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Retraction of articles

This article reports the retraction of articles published in *Acta Crystallographica Section E* between 2005 and 2009.

After further thorough investigation (see Harrison *et al.*, 2010), articles are retracted as a result of problems with the data sets or incorrect atom assignments. Full details of all the articles are given in Table 1.

Table 1
Details of articles to be retracted, in order of publication.

Title	Reference	DOI	Refcode
Poly[diaquadi-μ_3-malonato-μ-pyrazine-dinickel(II)]	Liu *et al.* (2005)	10.1107/S1600536805026358	GATWAA
catena-Poly[[[diaqua(6-carboxypyridine-2-carboxylato)samarium(II)]-μ-pyridine-2,6-dicarboxylato] tetrahydrate]	Liu *et al.* (2006)	10.1107/S1600536806038141	FONCUH03
Poly[[[μ_4-4,4′-carbonylbis(benzene-3,4-dicarboxylato)]tetrakis(1,10-phenanthroline)-dipalladium(II)] dihydrate]	Li, Wang, Zhang & Yu (2007*e*)	10.1107/S1600536807039050	AFELAZ
Poly[diaqua-μ_3-malonato-μ-pyrazine-diiron(II)]	Li, Liu *et al.* (2007)	10.1107/S1600536807038743	AFELON
Poly[diaqua-di-μ_3-malonato-μ-pyrazine-dimanganese(II)]	Li, Wang, Zhang & Yu (2007*f*)	10.1107/S1600536807039773	VIJZAQ
Poly[[aqua(2,2-bipyridine)(μ_3-pyridine-3,4-dicarboxylato)cobalt(II)] monohydrate]	Li, Wang, Zhang & Yu (2007*g*)	10.1107/S1600536807040275	VIKCIC
catena-Poly[[[diaqua(6-carboxypyridine-2-carboxylato)holmium(III)]-μ-pyridine-2,6-dicarboxylato] tetrahydrate]	Li, Wang, Zhang & Yu (2007*a*)	10.1107/S1600536807041657	DILGEL
catena-Poly[[(2,2′-bipyridine-κ^2N,N')iron(II)]-μ-5-carboxy-4-carboxylatoimidazol-1-ido-$\kappa^4N^3,O^4{:}N^1,O^5$]	Li, Wang, Zhang & Yu (2007*h*)	10.1107/S1600536807042122	XIKWAQ
Poly[[aqua(2,2′-bipyridine)(μ_3-pyridine-3,4-dicarboxylato)nickel(II)] monohydrate]	Li, Wang, Zhang & Yu (2007*b*)	10.1107/S1600536807046466	LEVZAO01
2-(Benzyliminomethyl)-6-methoxyphenol	Li, Wang, Zhang & Yu (2007*i*)	10.1107/S1600536807042134	SILDEX
Poly[aqua(2,2′-bipyridine)(μ_3-pyridine-2,4-dicarboxylato)palladium(II)]	Li, Wang, Zhang & Yu (2007*c*)	10.1107/S1600536807047575	SILXAN
μ-Oxido-bis{chlorido[tris(2-pyridylmethyl)amine]iron(III)} bis(hexafluoridophosphate)	Liu, Dou, Li & Zhang (2007)	10.1107/S1600536807049665	TINRIS
μ-Oxido-bis({4,4′-dibromo-2,2′-[ethane-1,2-diylbis(nitrilomethylidyne)]diphenolato}-manganese(III))	Liu, Dou, Niu & Zhang (2007*a*)	10.1107/S1600536807051008	GIMZAE
Bis[N-(8-quinolyl)pyridine-2-carboxamidato]iron(III) perchlorate monohydrate	Li, Wang, Zhang & Yu (2007*d*)	10.1107/S1600536807048556	WIMZIC
μ-Oxido-bis({4,4′-dibromo-2,2′-[ethane-1,2-diylbis(nitrilomethylidyne)]diphenolato}-chromium(III))	Liu, Dou, Niu & Zhang (2007*b*)	10.1107/S1600536807057996	HIQFIX
μ-Oxido-bis{chlorido[tris(2-pyridylmethyl)amine]chromium(III)} bis(hexafluorido-phosphate)	Li, Wang *et al.* (2008)	10.1107/S1600536807061296	MIRNAD
μ-Oxido-bis({4,4′-dibromo-2,2′-ethane-1,2-diylbis(nitrilomethylidyne)]diphenolato}-iron(III))	Meng *et al.* (2008*a*)	10.1107/S1600536807063143	MIRWUG
catena-Poly[[bis(1H-benzimidazole-κN^3)palladium(II)]-μ-benzene-1,4-dicarboxylato-$\kappa^2O^1{:}O^4$]	Meng *et al.* (2008*b*)	10.1107/S1600536807065051	XISCAE
Oxalatobis(propane-1,3-diamine)manganese(II) chloride monohydrate	Meng *et al.* (2008*e*)	10.1107/S1600536807065361	SISWIB
μ-Oxido-bis{chlorido[tris(2-pyridylmethyl)amine]manganese(III)} bis(hexafluorido-phosphate)	Meng *et al.* (2008*c*)	10.1107/S1600536807066512	RISRIV
Bis[N-(8-quinolyl)pyridine-2-carboxamidato-κ^3N,N',N'']manganese(III) perchlorate monohydrate	Meng *et al.* (2008*d*)	10.1107/S1600536808000287	GISLEA
Diaquabis(pyridine-2-carboxylato-κ^2N,O)cobalt(II)	Huang (2008)	10.1107/S1600536808010507	WIZPOL
Tetra-μ-2,5-difluorobenzoato-bis[(2,2′-bipyridine)(2,5-difluorobenzoato)gadolinium(III)]	Li, Zhang *et al.* (2008)	10.1107/S1600536808023507	BOFQIX
catena-Poly[[(2,2′-bipyridine-κ^2N,N')nickel(II)]-μ-oxalato-$\kappa^4O^1,O^2{:}O^{1'},O^{2'}$]	Li, Yan *et al.* (2008)	10.1107/S1600536808028389	NOHYUF
catena-Poly[[aqua(2,2′-bipyridyl)cobalt(II)]-μ-5-nitroisophthlalato]	Liu *et al.* (2008)	10.1107/S1600536808038178	AFIREN
Diaquabis(pyridine-2-carboxylato-κ^2N,O)iron(II)	Xia & Sun (2009)	10.1107/S1600536809005765	RONFEG
catena-Poly[[[diaquathulium(III)]-μ-6-carboxynicotinato-μ-pyridine-2,5-dicarboxylato] dihydrate]	Li *et al.* (2009)	10.1107/S1600536809008836	NOQNIR
1-Phenyl-3-(2,4,6-trimethoxyphenyl)prop-2-en-1-one	Liu *et al.* (2009)	10.1107/S1600536809040227	PUGLOT

