

Multivalent (Variable state) Ionic Compounds:*Review:*

What elements are the main group elements?

What groups make up the transition metals?

Main Group vs. Transition Elements

-- main group elements _____

ex: Mg^{+2} , F^{-}

-- transition metals _____

ex: Cu^{+} , Cu^{+2} Exceptions:-- _____ is **ALWAYS** a +2-- _____ is **ALWAYS** a +1

-- You don't need to use roman numerals for these

Naming with Transition Metals

-- _____ name stays the same

-- anion ending changes to _____

-- use _____ to communicate the charge of the transition metal

ex: copper (I) chloride; copper (II) chloride

Steps to Name Ionic Compounds with Transition Metals:

1. Identify the charge of the anion

2. Determine the total charge from the anion (*charge of the individual atom x how many you have*)

3. Determine the total charge needed from the cation.

4. Divide the total charge by how many atoms you have.

EX: Cu_2S *Practice*

Name the following compounds:

1. NiS _____

2. $CuCl_2$ _____3. Fe_3N_2 _____4. PbS_2 _____Writing the Formula with Transition Metals

-- use the _____ from the _____ for the cation charge

-- balance the _____ so the compound is _____

EX: cobalt (III) iodide

Practice

Name the following compounds:

1. chromium (I) sulfide _____
2. tin (IV) chloride _____
3. titanium (II) phosphide _____
4. iron (III) nitride _____

Ionic Compounds with Polyatomic Ions:

Polyatomic Ions: _____

Naming with Polyatomic Ions

1. Write the whole name of the cation
2. Write the whole name of the polyatomic ion
3. DO NOT CHANGE EITHER OF THE NAMES

EX: NaOH

Practice

1. CaCO_3 _____
2. NH_4Cl _____
3. $\text{Ca}(\text{NO}_3)_2$ _____
4. $\text{Mg}_3(\text{PO}_4)_2$ _____

Writing Compounds with Polyatomic Ions

1. Determine the charge of both ions
2. Balance the charges
3. If you need more than 1 polyatomic ion, use parenthesis
4. DO NOT CHANGE THE SUBSCRIPTS FOR POLYAOMTIC IONS!

EX: aluminum sulfate

Practice

1. sodium carbonate _____
2. barium hydroxide _____
3. lithium phosphite _____
4. magnesium sulfite _____