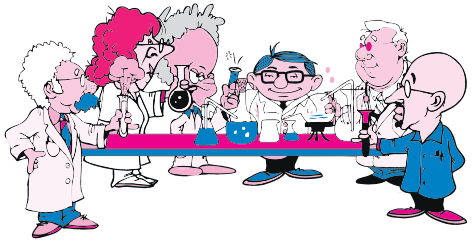
PanReac AppliChem

ITW Reagents

www.panreac.com • www.applichem.com



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 H 1.0079 −259.14 −252.87 2.2 Hydrogen −1, 1 $1s^1$																	2 He 4.0026 <−272.2 −268.93 Helium $1s^2$
3 Li 6.941 180.54 1347 1.0 Lithium 1 $He\ 2s^1$	4 Be 9.0122 1278 2970 1.5 Beryllium 2 $He\ 2s^2$											5 B 10.811 2079 2550 2.0 Boron 3 $He\ 2s^2\ 2p^1$	6 C 12.011 3367 4827 2.5 Carbon −4, 2, 4 $He\ 2s^2\ 2p^2$	7 N 14.007 −209.86 −195.8 3.1 Nitrogen −3, 2, 3, 4, 5 $He\ 2s^2\ 2p^3$	8 O 15.999 −218.4 −182.96 3.5 Oxygen −2, −1 $He\ 2s^2\ 2p^4$	9 F 18.998 −219.62 −188.14 4.1 Fluorine −1 $He\ 2s^2\ 2p^5$	10 Ne 20.18 −248.67 −246.05 Neon $He\ 2s^2\ 2p^6$
11 Na 22.990 97.81 882.9 1.0 Sodium 1 $Ne\ 3s^1$	12 Mg 24.305 648.8 1090 1.2 Magnesium 2 $Ne\ 3s^2$											13 Al 26.982 660.37 2467 1.5 Aluminium 3 $Ne\ 3s^2\ 3p^1$	14 Si 28.086 1410 2355 1.7 Silicon 4 $Ne\ 3s^2\ 3p^2$	15 P 30.974 44.1 280 2.1 Phosphorus −3, 3, 5 $Ne\ 3s^2\ 3p^3$	16 S 32.066 112.8 444.67 2.4 Sulfur −2, 2, 4, 6 $Ne\ 3s^2\ 3p^4$	17 Cl 35.453 −100.98 −34.6 2.8 Chlorine −1, 1, 3, 5, 7 $Ne\ 3s^2\ 3p^5$	18 Ar 39.948 −189.2 −185.7 Argon $Ne\ 3s^2\ 3p^6$
19 K 39.098 63.65 774 0.9 Potassium 1 $Ar\ 4s^1$	20 Ca 40.078 839 1484 1.0 Calcium 2 $Ar\ 4s^2$	21 Sc 44.956 1541 2831 1.2 Scandium 3 $Ar\ 3d^1\ 4s^2$	22 Ti 47.87 1660 3287 1.3 Titanium 3, 4 $Ar\ 3d^2\ 4s^2$	23 V 50.942 1890 3380 1.5 Vanadium 2, 3, 4, 5 $Ar\ 3d^3\ 4s^2$	24 Cr 51.996 1857 2672 1.6 Chromium 2, 3, 6 $Ar\ 3d^5\ 4s^1$	25 Mn 54.938 1244 1962 1.6 Manganese 2, 3, 4, 6, 7 $Ar\ 3d^5\ 4s^2$	26 Fe 55.845 1535 2750 1.6 Iron 2, 3, 6 $Ar\ 3d^6\ 4s^2$	27 Co 58.933 1495 2870 1.7 Cobalt 2, 3 $Ar\ 3d^7\ 4s^2$	28 Ni 58.693 1453 2732 1.8 Nickel 2, 3 $Ar\ 3d^8\ 4s^2$	29 Cu 63.546 1083 2567 1.8 Copper 1, 2 $Ar\ 3d^{10}\ 4s^1$	30 Zn 65.38 419,6 907 1.7 Zinc 2 $Ar\ 3d^{10}\ 4s^2$	31 Ga 69.723 29.78 2403 1.8 Gallium 3 $Ar\ 3d^{10}\ 4s^2\ 4p^1$	32 Ge 72.63 937.4 2830 2.0 Germanium 4 $Ar\ 3d^{10}\ 4s^2\ 4p^2$	33 As 74.922 817 613 2.2 Arsenic −3, 3, 5 $Ar\ 3d^{10}\ 4s^2\ 4p^3$	34 Se 78.96 217 684.9 2.5 Selenium −2, 4, 6 $Ar\ 3d^{10}\ 4s^2\ 4p^4$	35 Br 79.904 −7.2 58.78 2.7 Bromine −1, 1, 3, 5, 7 $Ar\ 3d^{10}\ 4s^2\ 4p^5$	36 Kr 83.80 −156,6 −152.3 Krypton $Ar\ 3d^{10}\ 4s^2\ 4p^6$
