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## Key indicators

Single-crystal X-ray study  
 $T = 173$  K  
Mean  $\sigma(\text{C}-\text{C}) = 0.008$  Å  
 $R$  factor = 0.063  
 $wR$  factor = 0.190  
Data-to-parameter ratio = 14.9For details of how these key indicators were automatically derived from the article, see <http://journals.iucr.org/e>. $\mu$ -Oxalato-bis[chlorotripyridinecobalt(II)]  
pyridine disolvate

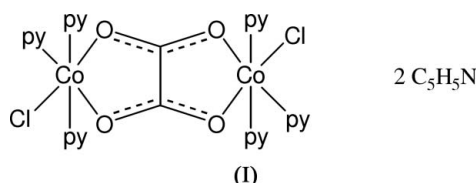
The Co complex of the title compound,  $[\text{Co}_2(\text{C}_2\text{O}_4)\text{Cl}_2(\text{C}_5\text{H}_5\text{N})_6] \cdot \text{C}_5\text{H}_5\text{N}$ , is located on a crystallographic centre of inversion. The solvent pyridine molecules are located on general positions. The Co centre is octahedrally coordinated by three pyridine ligands, one Cl atom and a chelating oxalate anion which bridges two Co centres.

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## Comment

Oxalate-bridged polynuclear metal complexes have been the focus of intensive research due to their interesting magnetic properties. The latter are highly dependent on the nature of the metal ion and the peripheral ligands (Castillo *et al.*, 2003). The ability of the oxalate moiety to connect to metal ions as a bis-bidentate bridging ligand enables the formation of diverse assemblies. The crystal structure determination of the title compound, (I), has been carried out in order to obtain information about the configuration and conformation of the reaction product.

A perspective view of (I) is shown in Fig. 1. Bond lengths and angles can be regarded as normal (Cambridge Crystallographic Database, Version 5.27 plus one update; *MOGUL* Version 1.1; Allen, 2002). The Co atoms are octahedrally coordinated by three pyridine ligands, one chlorine atom and a chelating oxalate anion which bridges two Co centres. The three Co—N bonds are significantly different. Those that are mutually *trans* are longer than the one which is *trans* to a Co—O bond (Table 1). The two Co—O bonds have the same length. The space between the complexes is filled by solvent pyridine molecules.



## Experimental

The title compound was synthesized according to the procedure described by Chattopadhyay *et al.* (2002).

## Crystal data

$[\text{Co}_2(\text{C}_2\text{O}_4)\text{Cl}_2(\text{C}_5\text{H}_5\text{N})_6] \cdot 2\text{C}_5\text{H}_5\text{N}$   
 $M_r = 909.58$   
Monoclinic,  $P2_1/n$   
 $a = 9.5335$  (19) Å  
 $b = 10.518$  (2) Å  
 $c = 21.205$  (4) Å  
 $\beta = 91.78$  (3)°  
 $V = 2125.3$  (7) Å<sup>3</sup>  
 $Z = 2$

$D_x = 1.421$  Mg m<sup>-3</sup>  
Mo  $K\alpha$  radiation  
Cell parameters from 12780 reflections  
 $\theta = 2.2$ – $25.3$ °  
 $\mu = 0.96$  mm<sup>-1</sup>  
 $T = 173$  (2) K  
Thick plate, colourless  
0.28 × 0.22 × 0.12 mm

Data collection

Stoe IPDS-II two-circle diffractometer  
 $\omega$  scans  
 Absorption correction: multi-scan (MULABS; Spek, 2003; Blessing, 1995)  
 $T_{\min} = 0.775$ ,  $T_{\max} = 0.894$   
 24340 measured reflections

3906 independent reflections  
 2545 reflections with  $I > 2\sigma(I)$   
 $R_{\text{int}} = 0.089$   
 $\theta_{\max} = 25.4^\circ$   
 $h = -11 \rightarrow 11$   
 $k = -12 \rightarrow 12$   
 $l = -23 \rightarrow 25$

