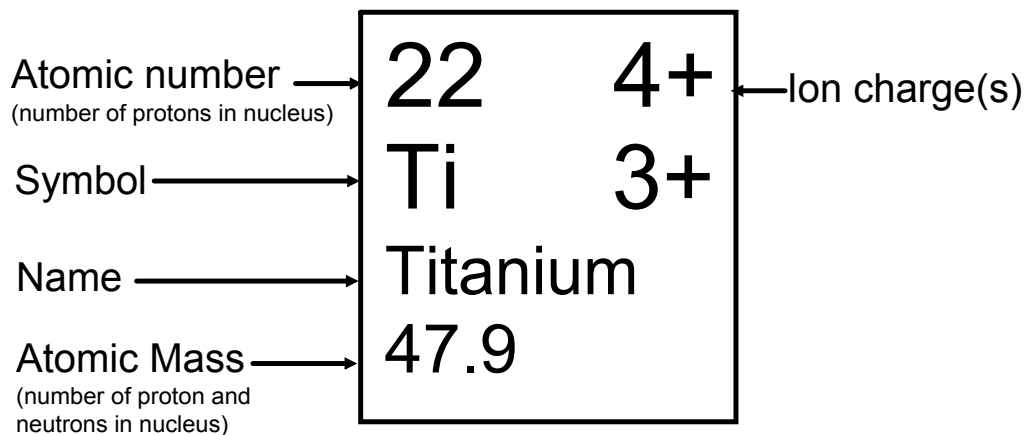


Chemistry

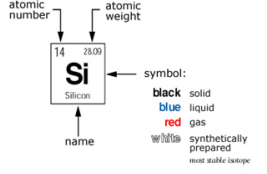
The Periodic Table



Periodic Table of the Elements



1 H Hydrogen	2 He Helium																
3 Li Lithium	4 Be Beryllium	5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon										
11 Na Sodium	12 Mg Magnesium	13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon										
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon
55 Cs Cesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon
87 Fr Francium	88 Ra Radium	Ac Actinium	Rf Rutherfordium	Ha Hahnium	Sg Seaborgium	Bh Bohrium	Hs Hassium	Mt Meitnerium				(113)	(114)	(115)	(116)	(117)	(118)
58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium				
90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium				



- alkali metals
- alkaline earth metals
- transitional metals
- other metals
- nonmetals
- noble gases

black solid
blue liquid
red gas
synthetically prepared
most stable isotope

Ionic Compounds - a compound composed of oppositely charged ions (typically a +ve metal and -ve non-metal) in which electrons are transferred from a metal to a non-metal

Anion - a negatively charged ion

Cation - a positively charged ion

Molecular Compound - a compound composed of two non-metals which share electrons

Naming Binary Ionic Compounds

1) the first part of the name is always the +ve metal cation(sodium, nickel, iron, etc...)

2) the second part of the name is always the -ve non-metal anion and uses the suffix -ide at the end of the non-metal (chloride, iodide, oxide, etc...)

Example:

NaCl - Sodium and Chlorine = Sodium Chloride

CaBr - Calcium and bromine = Calcium Bromide

Al₂O₃ - Aluminum and Oxygen = Aluminum Oxide

Naming Ionic Compounds with a Multivalent Metal

1) the first part of the name is always the +ve metal cation with its ion charge written in brackets as a roman numeral (sodium, nickel, iron, etc...)

2) the second part of the name is always the -ve non-metal anion and uses the suffix -ide at the end of the non-metal (chloride, iodide, oxide, etc...)

Example:

Cu_3N - Copper and Nitrogen = Copper (I) Nitride

Fe_2O_3 - Iron and Oxygen = Iron (III) Oxide

Naming Compounds with a Polyatomic Ion

- 1) the first part of the name is always the +ve ion (sodium, nickel, iron, etc..)
- 2) the second part of the name is always the -ve polyatomic ion (nitrate, carbonate, phosphate, etc...)

Example:

K_3PO_4 - Potassium and Phosphate - Potassium Phosphate

Naming Molecular Compounds

- 1) name the element furthest to the left first on the Table of Elements
- 2) change the ending of the second non-metal to -ide
- 3) use a prefix to specify the number of each element present

Example:

CO₂ - Carbon Dioxide *don't use mono prefix on the first element

SF₆ - Sulfur Hexafluoride

H₂O₂ - Dihydrogen Dioxide or hydrogen peroxide

mono	1
di	2
tri	3
tetra	4
penta	5
hexa	6
hepta	7
octa	8

Quick Review

Know how to name:

- Binary Ionic Compounds
- Ionic Compounds with Multivalent Metals
- Ionic Compounds with Polyatomic Ions
- Molecular Compounds

Example: Name the following compounds

- a) CaF_2
- b) PbBr_2
- c) KMnO_4
- d) CO_2

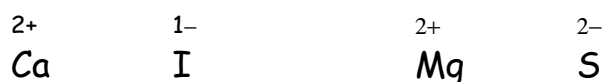
Writing Chemical Formulas for Binary Ionic Compounds

Write the formulas for Calcium Iodide and Magnesium Sulfide

Step 1. Write the symbols with the metal cation first.



Step 2. Write the ionic charge above each symbol indicating its ion.



Step 3. Use cross-over method to balance the charges in the compound



Step 4. Reduce if necessary MgS

Step 5. Check your solution by drawing Lewis Dot diagram arrangement for the compound

Writing Formulas for compounds with Polyatomic Ions

Write the formulas for Calcium Nitrate and Magnesium Sulfate

Step 1. Write the symbols with the metal cation first.



Step 2. Write the ionic charge above each symbol indicating its ion.



Step 3. Use cross-over method to balance the charges in the compound



Step 4. Reduce if necessary MgSO_4

