

Naming Metal-Ligand Complexes

The naming of metal-ligand complexes follows its own set of rules. Try to discern the rules by looking at the following examples from the previous two classes. What patterns do you see?

formula of complex	name of complex
$\text{Co}(\text{NH}_3)_3\text{Cl}_3$	triamminetrichlorocobalt(III)
$[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$	tetraamminedichlorocobalt(III) chloride
$[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$	pentaamminechlorocobalt(III) chloride
$[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$	hexaamminecobalt(III) chloride
$[\text{Pt}(\text{NH}_3)_4]\text{Cl}_2$	tetraammineplatinum(II) chloride
$\text{Pt}(\text{NH}_3)_2\text{Cl}_2$	diamminedichloroplatinum(II)
$\text{K}_2[\text{PtCl}_4]$	potassium tetrachloroplatinate(II)
$[\text{Pt}(\text{NH}_3)_4][\text{PtCl}_4]$	tetraammineplatinum(II) tetrachloroplatinate(II)
$[\text{Co}(\text{NH}_3)_5(\text{NO}_2)]\text{Cl}_2$	pentaamminenitrocobalt(III) chloride
$[\text{Co}(\text{NH}_3)_5(\text{ONO})]\text{Cl}_2$	pentaamminenitritocobalt(III) chloride
$[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$	hexaaquachromium(III) chloride
$[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]\text{Cl}_2 \cdot \text{H}_2\text{O}$	pentaaquachlorochromium(III) chloride monohydrate
$[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{Cl} \cdot 2\text{H}_2\text{O}$	tetraaquadichlorochromium(III) chloride dihydrate
$[\text{Co}(\text{NH}_3)_4(\text{Cl})(\text{NO}_2)]\text{SCN}$	tetraamminechloronitrocobalt(III) thiocyanate
$[\text{Co}(\text{NH}_3)_4(\text{NO}_2)(\text{SCN})]\text{Cl}$	tetraamminenitrothiocyanatocobalt(III) chloride
$[\text{Pt}(\text{NH}_3)_3\text{Cl}][\text{Pt}(\text{NH}_3)\text{Cl}_5]$	triamminechloroplatinum(II) amminepentachloroplatinate(IV)
$[\text{Pt}(\text{NH}_3)_4][\text{PtCl}_6]$	tetraammineplatinum(II) hexachloroplatinate(IV)