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μ-Oxido-bis{chlorido[tris(2-pyridylmethyl)amine]chromium(III)} bis(hexafluoridophosphate)

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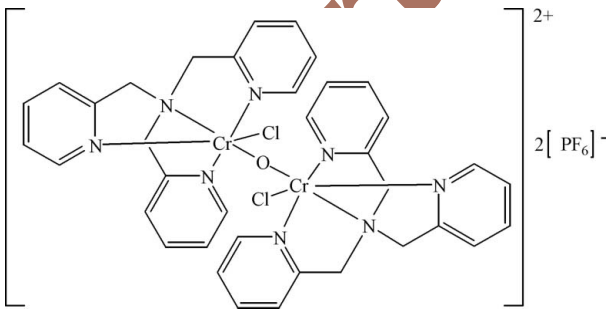
Key indicators: single-crystal X-ray study; T = 293 K; mean σ(C–C) = 0.004 Å; R factor = 0.032; wR factor = 0.089; data-to-parameter ratio = 13.5.

The title compound, $[Cr_2Cl_2O(C_{18}H_{18}N_4)_2](PF_6)_2$, is isostructural with the V^{III} analogue. Each Cr^{III} atom is chelated by the tetradentate tris(2-pyridylmethyl)amine ligand *via* four N atoms, and further coordinated by one Cl atom and one bridging O atom, giving a slightly distorted octahedral coordination geometry. The dinuclear complex is centrosymmetric, with the bridging O atom lying on a centre of inversion.

