Rules for Naming Coordination Compounds

- As with any ionic compound, *the cation is named before the anion.*
- In naming a complex ion, *the ligands are named before the metal ion.*
- In naming ligands, *an* o *is added to the root name of an anion.* For example, the halides as ligands are called fluoro, chloro, bromo, and iodo; hydroxide is hydroxo; and cyanide is cyano. *For a neutral ligand the name of the molecule is used,* with the exception of H_2O, NH_3, CO, and NO, as illustrated in Table 20.14.
- *The prefixes* mono-, di-, tri-, tetra-, penta-, *and* hexa- *are used to denote the number of simple ligands.* The prefixes *bis-, tris-, tetrakis-,* and so on, are also used, especially for more complicated ligands or ones that already contain *di-, tri-,* and so on.
- *The oxidation state of the central metal ion is designated by a Roman numeral in parentheses.*
- *When more than one type of ligand is present, ligands are named in alphabetical order.* Prefixes do not affect the order.
- *If the complex ion has a negative charge, the suffix* -ate *is added to the name of the metal.* Sometimes the Latin name is used to identify the metal (see Table 20.15).

TABLE 20.14 Names of Some Common Unidentate Ligands

Neutral Molecules		Anions	
Aqua	H_2O	Fluoro	F^-
Ammine	NH_3	Chloro	Cl^-
Methylamine	CH_3NH_2	Bromo	Br^-
Carbonyl	CO	Iodo	I^-
Nitrosyl	NO	Hydroxo	OH^-
		Cyano	CN^-

TABLE 20.15 Latin Names Used for Some Metal Ions in Anionic Complex Ions

Metal	Anionic Complex Base Name
Iron	Ferrate
Copper	Cuprate
Lead	Plumbate
Silver	Argentate
Gold	Aurate
Tin	Stannate