ² 4p ³ 74,922 2,3,4 1090 / 887* 5910 2,18 / 5,3	34 Se Selen Selenium [Ar] 3d ¹⁰ 4s ² 4p ⁴ 78,971(8) 2,4,6 494* / 958* 4820 2,55 / 5,89	35 Br Brom Bromine [Ar] 3d ¹⁰ 4s ² 4p ⁵ 79,901; 79,907 2,3,4,6 265,8* / 332* 3140 2,96 / 7,59	36 Kr Krypton Krypton [Ar] 3d ¹⁰ 4s ² 4p ⁶ 83,798(2) 0,2 115,78 / 119,735 3,48
40 Zr Zirkon Zirconium [Kr] 4d ² 5s ² 91,224(2) 2,3,4 2128 / 4650 6510 1,33 / 3,64	41 Nb Niob Niobium [Kr] 4d ⁴ 5s 92,906 3,5 2750 / 5017 8580 1,6 / 4,0	42 Mo Molybdän Molybdenum [Kr] 4d ⁵ 5s 95,95 2,3,4,5,6 2896 / 4912 10490 2,16 / 3,9	43 Tc Technetium Technetium [Kr] 4d ⁵ 5s ² [97] 4,7 2430 / 4538 11490 1,9	44 Ru Ruthenium Ruthenium [Kr] 4d ⁷ 5s 101,07(2) 2,3,4,5,6,7,8 2607 / 4423 10490 - / 4,5	45 Rh Rhodium Rhodium [Kr] 4d ⁸ 5s 102,91 2,4 -0,2,3,4,5,6 2237 / 3968 10290 2,28 / 4,3	46 Pd Palladium Palladium [Kr] 4d ¹⁰ 106,42 2,4 1828,05 / 3236 10640 2,2 / 4,45	47 Ag Silber Silver [Kr] 4d ¹⁰ 5s 107,87 1,2 1234,93 / 2483 10490 1,93 / 4,44	48 Cd Cadmium Cadmium [Kr] 4d ¹⁰ 5s ² 112,41 2 594,22 / 1040 8640 1,69 / 4,33	49 In Indium Indium [Kr] 4d ¹⁰ 5s ² 5p 114,82 1,3 429,75 / 2345 7310 1,78 / 3,1	50 Sn Zinn Tin [Kr] 4d ¹⁰ 5s ² 5p ² 118,71 2,4 505,08* / 2875* 6690 1,96 / 4,3	51 Sb Antimon Antimony [Kr] 4d ¹⁰ 5s ² 5p ³ 121,76 2,3,4,6 903,78 / 1908 6250 2,05 / 4,85	52 Te Tellur Tellurium [Kr] 4d ¹⁰ 5s ² 5p ⁴ 127,60(3) 2,4,6 722,66 / 1261 6940 - / 5,49	53 I Jod Iodine [Kr] 4d ¹⁰ 5s ² 5p ⁵ 126,90 2,3,4,6 386,85* / 457,4* 7290 2,66 / 6,76	54 Xe Xenon Xenon [Kr] 4d ¹⁰ 5s ² 5p ⁶ 131,29 0,2,4,6,8 161,4 / 165,05 4,49
72 Hf Hafnium Hafnium [Xe] 4f ¹⁴ 5d ² 6s ² 178,48(2) 2 2506 / 4876 13310 1,3 / 3,8	73 Ta Tantalum Tantalum [Xe] 4f ¹⁴ 5d ³ 6s ² 180,95 3 3290 / 5731 16680 1,5 / 4,11	74 W Wolfram Tungsten [Xe] 4f ¹⁴ 5d ⁴ 6s ² 183,84 3,4,5,6 3695 / 6203 16680 2,36 / 4,4	75 Re Rhenium Rhenium [Xe] 4f ¹⁴ 5d ⁵ 6s ² 186,21 3,4,5,6,7 3459 / 5869 21030 1,09 / 4,02	76 Os Osmium Osmium [Xe] 4f ¹⁴ 5d ⁶ 6s ² 190,23(3) 2,3,4,5,6,7,8 3306 / 5285 22590 2,2 / 4,9	77 Ir Iridium Iridium [Xe] 4f ¹⁴ 5d ⁷ 6s ² 192,22 2,3,4,5,6,9 2719 / 4403 22560 2,2 / 5,4	78 Pt Platin Platinum [Xe] 4f ¹⁴ 5d ⁹ 6s 195,08 1,3,5 2041,4 / 4098 22560 2,28 / 5,6	79 Au Gold Gold [Xe] 4f ¹⁴ 5d ¹⁰ 6s 196,967 1,2 1337,33 / 3243 21450 2,54 / 5,77	80 Hg Quecksilber Mercury [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 200,59 1,2 234,32 / 629,88 21450 2 / 4,91	81 Tl Thallium Thallium [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p [204,38; 204,39] 1,3 577 / 1746 2,04 / 3,2	82 Pb Blei Lead [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ² 207,2 2,4 600,61 / 2022 11850 2,33 / 3,9	83 Bi Bismut Bismuth [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ³ [209] 2,4,6 544,7 / 1837 9800 2,02 / 4,69	84 Po Polonium Polonium [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁴ [209] 2,4,6 527 / 1235 (alpha) 9800 2,02 / 4,69	85 At Astatin Astatine [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁵ [210] 2,4,6 575 / (ca.) 610 9800 2,2 / -	86 Rn Radon Radon [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁶ [222] 0,2 202 / 211,5 9,23
104 Rf Rutherfordium Rutherfordium [Rn] 5f ¹⁴ 6d ⁷ 7s ² [267] 4 (vermutet)	105 Db Dubnium Dubnium [Rn] 5f ¹⁴ 6d ³ 7s ² [270] 3,4,5 (vermutet)	106 Sg Seaborgium Seaborgium [Rn] 5f ¹⁴ 6d ⁷ 7s ² [269] 6 (vermutet)	107 Bh Bohrium Bohrium [Rn] 5f ¹⁴ 6d ⁷ 7s ² [270] 7	108 Hs Hassium Hassium [Rn] 5f ¹⁴ 6d ⁶ 7s ² [277] 8 (vermutet)	109 Mt Meitnerium Meitnerium [Rn] 5f ¹⁴ 6d ⁷ 7s ² [288] 3,4,6 (vermutet)	110 Ds Darmstadtium Darmstadtium [Rn] 5f ¹⁴ 6d ⁹ 7s ² [281] 2,4,6 (vermutet)	111 Rg Roentgenium Roentgenium [Rn] 5f ¹⁴ 6d ⁷ 7s ² [281] 3 (vermutet)	112 Cn Copernicium Copernicium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² [285] 2	113 Nh Nihonium Nihonium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p [286] 3	114 Fl Flerovium Flerovium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ² [289] 4	115 Mc Moscovium Moscovium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ³ [289] 3	116 Lv Livermorium Livermorium [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁴ [293] 2	117 Ts Tennessine Tennessine [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁵ [293] 1	118 Og Oganesson Oganesson [Rn] 5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ [294] 0