Refinement

Refinement on  $F^2$   
 $R[F^2 > 2\sigma(F^2)] = 0.063$   
 $wR(F^2) = 0.190$   
 $S = 0.94$   
 3906 reflections  
 263 parameters  
 H-atom parameters constrained

$w = 1/[\sigma^2(F_o^2) + (0.1345P)^2]$   
 where  $P = (F_o^2 + 2F_c^2)/3$   
 $(\Delta/\sigma)_{\max} < 0.001$   
 $\Delta\rho_{\max} = 1.61 \text{ e } \text{\AA}^{-3}$   
 $\Delta\rho_{\min} = -0.62 \text{ e } \text{\AA}^{-3}$   
 Extinction correction: SHELXL97  
 Extinction coefficient: 0.014 (2)

Table 1

Selected bond lengths (Å).

|                     |           |         |             |
|---------------------|-----------|---------|-------------|
| Co1—O2 <sup>i</sup> | 2.121 (3) | Co1—N11 | 2.191 (4)   |
| Co1—O1              | 2.123 (3) | Co1—N21 | 2.193 (4)   |
| Co1—N31             | 2.157 (4) | Co1—Cl1 | 2.4224 (17) |

Symmetry code: (i)  $-x + 1, -y + 1, -z + 2$ .

H atoms were located in a difference map, but were positioned geometrically ( $C-H = 0.95 \text{ \AA}$ ) and refined with fixed individual displacement parameters [ $U(H) = 1.2U_{\text{eq}}(C)$ ] using a riding model. The largest positive residual peak ( $1.6 \text{ e } \text{\AA}^{-3}$ ) is located at  $1.52 \text{ \AA}$  from atom Cl1.

Data collection: X-AREA (Stoe & Cie, 2001); cell refinement: X-AREA; data reduction: X-AREA; program(s) used to solve structure: SHELXS97 (Sheldrick, 1990); program(s) used to refine structure: SHELXL97 (Sheldrick, 1997); molecular graphics: XP in SHELXTL-Plus (Sheldrick, 1991); software used to prepare material for publication: SHELXL97 and PLATON (Spek, 2003).

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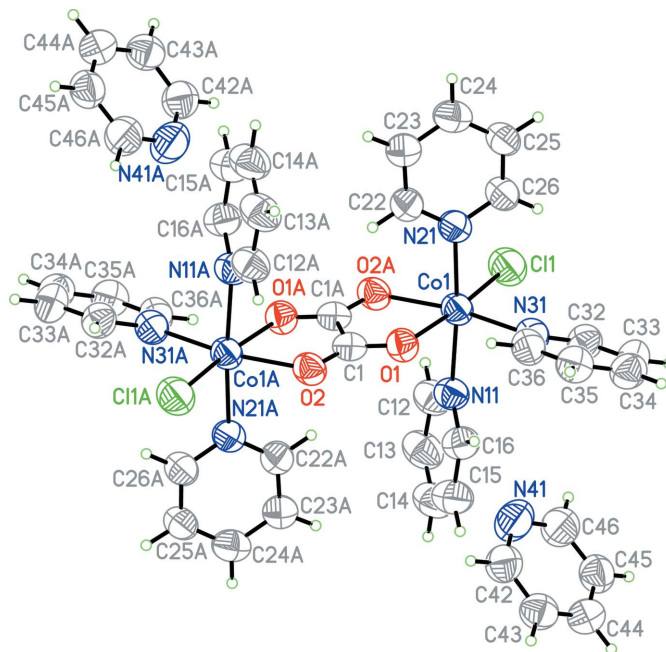


Figure 1

Perspective view of the title compound with the atom numbering scheme; displacement ellipsoids are drawn at the 50% probability level. Atoms with the suffix A are generated by the symmetry operator  $1 - x, 1 - y, 2 - z$ .

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