Related literature

For the isostructural V^{III} analogue, see: Tajika *et al.* (2005). For more general related literature, see: Butler & Carrano (1991); Crans *et al.* (1989); Dey (1974); Chen & Zubieta (1990).



Experimental

Crystal data

$[Cr_2Cl_2O(C_{18}H_{18}N_4)_2](PF_6)_2$
M_r = 1061.57
Triclinic, $P\overline{1}$
a = 8.6107 (17) Å
b = 11.302 (2) Å
c = 12.798 (3) Å
α = 115.50 (3)°
β = 107.45 (3)°
γ = 91.50 (3)°
V = 1054.8 (4) Å^3
Z = 1
Mo $K\alpha$ radiation
μ = 0.81 mm^{-1}
T = 293 (2) K
0.28 × 0.22 × 0.18 mm

Data collection

Bruker APEXII CCD diffractometer
Absorption correction: multi-scan (*SADABS*; Bruker, 2001)
T_{min} = 0.804, T_{max} = 0.867
8686 measured reflections
3877 independent reflections
3594 reflections with $I > 2\sigma(I)$
R_{int} = 0.021

Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.033
$wR(F^2)$ = 0.089
S = 1.00
3877 reflections
287 parameters
H-atom parameters constrained
$\Delta\rho_{max}$ = 0.51 e Å^{-3}
$\Delta\rho_{min}$ = −0.33 e Å^{-3}

Data collection: *APEX2* (Bruker, 2004); cell refinement: *SAINT-Plus* (Bruker, 2001); data reduction: *SAINT-Plus*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 1997); program(s) used to refine structure: *SHELXL97* (Sheldrick, 1997); molecular graphics: *SHELXTL* (Bruker, 2001); software used to prepare material for publication: *SHELXTL*.

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Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: BI2257).

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supporting information

Acta Cryst. (2008). E**64**, m2 [https://doi.org/10.1107/S1600536807061296]

μ-Oxido-bis{chlorido[tris(2-pyridylmethyl)amine]chromium(III)} bis-(hexafluoridophosphate)

Sheng Li, Shou-Bin Wang, Fu-Li Zhang and Kun Tang

S1. Comment

A classical but nevertheless rapidly developing field of application for related metal-Schiff compounds is their use as catalysts in polymerization, oxidation reactions, and model examples for the interaction of metal ions within the active sites of enzymes (Butler & Carrano, 1991; Crans *et al.*, 1989; Dey, 1974; Chen & Zubieta, 1990). In the dinuclear title compound (Fig. 1), each Cr^{III} atom is chelated by the tetradentate ligand tris(2-pyridylmethyl)amine *via* four N atoms, and further coordinated by one Cl atom and one bridging O atom to give a slightly distorted octahedral coordination geometry.

S2. Experimental

A mixture of chromium(III) trichloride (1 mmol) and tris(2-pyridylmethyl)amine (1 mmol) in 20 ml me thanol was refluxed for two hours. After cooling, the solution was filtered and the filtrate was evaporated naturally at room temperature. Blue blocks of the title compound were obtained after a few days with a yield of 31%. Elemental analysis calculated: C 40.39, H 3.35, N 10.44%; found: C 40.35, H 3.39, N 10.42%.

S3. Refinement

All H atoms were placed in calculated positions with C—H = 0.93 or 0.97 Å and refined as riding with U_{iso}(H) = 1.2U_{eq}(C).

