Naming/Writing Formulas-Ionic

Given a name → formula

e.g. 1. Sodium chloride ← compound

Na^+ Cl^- ← Balanced

* NaCl

2. Magnesium chloride

Mg^{2+} Cl^-

$MgCl_2$ (balance)

3. Aluminum Oxide

Al^{3+} O^{-2}

Al_2O_3 – balance

* Given formula → chemical name

e.g. 1. K_2O K^+ O^{-2} balance

K^+ O^{-2} K^+

potassium oxide 2+ (1−)2

2. Complex ion $Ca(NO_3)_2$

Calcium nitrate

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(choose)

Covalent Bonding

Consider - H_2 (gas)

$\dot{H}$ $\dot{H}$? bonding

Table of ions

H^+ H^+

Proposed - sharing e^-

Atoms "try" to become more stable
Achieve a noble gas arrangement

H(:)H Opposite charges attract simultaneously - bond

\+ − +

Covalent Bond - between two or more non-metal atoms

Naming Molecular Compounds (Covalent)

Examples -

1. CO_2 — carbon dioxide
   prefix

2. CO — carbon monoxide
   text p. 23 - table (prefixes)

3. N_2O_5 ← no balance "+" "−"
   −3 −2
   ↳ dinitrogen pentaoxide

4. Write the formula for sulfur trioxide
   SO_3

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Chemical Reactions and Equations

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* Matter is conserved.
  ↓
  not created or destroyed

* Given an unbalanced equation, balance using coefficients

examples -

1. $CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(g)$

reactants

products

Reactants

C - 1
H - 4
O - 4

products

C - 1
H - 4
O - 4

2. $Cu(NO_3)_2 + NaOH \rightarrow Cu(OH)_2 + NaNO_3$

Bal. only

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