Polyatomic Compounds

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9:58 AM

- group of atoms with a common name and ion charge

ex. OH^{-1} → hydroxide

PO_4^{-3} → phosphate

PO_3^{-3} → phosphite

- easy to identify because the formula has 3 or more different elements

Naming:

1. Positive polyatomic ions are written 1st, like metals

2. Negative polyatomic ions are written 2nd and the name of the ion is NOT changed.

Ex.

#1. Calcium + nitrate → calcium nitrate

#2. Hydrogen + dichromate → hydrogen dichromate

#3. K_2SO_4 → Potassium Sulfate

#4. $Cu(NO_3)_2$ → Copper (II) nitrate

Formula:

1. Write metal + non-metal elements in their ion form
   * polyatomic is always written in brackets

2. Re-write elements without ion charges. criss-cross the numbers (keep brackets)
   - reduce if common factor

- Omit brackets if there is only 1 of a polyatomic group.

Ex. #2

#1. Aluminum phosphate

$Al^{+3} + PO_4^{-3}$

$Al_3(PO_4)_3 \rightarrow Al(PO_4)$

1 1 4 = 6 atoms

#2 Calcium Chlorite

$Ca^{+2} + ClO_2^{-1}$

$Ca_1(ClO_2)_2 \rightarrow Ca(ClO_2)_2$

1 2 4 = 7 atoms

#3. Ammonium Sulfite

$NH_4^{+1} + SO_3^{-2}$

$(NH_4)_2(SO_3)_1 \rightarrow (NH_4)_2SO_3$

2 8 1 3

= 14 atoms

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