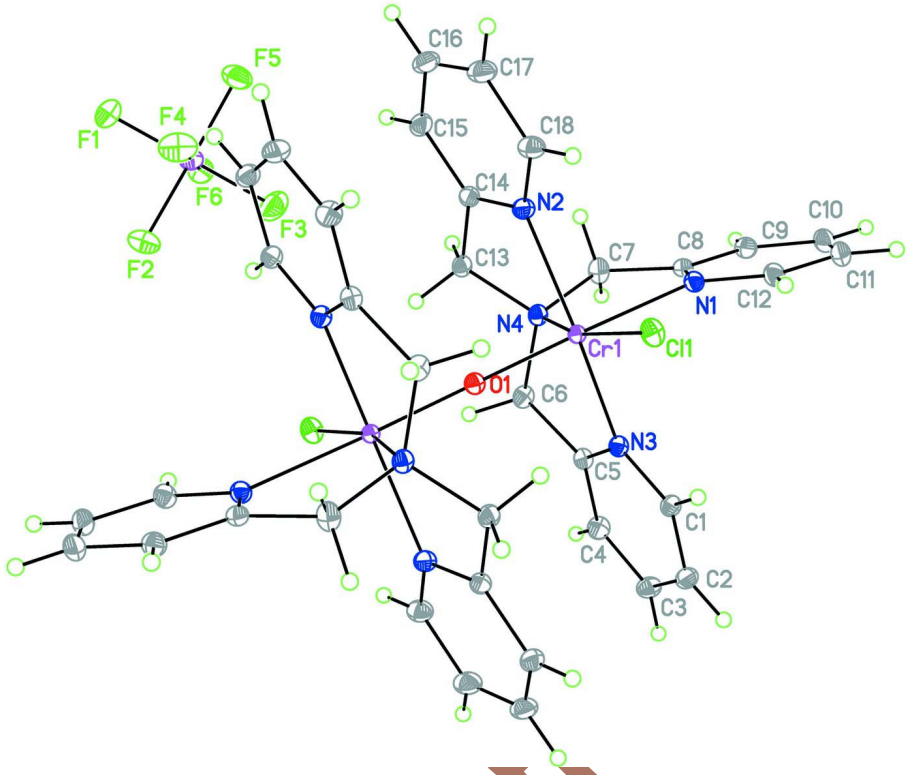

Figure 1

The molecular structure drawn with 30% probability displacement ellipsoids for the non-H atoms.

μ-Oxido-bis{chlorido[tris(2-pyridylmethyl)amine]chromium(III)} dihexafluoridophosphate

Crystal data

$[Cr_2Cl_2O(C_{18}H_{18}N_4)_2](PF_6)_2$
$M_r = 1061.57$
Triclinic, $P\overline{1}$
Hall symbol: -P 1
$a = 8.6107\ (17)$ Å
$b = 11.302\ (2)$ Å
$c = 12.798\ (3)$ Å
$\alpha = 115.50\ (3)°$
$\beta = 107.45\ (3)°$
$\gamma = 91.50\ (3)°$
$V = 1054.8\ (4)$ Å^3
$Z = 1$
$F(000) = 536$
$D_x = 1.671$ Mg m^{-3}
Mo $K\alpha$ radiation, $\lambda = 0.71073$ Å
Cell parameters from 3877 reflections
$\theta = 3.0–25.5°$
$\mu = 0.81$ mm^{-1}
$T = 293$ K
Block, blue
0.28 × 0.22 × 0.18 mm

Data collection

Bruker APEX II CCD diffractometer
Radiation source: fine-focus sealed tube
Graphite monochromator
φ and ω scans
Absorption correction: multi-scan (*SADABS*; Bruker, 2001)
$T_{min} = 0.804$, $T_{max} = 0.867$
8686 measured reflections
3877 independent reflections
3594 reflections with $I > 2\sigma(I)$
$R_{int} = 0.021$
$\theta_{max} = 25.5°$, $\theta_{min} = 3.0°$
$h = -8\rightarrow10$
$k = -13\rightarrow13$
$l = -15\rightarrow15$

Refinement

Refinement on F^2
Least-squares matrix: full
$R[F^2 > 2\sigma(F^2)] = 0.033$
$wR(F^2) = 0.089$
$S = 1.00$
3877 reflections
287 parameters
0 restraints
Primary atom site location: structure-invariant direct methods
Secondary atom site location: difference Fourier map
Hydrogen site location: inferred from neighbouring sites
H-atom parameters constrained
$w = 1/[\sigma^2(F_o^2) + (0.0565P)^2 + 0.3428P]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max} < 0.001$
$\Delta\rho_{max} = 0.51$ e Å^{-3}
$\Delta\rho_{min} = -0.33$ e Å^{-3}
Extinction correction: *SHELXL*, $Fc^*=kFc[1+0.001xFc^2\lambda^3/\sin(2\theta)]^{-1/4}$
Extinction coefficient: 0.042 (3)

