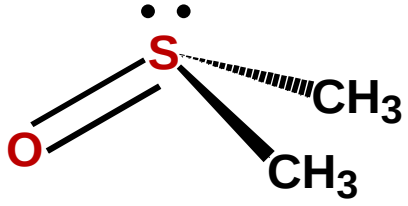
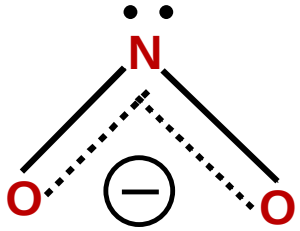
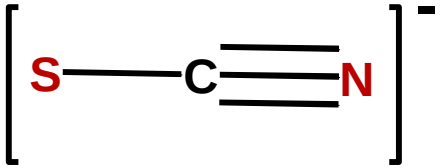
ESPERIENZA 2

Sintesi di complessi di metalli di transizione con leganti ambidentati: il dimetil solfossido e lo ione nitrito

Def.: si definiscono ambidentati quei leganti che presentano due atomi potenzialmente donatori.





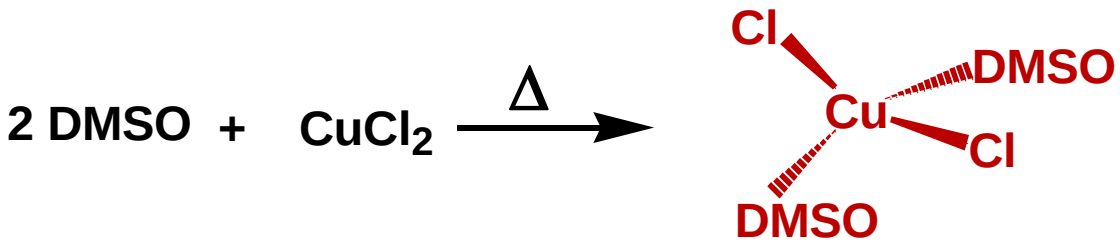


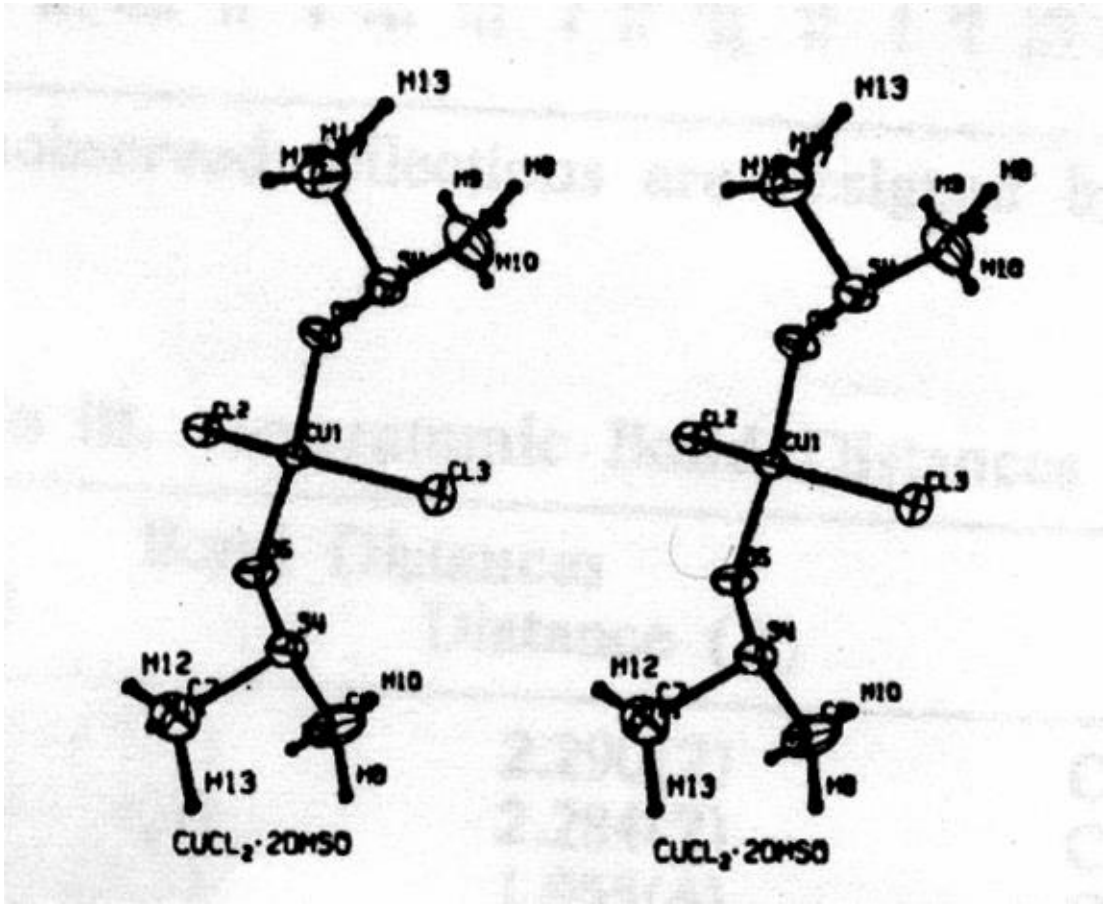
Fattori elettronici o sterici o entrambi indirizzano la coordinazione attraverso uno dei due atomi donatori.