37 Rb 85.468 38.89 688 0.9 Rubidium 1 $Kr\ 5s^1$	38 Sr 87.62 769 1384 1.0 Strontium 2 $Kr\ 5s^2$	39 Y 88.906 1522 3338 1.1 Yttrium 3 $Kr\ 4d^1\ 5s^2$	40 Zr 91.224 1852 4377 1.2 Zirconium 4 $Kr\ 4d^2\ 5s^2$	41 Nb 92.906 2468 4742 1.2 Niobium 3, 5 $Kr\ 4d^4\ 5s^1$	42 Mo 95.96 2617 4612 1.3 Molybdenum 2, 3, 4, 5, 6 $Kr\ 4d^5\ 5s^1$	43 Tc *98.906 2172 4877 1.4 Technetium 7 $Kr\ 4d^6\ 5s^1$	44 Ru 101.07 2310 3900 1.4 Ruthenium 3, 4, 8 $Kr\ 4d^7\ 5s^1$	45 Rh 102.91 1966 3727 1.5 Rhodium 1, 2, 3, 4 $Kr\ 4d^8\ 5s^1$	46 Pd 106.42 1552 3140 1.4 Palladium 2, 4 $Kr\ 4d^{10}$	47 Ag 107.87 961.9 2212 1.4 Silver 1, 2 $Kr\ 4d^{10}\ 5s^1$	48 Cd 112.41 320.9 765 1.5 Cadmium 2 $Kr\ 4d^{10}\ 5s^2$	49 In 114.82 156.6 2080 1.5 Indium 3 $Kr\ 4d^{10}\ 5s^2\ 5p^1$	50 Sn 118.71 232.0 2270 1.7 Tin 2, 4 $Kr\ 4d^{10}\ 5s^2\ 5p^2$	51 Sb 121.76 630.7 1750 1.8 Antimony −3, 3, 5 $Kr\ 4d^{10}\ 5s^2\ 5p^3$	52 Te 127.60 449.5 990 2.0 Tellurium −2, 4, 6 $Kr\ 4d^{10}\ 5s^2\ 5p^4$	53 I 126.90 113.5 184.4 2.2 Iodine −1, 1, 3, 5, 7 $Kr\ 4d^{10}\ 5s^2\ 5p^5$	54 Xe 131.29 −111.9 −107.1 Xenon $Kr\ 4d^{10}\ 5s^2\ 5p^6$
55 Cs 132.91 28.40 678.4 0.9 Caesium 1 $Xe\ 6s^1$	56 Ba 137.33 725 1640 1.0 Barium 2 $Xe\ 6s^2$		72 Hf 178.49 2227 4602 1.2 Hafnium 4 $Xe\ 4f^{14}\ 5d^2\ 6s^2$	73 Ta 180.95 2996 5425 1.3 Tantalum 5 $Xe\ 4f^{14}\ 5d^3\ 6s^2$	74 W 183.84 3410 5660 1.4 Tungsten 2, 3, 4, 5, 6 $Xe\ 4f^{14}\ 5d^4\ 6s^2$	75 Re 186.21 3180 5627 1.5 Rhenium 2, 4, 7 $Xe\ 4f^{14}\ 5d^5\ 6s^2$	76 Os 190.23 3045 5027 1.5 Osmium 2, 3, 4, 6, 8 $Xe\ 4f^{14}\ 5d^6\ 6s^2$	77 Ir 192.22 2410 4130 1.6 Iridium 1, 2, 3, 4, 6 $Xe\ 4f^{14}\ 5d^7\ 6s^2$	78 Pt 195.08 1772 3827 1.4 Platinum 2, 4 $Xe\ 4f^{14}\ 5d^9\ 6s^1$	79 Au 196.97 1064 2807 1.4 Gold 1, 3 $Xe\ 4f^{14}\ 5d^{10}\ 6s^1$	80 Hg 200.59 −38.84 356.6 1.5 Mercury 1, 2 $Xe\ 4f^{14}\ 5d^{10}\ 6s^2$	81 Tl 204.38 303.5 1457 1.4 Thallium 1, 3 $Xe\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p^1$	82 Pb 207.2 327.5 1740 1.6 Lead 2, 4 $Xe\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p^2$	83 Bi 208.98 271.3 1560 1.7 Bismuth 3, 5 $Xe\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p^3$	84 Po *209.98 254 962 1.8 Polonium 2, 4, 6 $Xe\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p^4$	85 At *209.99 302 337 2.0 Astatine −1, 2, 3, 5, 7 $Xe\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p^5$	86 Rn *222.02 −71 −61.8 Radon $Xe\ 4f^{14}\ 5d^{10}\ 6s^2\ 6p^6$
87 Fr *223.02 27 677 0.9 Francium 1 $Rn\ 7s^1$	88 Ra *226.03 700 1140 1.0 Radium 2 $Rn\ 7s^2$		104 Rf *261.11 Rutherfordium $Rn\ 5f^{14}\ 6d^2\ 7s^2$	105 Db *262.11 Dubnium $Rn\ 5f^{14}\ 6d^3\ 7s^2$	106 Sg *263.12 Seaborgium $Rn\ 5f^{14}\ 6d^4\ 7s^2$	107 Bh *262.12 Bohrium $Rn\ 5f^{14}\ 6d^5\ 7s^2$	108 Hs 265 Hassium $Rn\ 5f^{14}\ 6d^6\ 7s^2$	109 Mt 266 Meitnerium $Rn\ 5f^{14}\ 6d^7\ 7s^2$	110 Ds 269 Darmstadtium	111 Rg 272 Roentgenium	112 Cn 277 Copernicium	113 Uut 287 Ununtrium	114 Fl 289 Flerovium	115 Uup 288 Ununpentium	116 Lv 289 Livermorium	117 Uus 293 Ununseptium	118 Uuo 294 Ununoctium

