|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 Hydro-gen  H  1.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2  Helium  He  4.0 |
| 3  Lithium  Li  6.9 | 4  Beryl-lium  Be  9.0 |  |  |  |  |  |  |  |  |  |  | 5  Boron  B  10.8 | 6  Carbon  C  12.0 | 7  Nitro-gen  N  14.0 | 8  Oxygen  O  16.0 | 9  Fluor-ine  F  19.0 | 10  Neon  Ne  20.2 |
| 11  Sodium  Na  23.0 | 12  Magne-sium  Mg  24.3 |  |  |  |  |  |  |  |  |  |  | 13  Alumi-num  Al  27.0 | 14  Silicon  Si  28.1 | 15  Phos-phorous  P  31.0 | 16  Sulfur  S  32.1 | 17  Chlor-ine  Cl  35.5 | 18  Argon  Ar  39.9 |
| 19  Potas-sium  K  39.1 | 20  Calc-ium  Ca  40.1 | 21  Scan-dium  Sc  45.0 | 22  Titan-ium  Ti  47.9 | 23  Vana-dium  V  50.9 | 24  Chrom-ium  Cr  52.0 | 25  Manga-nese  Mn  54.9 | 26  Iron  Fe  55.8 | 27  Cobalt  Co  58.9 | 28  Nickel  Ni  58.7 | 29  Copper  Cu  63.5 | 30  Zinc  Zn  65.4 | 31  Gall-ium  Ga  69.7 | 32  Germa-nium  Ge  72.6 | 33  Arsenic  As  74.9 | 34  Sele-nium  Se  79.0 | 35  Brom-ine  Br  79.9 | 36  Kryp-ton  Kr  83.8 |
| 37  Rubi-dium  Rb  85.5 | 38  Stron-tium  Sr  87.6 | 39  Yttrium  Y  88.9 | 40  Zirco-nium  Zr  91.2 | 41  Niob-ium  Nb  92.9 | 42  Molyb-denum  Mo  95.9 | 43  Tech-netium  Tc  (98) | 44  Ruthe-nium  Ru  101.1 | 45  Rhod-ium  Rh  102.9 | 46  Palla-dium  Pd  106.4 | 47  Silver  Ag  107.9 | 48  Cad-mium  Cd  112.4 | 49  Indium  In  114.8 | 50  Tin  Sn  118.7 | 51  Anti-mony  Sb  121.8 | 52  Tellu-rium  Te  127.6 | 53  Iodine  I  126.9 | 54  Xenon  Xe  131.3 |
| 55  Cesium  Cs  132.9 | 56  Barium  Ba  137.3 | 57\*  Lanth-anum  La  138.9 | 72  Hafn-ium  Hf  178.5 | 73  Tanta-lum  Ta  180.9 | 74  Tung-sten  W  183.8 | 75  Rhen-ium  Re  186.2 | 76  Osm-ium  Os  190.2 | 77  Iridium  Ir  192.2 | 78  Plati-num  Pt  195.1 | 79  Gold  Au  197.0 | 80  Merc-ury  Hg  200.6 | 81  Thall-ium  Tl  204.4 | 82  Lead  Pb  207.2 | 83  Bis-muth  Bi  208.9 | 84  Polo-nium  Po  (209) | 85  Astat-ine  At  (210) | 86  Radon  Rn  (222) |
| 87  Fran-cium  Fr  (223) | 88  Radium  Ra  (226) | 89\*\*  Actin-ium  Ac  (227) | 104  Ruther-fordium  Rf  (261) | 105  Dub-nium  Db  (262) | 106  Seabor-gium  Sg  (263) | 107  Bohr-ium  Bh  (262) | 108  Hass-ium  Hs  (265) | 109  Metn-erium  Mt  (266) | 110  Ununn-ilium  Uun  (269) | 111  Ununu-nium  Uuu  (272) | 112  Copern-icium  Cp  (277) | 113  Ununt-rium  Uuh  (?) | 114  Ununt-etrium  Uuq  (289) | 115  Ununp-enium  Uuh  (?) | 116  Ununh-exium  Uuh  (?) | 117  Ununh-eptium  Uuo  (?) | 118  Ununo-ctium  Uuo  (?) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 58\*  Cerium  Ce  140.1 | 59  Prase-odym  Pr  140.9 | 60  Neody-mium  Nb  144.2 | 61  Prome-thium  Pm  (147) | 62  Samar-ium  Sm  150.4 | 63  Euro-pium  Eu  152.0 | 64  Gado-linium  Gd  157.2 | 65  Terb-ium  Tb  158.9 | 66  Dyspr-osium  Dy  162.5 | 67  Hol-mium  Ho  164.9 | 68  Erbium  Er  167.3 | 69  Thul-ium  Tm  168.9 | 70  Ytter-bium  Yb  173.0 | 71  Lutet-ium  Lu  175.0 |  |
|  |  |  | 90\*\*  Thor-ium  Th  232.0 | 91  Prota-ctin  Pa  (231) | 92  Uran-ium  U  (238) | 93  Neptu-nium  Np  (237) | 94  Pluto-nium  Pu  (244) | 95  Amer-icium  Am  (243) | 96  Curium  Cm  (247) | 97  Berke-lium  Bk  (247) | 98  Calif-ornium  Cf  (251) | 99  Einst-einium  Es  (252) | 100  Ferm-ium  Fm  (257) | 101  Mende-levium  Md  (258) | 102  Nobel-ium  No  (259) | 103  Lawre-ncium  Lr  (262) |  |