Special details

Geometry. All e.s.d.'s (except the e.s.d. in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell e.s.d.'s are taken into account individually in the estimation of e.s.d.'s in distances, angles and torsion angles; correlations between e.s.d.'s in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell e.s.d.'s is used for estimating e.s.d.'s involving l.s. planes.

Refinement. Refinement of F^2 against ALL reflections. The weighted *R*-factor *wR* and goodness of fit *S* are based on F^2, conventional *R*-factors *R* are based on *F*, with *F* set to zero for negative F^2. The threshold expression of $F^2 > \sigma(F^2)$ is used only for calculating *R*-factors(gt) *etc*. and is not relevant to the choice of reflections for refinement. *R*-factors based on F^2 are statistically about twice as large as those based on *F*, and *R*- factors based on ALL data will be even larger.

Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters (Å^2)

	x	*y*	*z*	U_{iso}*/U_{eq}
Cr1	1.03745 (3)	0.34679 (3)	0.39271 (2)	0.0408 (4)
C1	0.9871 (3)	0.1897 (2)	0.53070 (18)	0.0447 (4)
H1	1.1018	0.1984	0.5573	0.054*
C2	0.8992 (3)	0.1306 (2)	0.5741 (2)	0.0534 (5)
H2	0.9533	0.0998	0.6296	0.064*
C3	0.7284 (3)	0.1173 (3)	0.5340 (2)	0.0605 (6)
H3	0.6662	0.0779	0.5626	0.073*
C4	0.6514 (3)	0.1630 (2)	0.4513 (2)	0.0552 (5)
H4	0.5367	0.1537	0.4226	0.066*
C5	0.7464 (2)	0.22306 (19)	0.41135 (18)	0.0425 (4)
C6	0.6721 (2)	0.2874 (2)	0.3310 (2)	0.0490 (5)
H6A	0.5643	0.2353	0.2730	0.059*
H6B	0.6563	0.3757	0.3822	0.059*
C7	0.7467 (3)	0.1753 (2)	0.1450 (2)	0.0573 (6)
H7A	0.7443	0.2004	0.0811	0.069*
H7B	0.6381	0.1253	0.1216	0.069*
C8	0.8712 (2)	0.08565 (19)	0.14924 (17)	0.0414 (4)
C9	0.8351 (3)	−0.0448 (2)	0.0588 (2)	0.0528 (5)
H9	0.7315	−0.0793	−0.0028	0.063*
C10	0.9546 (3)	−0.1237 (2)	0.0606 (2)	0.0617 (6)
H10	0.9327	−0.2119	0.0003	0.074*
C11	1.1069 (3)	−0.0697 (2)	0.1532 (2)	0.0607 (6)
H11	1.1894	−0.1208	0.1564	0.073*