Si possono fare delle previsioni sull'atomo donatore utilizzando la teoria HARD and SOFT, ACIDS and BASES.

Spettroscopia IR allo stato solido, UV-Vis. ed ^{1}H NMR in soluzione sono diagnostiche per riconoscere il modo di legame dei leganti ambidentati.

Sintesi di $[CuCl_2(DMSO)_4]$

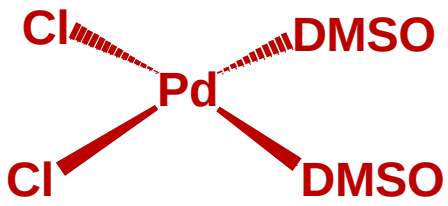




Geometria a sella, d^9

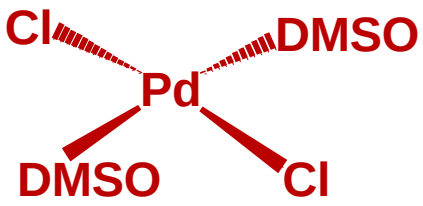
paramagnetico

Sintesi di $[PdCl_2(DMSO)_2]$

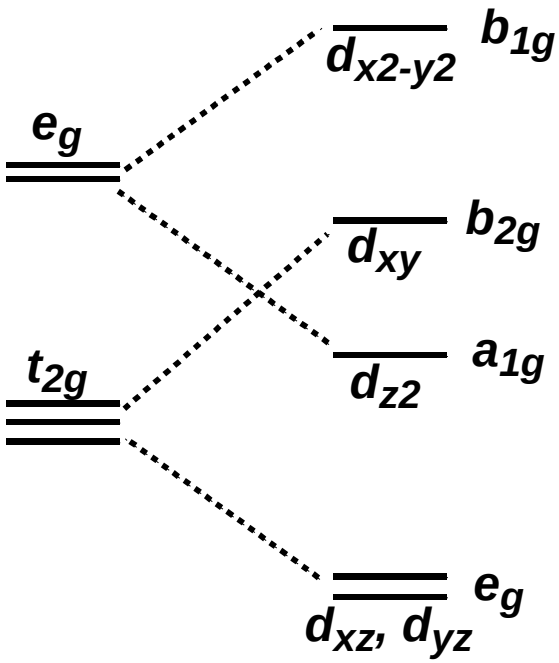


