

CHEMICAL NOMENCLATURE

Binary Ionic Compounds

Name: List the cation first, then the anion, giving the anion the -ide ending.

Formula:

1. Must be electrically neutral
2. Must be in lowest terms

Write names and formulas for the binary ionic compounds containing the following pairs of elements.

1. bromine and magnesium
2. aluminum and chlorine
3. nitrogen and strontium
4. Calcium and oxygen
5. phosphorus and sodium

1. Mg^{2+}
magnesium
ion

Br^{-}
bromide
ion

Name: magnesium bromide

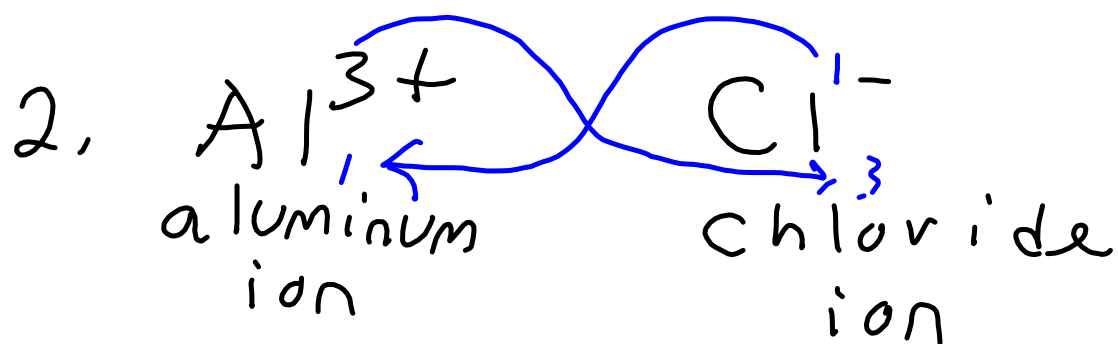
Formula $Mg^{2+} Br^{-}_2$ ✓

total $2+$ $2-$ → ~~⊗~~
neutral

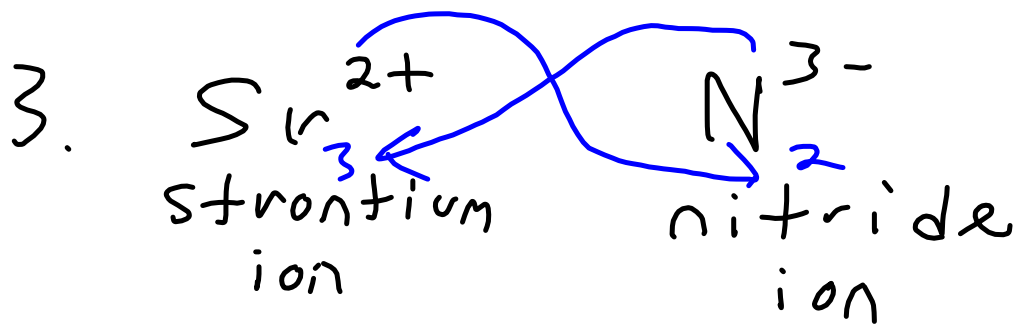
EACH $2+$ $1-$
 $Mg_2 Br$ ✗
total $4+$ $4-$