58 Ce Cer Cerium [Xe] 4f ¹ 5d ¹ 6s ² 140,12 3,4 1068 / 3716 6770 1,12 / -	59 Pr Praseodym Praseodymium [Xe] 4f ² 6s ² 140,91 3,4 1208 / 3403 6480 - / 1,13	60 Nd Neodym Neodymium [Xe] 4f ⁴ 6s ² 144,24 3,4 1297 / 3347 7000 1,14 / -	61 Pm Promethium Promethium [Xe] 4f ⁶ 6s ² [145] 3 1315 / 3273 7220	62 Sm Samarium Samarium [Xe] 4f ⁶ 6s ² 150,36(2) 3,4 1345 / 2173 7540 1,17 / -	63 Eu Europium Europium [Xe] 4f ⁷ 6s ² 151,96 3,4 1585 / 3273 7890 1,2 / -	64 Gd Gadolinium Gadolinium [Xe] 4f ⁷ 5d ¹ 6s ² 157,25(3) 3,4 1629 / 3396 7890 1,2 / -	65 Tb Terbium Terbium [Xe] 4f ⁹ 6s ² 158,93 3,4 1629 / 3396 8250	66 Dy Dysprosium Dysprosium [Xe] 4f ¹⁰ 6s ² 162,50 3,4 1680 / 2840 8560	67 Ho Holmium Holmium [Xe] 4f ¹¹ 6s ² 164,93 3,4 1734 / 2873 8780	68 Er Erbium Erbium [Xe] 4f ¹² 6s ² 167,26 3,4 1818 / 3141 9050	69 Tm Thulium Thulium [Xe] 4f ¹³ 6s ² 168,93 3,4 1897 / 1703 9320	70 Yb Ytterbium Ytterbium [Xe] 4f ¹⁴ 6s ² 173,05 3,4 1925 / 3675 6970	71 Lu Lutetium Lutetium [Xe] 4f ¹⁴ 5d ¹ 6s ² 174,97 3 1925 / 3675 9840 1,27 / -	
90 Th Thorium Thorium [Rn] 6d ² 7s ² 232,04 4 2115 / 5061 11720 1,3 / -	91 Pa Protactinium Protactinium [Rn] 5f ² 6d 7s ² 231,04 3,4,5,6 1841 / (ca.) 4300 15370 1,5 / -	92 U Uran Uranium [Rn] 5f ³ 6d 7s ² 238,03 3,4,5,6 1405,3 / 4404 917 / 4273 20480 1,38 / -	93 Np Neptunium Neptunium [Rn] 5f ⁴ 6d 7s ² [237] 3,4,5,6 2017 / 2607 917 / 4273 20480 1,36 / -	94 Pu Plutonium Plutonium [Rn] 5f ⁶ 7s ² [244] 3,4,5,6 242,061 / 244,064 19740 1,28 / -	95 Am Americium Americium [Rn] 5f ⁷ 7s ² [243] 3,4,5,6 243,061 / 243,064 19740 1,3 / -	96 Cm Curium Curium [Rn] 5f ⁸ 6d 7s ² [247] 3,4 247,070 / 247,073 13510 1,3 / -	97 Bk Berkelium Berkelium [Rn] 5f ⁹ 7s ² [247] 3,4 247,070 / 247,073 13510 1,3 / -	98 Cf Californium Californium [Rn] 5f ¹⁰ 7s ² [251] 3 251,083 / 251,086 13510 1,3 / -	99 Es Einsteinium Einsteinium [Rn] 5f ¹¹ 7s ² [252] 3 252,083 / 252,086 13510 1,3 / -	100 Fm Fermium Fermium [Rn] 5f ¹² 7s ² [257] 3 257,103 / 257,106 13510 1,3 / -	101 Md Mendelevium Mendelevium [Rn] 5f ¹³ 7s ² [258] 3 258,103 / 258,106 13510 1,3 / -	102 No Nobelium Nobelium [Rn] 5f ¹⁴ 7s ² [259] 3 259,103 / 259,106 13510 1,3 / -	103 Lr Lawrencium Lawrencium [Rn] 5f ¹⁴ 7s ² 7p [260] 3 260,103 / 260,106 13510 1,3 / -	

Elektronenkonfiguration
relative Atommasse
wichtige Oxidationszahlen
Schmelz- / Siedepunkt in Kelvin
Dichte in kg/m³ (bei 293 K)
Elektroneg. Pauling/Pearson

electron configuration
atomic weight
important oxidation numbers
melting / boiling point in Kelvin
density in kg/m³ (at 293 K)
electroneg. Pauling / Pearson