Lanthanoiden Lanthanides Lantánidos	57 La 138.91 921 3457 1.1 Lanthanum 3 $Xe\ 5d^1\ 6s^2$	58 Ce 140.12 799 3426 1.1 Cerium 3, 4 $Xe\ 4f^1\ 5d^1\ 6s^2$	59 Pr 140.91 931 3512 1.1 Praseodymium 3, 4 $Xe\ 4f^3\ 6s^2$	60 Nd 144.24 1021 3068 1.1 Neodymium 3 $Xe\ 4f^4\ 6s^2$	61 Pm *146.92 1168 2460 1.1 Promethium 3 $Xe\ 4f^5\ 6s^2$	62 Sm 150.36 1077 1791 1.1 Samarium 2, 3 $Xe\ 4f^6\ 6s^2$	63 Eu 151.96 822 1597 1.0 Europium 2, 3 $Xe\ 4f^7\ 6s^2$	64 Gd 157.25 1313 3266 1.1 Gadolinium 3 $Xe\ 4f^7\ 5d^1\ 6s^2$	65 Tb 158.93 1356 3123 1.1 Terbium 3, 4 $Xe\ 4f^9\ 6s^2$	66 Dy 162.50 1412 2562 1.1 Dysprosium 3 $Xe\ 4f^{10}\ 6s^2$	67 Ho 164.93 1474 2695 1.1 Holmium 3 $Xe\ 4f^{11}\ 6s^2$	68 Er 167.26 1497 2900 1.1 Erbium 3 $Xe\ 4f^{12}\ 6s^2$	69 Tm 168.93 1545 1947 1.1 Thulium 2, 3 $Xe\ 4f^{13}\ 6s^2$	70 Yb 173.04 819 1194 1.1 Ytterbium 2, 3 $Xe\ 4f^{14}\ 6s^2$	71 Lu 174.97 1663 3395 1.1 Lutetium 3 $Xe\ 4f^{14}\ 5d^1\ 6s^2$
Actinoiden Actinides Actínidos	89 Ac *227.03 1050 3200 1.0 Actinium 3 $Rn\ 6d^1\ 7s^2$	90 Th *232.04 1750 4790 1.1 Thorium 4 $Rn\ 6d^2\ 7s^2$	91 Pa *231.04 1600 1.1 Protactinium 4, 5 $Rn\ 5f^2\ 6d^1\ 7s^2$	92 U *238.03 1132 3818 1.2 Uranium 3, 4, 5, 6 $Rn\ 5f^3\ 6d^1\ 7s^2$	93 Np *237.05 640 3902 1.2 Neptunium 3, 4, 5, 6 $Rn\ 5f^4\ 6d^1\ 7s^2$	94 Pu *244.06 641 3232 1.2 Plutonium 3, 4, 5, 6 $Rn\ 5f^6\ 7s^2$	95 Am *243.06 994 2607 ~1.2 Americium 3, 4, 5, 6 $Rn\ 5f^7\ 7s^2$	96 Cm *247.07 1340 ~1.2 Curium 3, 4 $Rn\ 5f^7\ 6d^1\ 7s^2$	97 Bk *247.07 ~1.2 Berkelium 3, 4 $Rn\ 5f^9\ 7s^2$	98 Cf *251.08 ~1.2 Californium 3, 4 $Rn\ 5f^{10}\ 7s^2$	99 Es *252.08 ~1.2 Einsteinium 3 $Rn\ 5f^{11}\ 7s^2$	100 Fm *257.18 ~1.2 Fermium 3 $Rn\ 5f^{12}\ 7s^2$	101 Md *258.10 ~1.2 Mendelevium 3 $Rn\ 5f^{13}\ 7s^2$	102 No *259.10 Nobelium 2, 3 $Rn\ 5f^{14}\ 7s^2$	103 Lr *262.11 Lawrencium 3 $Rn\ 5f^{14}\ 6d^1\ 7s^2$