not in
lowest
terms

→ ~~⊗~~
Neutral

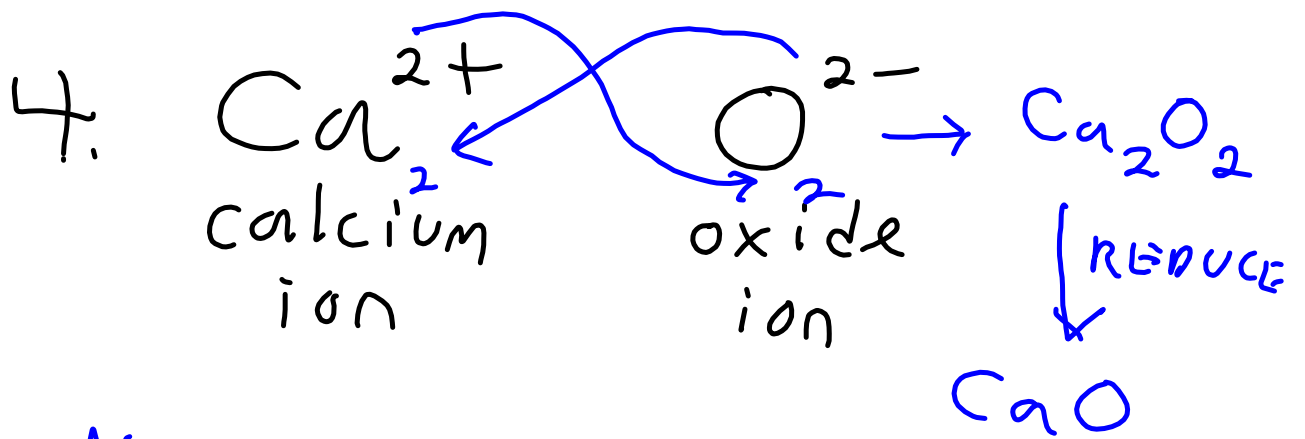


Name: aluminum chloride
Formula: $AlCl_3$



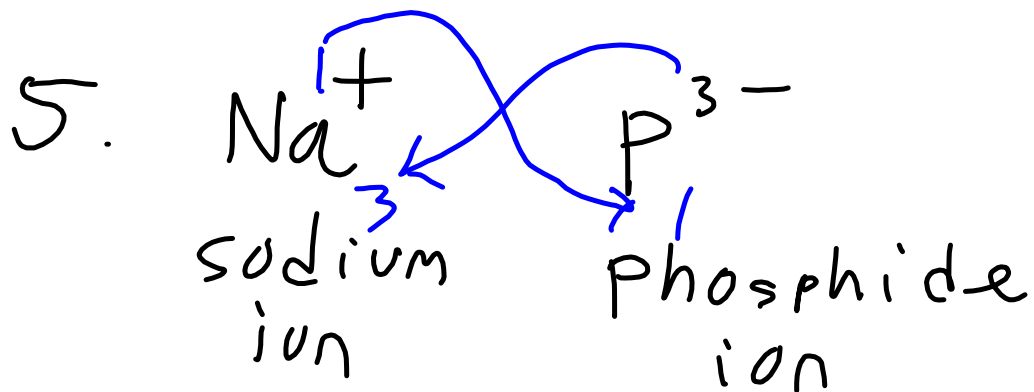
Name: strontium nitride

Formula: Sr_3N_2



Name: calcium oxide

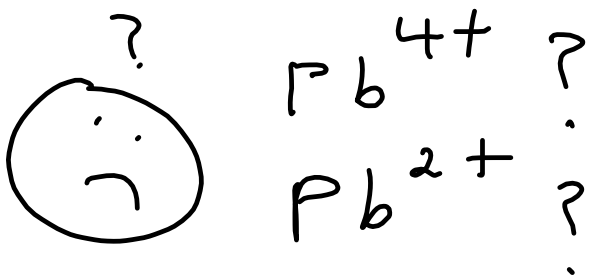
Formula: CaO



Name: sodium phosphide

Formula: Na_3P

"sodium ion"  Na^+

"lead ion"  Pb^{4+} ?
 Pb^{2+} ?

Two ways to avoid the ambiguity.

1. Stock system - Uses a Roman number in parentheses after the name of the metal, to indicate the number of positive charges.

2. Use the suffixes -ic (for higher charge) and -ous (for lower charge)

Pb^{4+} lead(IV) ion
Plumbic ion

Pb^{2+} lead(II) ion
Plumbous ion

Cr^{3+}

Cr^{2+}

Mn^{3+}

Mn^{2+}

Fe^{3+}

Fe^{2+}

Co^{3+}

Co^{2+}

Ni^{2+}

Co^{2+}

Cu^{+}

Ag^{+}

Au^{3+}

Au^{+}

