Polyatomic Compounds

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Polyatomic ions form compounds like other ions

ex Ammonium $(NH_4)^{+1}$

Dichromate $(Cr_2O_7)^{-2}$

Hydrogen sulfite $(HSO_3)^{-1}$

Naming

1 positive polyatomic ions are written first, like metals

2 Negative polyatomic ions are written second and the name is NOT changed

Ex. #1

(a) Calcium + nitrate → Calcium nitrate

(b) Hydrogen + dichromate → hydrogen dichromate

(c) K_2SO_4 → Potassium sulfate

(d) $KMnO_4$ → Potassium permanganate

Writing Formulas

1 Write the metal and non-metal elements in their ion form (polyatomic is always written in brackets)

2 Re-write the elements without ion charges, criss-cross the numbers
↳ common factor → REDUCE!!
↳ if there is only 1 of the poly-atomic group, omit the brackets

Ex. #2

(a) Aluminum phosphate → $AlPO_4$

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

$Al_3 + (PO_4)_3 \rightarrow Al_3(PO_4)_3 \rightarrow Al_1(PO_4)_1$

reduce!!

(b) Calcium sulphate → $CaSO_4$

Ca^{+2} SO_4^{-2}

$Ca_2 + (SO_4)_2 \rightarrow Ca_2(SO_4)_2 \rightarrow Ca_1(SO_4)_1$

(c) Magnesium phosphite → $Mg_3(PO_3)_2$

Mg^{+2} PO_3^{-3}

$Mg_2 + (PO_3)_3 \rightarrow Mg_3(PO_3)_2$