cis

o



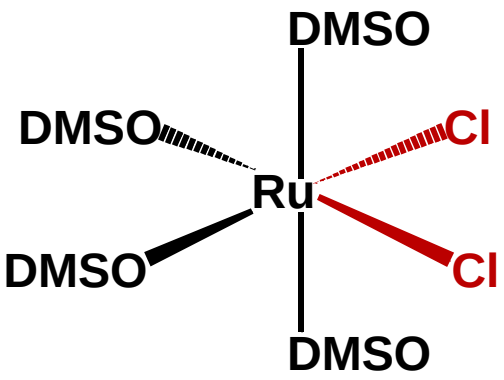
trans



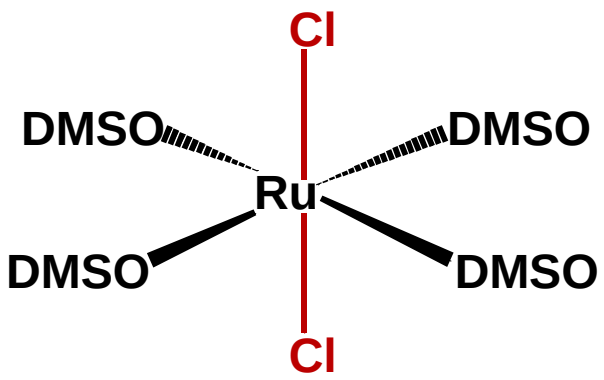
Planare quadrato
d^8

diamagnetico

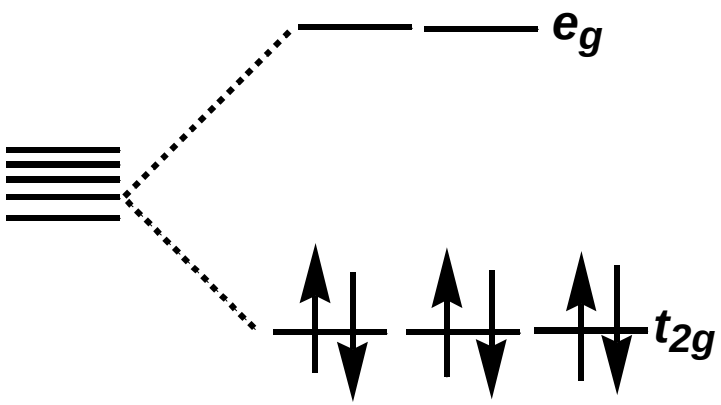
Sintesi di $[RuCl_2(DMSO)_4]$



o



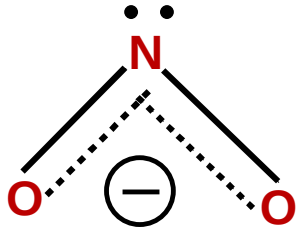
cis ***trans***

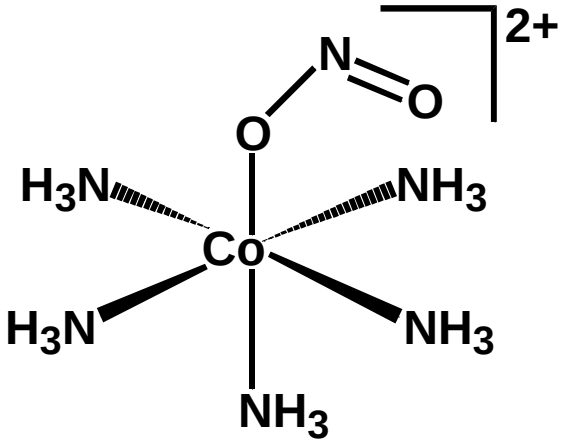


Ottraedro, d^6, basso spin

diamagnetico

Lo ione nitrito

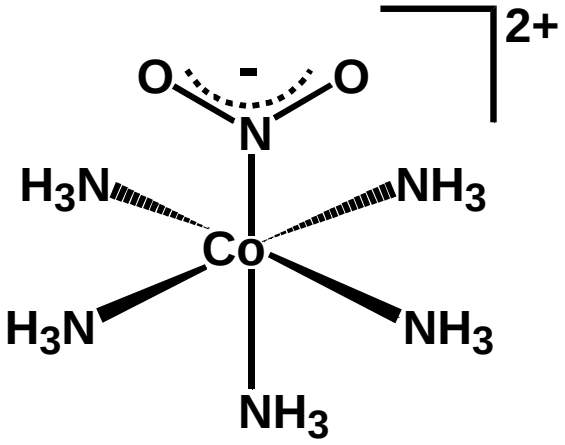




nitrito

prodotto cinetico

rosa salmone