Prefixes for

non-metal

Compounds

1 – mono

2 – di

3 – tri

4 – tetra

5 – penta

6 – hexa

7 – hepta

8 – octa

9 – nona

10 – deca

**Some Common Ions**

**CATIONS +1 +2 +3, +4 to +7**

hydrogen H+

lithium Li+ boron B3+

sodium Na+ magnesium Mg2+ aluminum Al3+

potassium K+ calcium Ca2+ gallium Ga3+

rubidium Rb+ strontium Sr2+ indium In3+

cesium Cs+ barium Ba2+ thallium Tl3+

silver Ag+  zinc Zn2+

titanium(II) Ti2+ titanium (III) Ti3+ titanium (IV) Ti4+

chromium (II) Cr2+ chromium (III) Cr3+ chromium (VI) Cr6+

manganese (III) Mn3+ manganese (III) Mn5+ manganese (VII) Mn7+

iron (II) Fe2+ iron (III) Fe3+

copper (I) Cu+ copper (II) Cu2+

zirconium (II) Zr2+ zirconium (III) Zr3+ zirconium (IV) Zr4+

molybdenum Mo2+ molybdenum Mo3+ molybdenum Mo6+

tin (II) Sn2+ tin (IV) Sn4+

mercury (I) Hg22+ mercury (II) Hg2+

lead (II) Pb2+ lead (IV) Pb4+

ammonium NH4+

**ANIONS -1 -2 -3, -4**

Hydride\* H- carbideC4-

fluoride F- oxide O2- nitride N3-

chloride Cl- sulfide S-2 phosphide P3-

bromide Br-

iodide I- oxalate C2O42-

thiosulfate S2O32-

**per**fluor**ate** **F**O4- chromate CrO42-

chlor**ate** **Cl**O3- dichromate Cr2O72-

brom**ite** **Br**O2-

**hypo**iod**ite** **I**O- hydrogen carbonate HCO3- carbonate CO32-

dihydrogen phosphite H2PO3- hydrogen phosphite HPO32- phosphite PO33-

hydroxide OH- dihydrogen phosphate H2PO4- hydrogen phosphate HPO42- phosphate PO43-nitrite NO2- hydrogen sulfite HSO3- sulfite SO32-

nitrate NO3- hydrogen sulfate HSO4- sulfate SO42-

acetate C2H3O2- dihydrogen arsenite H2AsO3- hydrogen arsenite HAsO32- arsenite AsO33-

permanganate MnO4- dihydrogen arsenate H2AsO4- hydrogen arsenate HAsO42- arsenate AsO43-

thiocyanate -SCN-

cyanide -CN-

isocyanide -NC-

\*metals only