

NAMING IONIC COMPOUNDS III

The rule for naming these compounds is:

Name the cation; then name the anion.

The rule for naming these compounds is the same as for other compounds, however, these compounds have polyatomic ions--ions with more than one element.

1. The names and formulas (with charges) must be memorized.

NH_4^+ **ammonium ion** (the only polyatomic cation)

OH^- **hydroxide ion**

CN^- **cyanide ion** (There are only two polyatomic "ide" ions.)

CO_3^{2-} **carbonate ion**

NO_3^- **nitrate ion** (Note that the "ate" ions have oxygen.)

ClO_3^- **chlorate ion**

SO_4^{2-} **sulfate ion**

PO_4^{3-} **phosphate ion**

CrO_4^{2-} **chromate ion** $\text{Cr}_2\text{O}_7^{2-}$ **dichromate ion**

$\text{S}_2\text{O}_3^{2-}$ **thiosulfate ion** ("thio" means replace an O with an S)

MnO_4^- **permanganate ion**

O_2^{2-} **peroxide ion**

$\text{C}_2\text{H}_3\text{O}_2^-$ **acetate ion**

2. Type II cations still need the charge in Roman numerals; type I cations do not.
(Ammonium ion acts like a type I cation with charge +1)

Examples: NaNO_3 is **sodium nitrate**
 $\text{Cu}(\text{OH})_2$ is **copper(II) hydroxide**
 $(\text{NH}_4)_2\text{SO}_4$ is **ammonium sulfate**

You should be able to name the following compounds.

a. MgCO_3

g. $\text{Sr}(\text{NO}_3)_2$

m. K_2SO_4

b. Ag_2CrO_4

h. $\text{Pb}(\text{SO}_4)_2$

n. CaS_2O_3

c. $\text{Fe}_2(\text{SO}_4)_3$

i. $\text{Cu}(\text{CN})_2$

o. Na_3PO_4

d. $\text{Co}(\text{OH})_3$

j. KMnO_4

p. $\text{Sn}(\text{NO}_3)_4$

e. $\text{Li}_2\text{Cr}_2\text{O}_7$

k. $\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2$

o. $\text{Co}_3(\text{PO}_4)_2$

f. $(\text{NH}_4)_2\text{CO}_3$

l. $\text{Zn}(\text{ClO}_3)_2$

p. AuCN

Answers are on the other side.