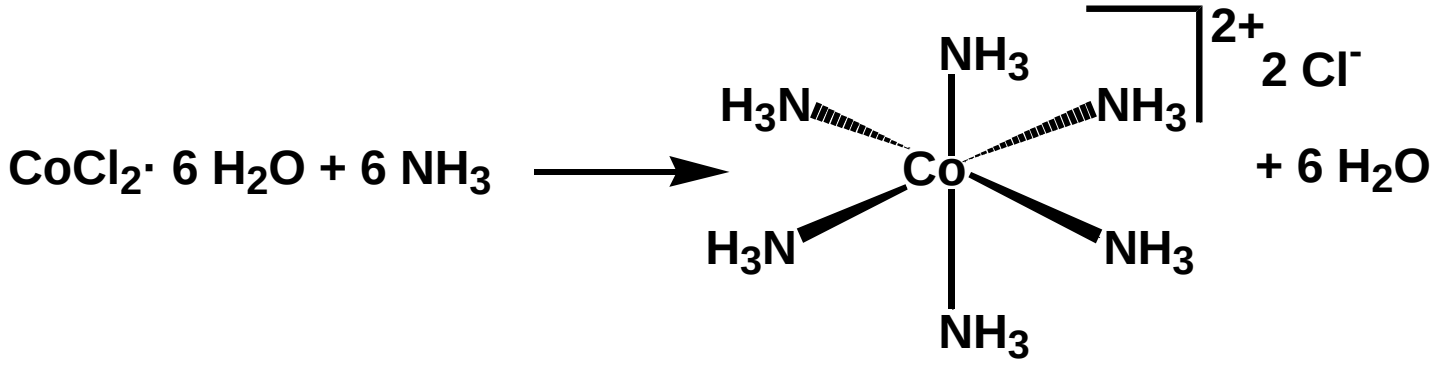
nitro

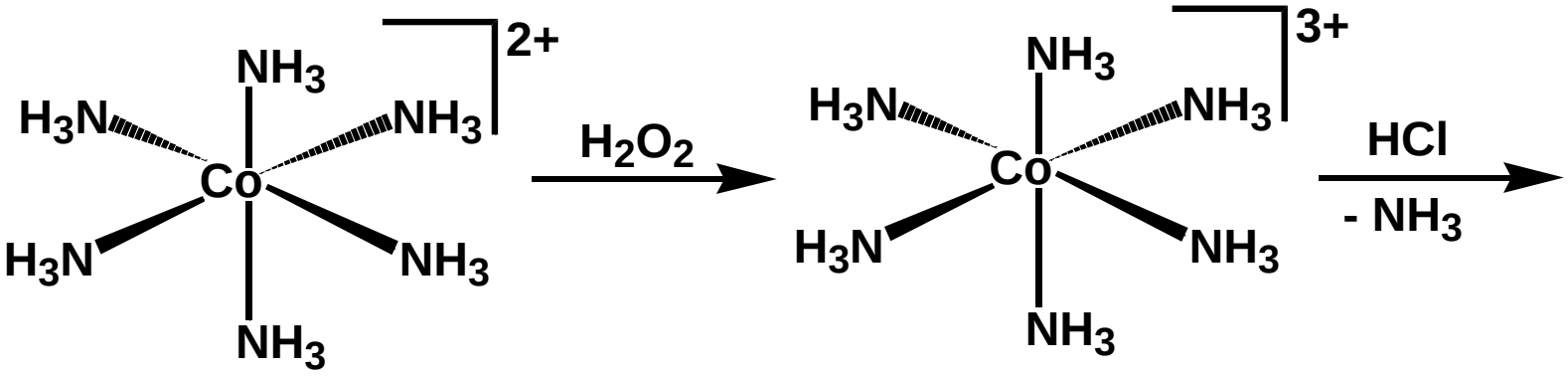
prodotto termodinamico

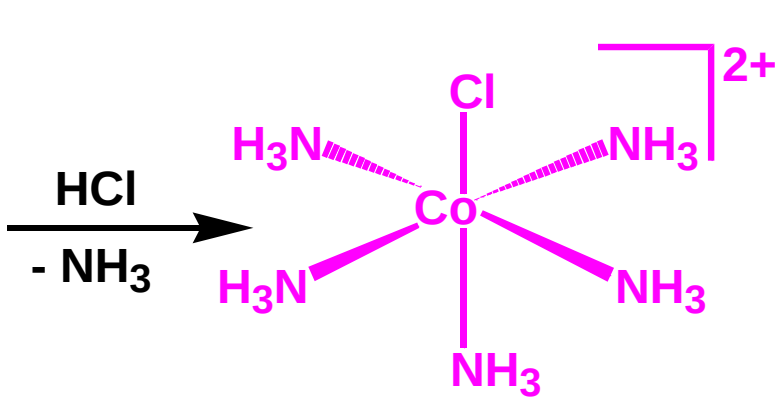
ocra

Diversa natura dei legami		**IR**
Diverso colore		**UV-Vis.**
Ottaedri, d^6, basso spin	**diamagnetici**	**NMR**

Sintesi dei complessi con lo ione nitrito



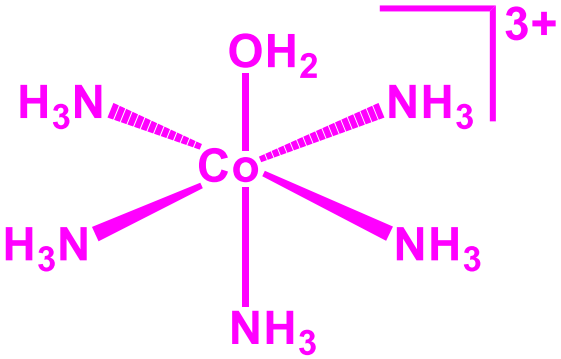




VIOLA λ_{max} = 530 nm

$[CoCl_4]^-$

λ_{max} = 700 nm



λ_{max} = 510 nm

Sintesi dei complessi con lo ione nitrito