

9/02/25

Name:

Key!

Chapter 2: Atoms, Molecules, and Ions

Naming of Compounds

Given the chemical formula and compound type, determine the systematic name for each compound below:

CaO Type I Binary Compound	calcium metal oxygen nonmetal = ionic <u>Calcium Oxide</u>
PCl ₅ Type III Binary Compound	phosphorus nonmetal chlorine nonmetal = covalent <u>Phosphorus Pentachloride</u>
OH ⁻ Polyatomic Ion	<u>Hydroxide</u>
^{+4?} MnO ₂ ⁻² = +4 = 0 Type II Binary Compound	Manganese metal oxygen nonmetal = ionic <u>Manganese (IV) oxide</u>
PCl ₃ Type III Binary Compound	phosphorus nm chlorine nm = covalent <u>Phosphorus trichloride</u>
Na ₂ CO ₃ Compound Containing Polyatomic Ion	<u>Sodium Carbonate</u>
Cu ⁺ CuCl Cl ⁻ = 0 Type II Binary Compound	Copper T. metal chlorine nm = ionic <u>Copper (I) chloride</u>
NaCl Type I Binary Compound	<u>Sodium Chloride</u>
gained 3 electrons N ³⁻ Anion	<u>Nitride</u>
H ₂ Diatomic Molecule	<u>Hydrogen</u>

Given the systematic name and compound type, determine the chemical formula for each compound below:

$\text{Be} \rightarrow \text{Be}^{2+}$ Beryllium Cation lost electrons		Be^{2+}
Ionic	+1 Cesium fluoride -1 = 0 Type I Binary Compound	Cs F
covalent	Carbon monoxide Type III Binary Compound	CO
ionic	+2 Manganese(II) hydroxide -1 = 0 Compound Containing Polyatomic Ion	$\text{Mn}(\text{OH})_2$
ionic	+1 Lithium peroxide O_2^{2-} = 0 Type I Binary Compound	Li_2O_2
ionic	+1 Lithium nitride -3 = 0 Type I Binary Compound	Li_3N
ionic	+3 Aluminum oxide -2 = 0 Type I Binary Compound	Al_2O_3
ionic	+1 Potassium bromate -1 = 0 Compound Containing Polyatomic Ion	K BrO_3
ionic	+1 Sodium sulfate -2 Compound Containing Polyatomic Ion	Na_2SO_4
	-6 Sulfur hexafluoride -1 Type III Binary Compound	SF_6



Breakdown to Nomenclature!

Compounds

Ionic

(metal + nonmetal)

(metal + polyatomic ion)

Binary

-always end
in -ide

Ternary

end in -ite
or -ate

H
may use
Roman numerals

Molecular
Covalent

2 or more nonmetals

Acids

begins with
Hydrogen

Binary

Molecular

end in
-ide
use prefixes