## **Coordination Compounds Nomenclature Guide**

- 1) In naming a coordination compound that is a salt, name the cation first and the anion second.
- 2) When giving the name of the complex ion or molecule, name the ligands first, in alphabetical order, followed by the name of the metal.
  - a. If a ligand is an anion whose name ends in *-ite* or *-ate*, the final *e* is changed to *o Example:* "sulfate" becomes "sulfato", "nitrate" becomes "nitrato", etc.
  - b. If a ligand is an anion whose name ends in *-ide*, the *-ide* is changed to *o Example:* "chloride" becomes "chloro", "cyanide" becomes "cyano", etc.
  - c. If a ligand is a neutral molecule, its common name is usually used.
    - *Exceptions:* water becomes *aqua* ammonia becomes *ammine* carbon monoxide becomes *carbonyl*
  - d. When more than one simple monodentate ligand, use di, tri, tetra, etc. prefix.
  - e. When more than one complex ligand, use bis, tris, tetrakis, pentakis, etc. prefix.
- 3) If the complex ion is an anion, the suffix *-ate* is added to the metal name.
- 4) Following the name of the metal, the oxidation number of the metal is given in Roman numerals.

## **Examples of Coordination Compounds:**

[Ni(H <sub>2</sub> O) <sub>6</sub> ]SO <sub>4</sub>	Hexaaquanickel(II) sulfate
K <sub>2</sub> [CoCl <sub>4</sub> ]	Potassium tetrachlorocobaltate(II)
$Ba[BrF_4]_2$	Barium tetraflurobromate(III)
Li[CrF <sub>4</sub> O]	Lithium tetrafluorooxochromate(V)
[Ru(NH <sub>3</sub> ) <sub>5</sub> N <sub>2</sub> ]Cl <sub>2</sub>	Pentaamminedinitrogenruthenium(II) chloride
K[Pt(NH <sub>3</sub> )Cl <sub>3</sub> ]	Potassium amminetrichloroplatinate(II)
Co(phen) <sub>2</sub> Cl <sub>2</sub>	Dichlorobis(phenanthroline)cobalt(II)