Transition Metal Complex Colours

Aqua Complex	With OH^- or NH_3	With Excess OH^-	With Excess NH_3	With Excess CO_3^{2-}	With Excess Cl^-
$[Fe(H_2O)_6]^{2+}$	$[Fe(H_2O)_4(OH)_2]$ → $[Fe(H_2O)_3(OH)_3]$	N/A	N/A	"$FeCO_3$" (exists as basic carbonate in a complex)	$FeCl_2(H_2O)_4$ (white to light-green)
$[Fe(H_2O)_6]^{3+}$	$[Fe(H_2O)_3(OH)_3]$	N/A	N/A	N/A	$FeCl_3$ (R) / $FeCl_3$ (T)
$Cr(H_2O)_6]^{3+}$	$[Cr(H_2O)_3(OH)_3]$	$[Cr(OH)_6]^{3-}$	$[Cr(NH_3)_6]^{3+}$	Non-existent	$CrCl_3$ (anhydrous) → $CrCl_3(H_2O)_x$ x = 5, 6
$[Cu(H_2O)_6]^{2+}$	$[Cu(H_2O)_4(OH)_2]$	N/A	$[Cu(NH_3)_4(H_2O)_2]^{2+}$	$Cu_2(OH)_2CO_3$ (Blue-green)	$CuCl_2$ (anhydrous) → $CuCl_2(H_2O)_2$
$[Mn(H_2O)_6]^{2+}$ Off-White	$[Mn(H_2O)_4(OH)_2]$	N/A	N/A	$MnCO_3$ Off-White	$MnCl_2(H_2O)_x$ x = 2, 4
$[Ni(H_2O)_6]^{2+}$	$[Ni(H_2O)_4(OH)_2]$	N/A	$[Ni(NH_3)_6]^{2+}$	$NiCO_3$	$NiCl_2$ (anhydrous) → $NiCl_2(H_2O)_6$
$[Co(H_2O)_6]^{2+}$	$[Co(H_2O)_4(OH)_2]$	N/A	$[Co(NH_3)_6]^{2+}$ BROWN	$CoCO_3$	$CoCl_2$ (anhydrous) → $CoCl_2.6H_2O$
$[Zn(H_2O)_6]^{2+}$	$[Zn(H_2O)_4(OH)_2]$	$[Zn(OH)_4]^{2-}$	$[Zn(NH_3)_4(H_2O)_2]^{2+}$	$ZnCO_3$	$ZnCl_2$
$[Al(H_2O)_6]^{3+}$	$[Al(H_2O)_3(OH)_3]$	$[Al(OH)_4]^-$	N/A	$Al_2(CO_3)_3$	$AlCl_3$ (pure) / $AlCl_3$ ($FeCl_3$ impurities)