1 Ordnungszahl
2 Elementsymbol
3 Relative Atommasse
4 Schmelzpunkt
5 Siedepunkt
6 Elektronegativität (Allred, Rochow)
7 Oxidationsstufen
8 Elektronenkonfiguration

1 Atomic number
2 Element symbol
3 Relative atomic mass
4 Melting point
5 Boiling point
6 Electronegativity (Allred, Rochow)
7 Oxidations states
8 Electron configuration

1 Número atómico
2 Símbolo del elemento
3 Peso atómico relativo
4 Punto de fusión
5 Punto de ebullición
6 Electronegatividad (Allred, Rochow)
7 Niveles de oxidación
8 Configuración electrónica

1 4 9.0122 3
1278 4
2970 5
1.5 6
2 Be
Beryllium
2 7
$He\ 2s^2$ 8

* stabilstes Isotop | most stable isotope | isótopo más estable

Metalle | metals | metales

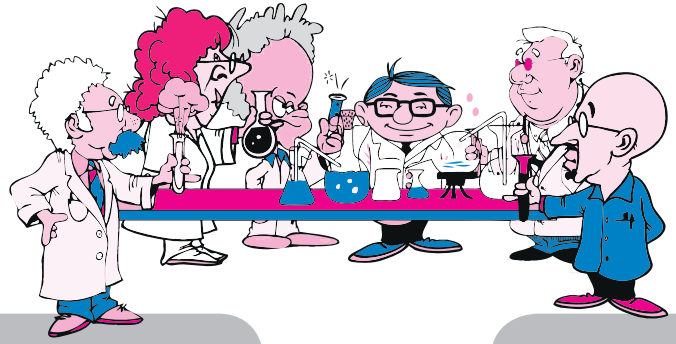
Nichtmetalle | nonmetals | metaloides

Übergangsmetalle | transition metals | elementos de transición

Elemente der f-Reihe | elements of the f-series | elementos de la serie f

Gruppennummerierung | column labelling | número de grupo

IUPAC, Nomenclature of Inorganic Chemistry



PanReac AppliChem
ITW Reagents

Laboratory application products

Analytical reagents and chemicals for laboratory
- Analytical reagents
- Reagents for the analysis of metallic traces
- Reagents and solvents for instrumental analysis
- Reagents for volumetric analysis
- Analytical standards
- Reagents and solvents for specific applications
- Reagents and solvents for organic synthesis

Products for microbiology
- Dehydrated culture media
- Prepared media
- Contact plates

Products for life sciences
- Biochemicals, buffers, detergents, antibiotics
- Cell culture reagents and additives
- Molecular biology reagents

Industrial application products

Pharmaceutical industry products
- GMP products: according to USP/BP/Ph. Eur. and IPEC-PQG 2006 GMP guide for pharmaceutical excipients.
- Products and solutions that meet the requirements of the pharmaceutical industry according to:
  - European Pharmacopoeia (Ph. Eur.)
  - United States Pharmacopeia (USP)
  - British Pharmacopoeia (BP)

Aditio: Food industry products
- Additives that meet the requirements of the food industry according to:
  - European Directives
  - Food Chemicals Codex (FCC)

Organic synthesis
Our experience as manufacturers of organic fine chemicals, the knowledge of our specialized staff in organic synthesis and a modern multipurpose plant provides the perfect mix for being your European partner for custom synthesis.

HUBERLAB. AG
Industriestrasse 123
4147 Aesch

T 061 717 99 77
F 061 711 93 42

www.huberlab.ch
info@huberlab.ch

HUBERLAB.
committed to science