C12	1.1346 (3)	0.0605 (2)	0.2404 (2)	0.0526 (5)
H12	1.2374	0.0964	0.3028	0.063*
C13	0.7605 (3)	0.4147 (2)	0.23723 (19)	0.0475 (5)
H13A	0.7430	0.4881	0.3059	0.057*
H13B	0.6651	0.3917	0.1639	0.057*
C14	0.9146 (3)	0.4574 (2)	0.21891 (17)	0.0471 (5)
C15	0.9138 (4)	0.5296 (2)	0.1547 (2)	0.0606 (6)
H15	0.8154	0.5482	0.1149	0.073*
C16	1.0629 (4)	0.5734 (3)	0.1512 (2)	0.0728 (8)
H16	1.0650	0.6237	0.1100	0.087*
C17	1.2075 (4)	0.5435 (3)	0.2077 (3)	0.0715 (7)
H17	1.3076	0.5721	0.2047	0.086*
C18	1.2007 (3)	0.4704 (3)	0.2686 (2)	0.0610 (6)
H18	1.2978	0.4490	0.3069	0.073*
Cl1	1.31398 (6)	0.35078 (6)	0.48445 (5)	0.05507 (17)
F1	0.5115 (2)	0.90789 (16)	0.13882 (17)	0.0825 (5)
F2	0.4878 (2)	0.8490 (2)	0.27945 (15)	0.0893 (5)
F3	0.5830 (3)	0.6607 (2)	0.1912 (2)	0.1078 (7)
F4	0.7325 (2)	0.8610 (2)	0.24906 (17)	0.0999 (6)
F5	0.6040 (2)	0.72005 (19)	0.04870 (17)	0.0929 (6)
F6	0.36012 (19)	0.71102 (16)	0.08031 (14)	0.0726 (4)
N1	1.0192 (2)	0.13917 (16)	0.23969 (15)	0.0436 (4)
N2	1.0566 (2)	0.42848 (18)	0.27454 (16)	0.0482 (4)
N3	0.91312 (19)	0.23567 (15)	0.45104 (15)	0.0406 (3)
N4	0.7776 (2)	0.29834 (16)	0.26214 (15)	0.0424 (4)
O1	1.0000	0.5000	0.5000	0.0420 (4)
P1	0.54870 (7)	0.78424 (6)	0.16549 (5)	0.05276 (17)

Atomic displacement parameters (Å²)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Cr1	0.0378 (11)	0.0424 (10)	0.0424 (10)	0.0088 (8)	0.0112 (8)	0.0212 (8)
C1	0.0415 (10)	0.0468 (10)	0.0459 (10)	0.0095 (8)	0.0121 (8)	0.0233 (8)
C2	0.0597 (14)	0.0546 (12)	0.0513 (12)	0.0109 (10)	0.0179 (10)	0.0300 (10)
C3	0.0606 (14)	0.0666 (14)	0.0669 (14)	0.0057 (11)	0.0281 (11)	0.0381 (12)
C4	0.0395 (11)	0.0606 (13)	0.0695 (14)	0.0063 (9)	0.0206 (10)	0.0324 (11)
C5	0.0351 (9)	0.0412 (9)	0.0456 (10)	0.0057 (7)	0.0117 (8)	0.0166 (8)
C6	0.0302 (9)	0.0572 (12)	0.0614 (12)	0.0093 (8)	0.0107 (8)	0.0322 (10)
C7	0.0517 (13)	0.0499 (12)	0.0462 (11)	0.0099 (9)	−0.0011 (9)	0.0127 (9)
C8	0.0424 (10)	0.0438 (10)	0.0403 (9)	0.0052 (8)	0.0153 (8)	0.0207 (8)
C9	0.0562 (13)	0.0484 (11)	0.0497 (11)	0.0027 (9)	0.0185 (10)	0.0189 (9)
C10	0.0769 (17)	0.0441 (11)	0.0634 (14)	0.0138 (11)	0.0334 (13)	0.0178 (10)
C11	0.0653 (15)	0.0551 (13)	0.0714 (15)	0.0256 (11)	0.0342 (12)	0.0297 (11)
C12	0.0460 (12)	0.0572 (12)	0.0570 (12)	0.0167 (9)	0.0199 (10)	0.0265 (10)
C13	0.0504 (11)	0.0490 (11)	0.0410 (10)	0.0162 (9)	0.0097 (8)	0.0224 (9)
C14	0.0599 (13)	0.0426 (10)	0.0358 (9)	0.0112 (9)	0.0152 (9)	0.0162 (8)
C15	0.0864 (18)	0.0503 (12)	0.0451 (12)	0.0140 (11)	0.0197 (11)	0.0237 (10)
C16	0.114 (2)	0.0544 (13)	0.0572 (14)	0.0012 (14)	0.0362 (15)	0.0288 (12)

C17	0.084 (2)	0.0710 (16)	0.0683 (16)	−0.0005 (14)	0.0357 (14)	0.0343 (13)
C18	0.0612 (14)	0.0666 (14)	0.0615 (14)	0.0042 (11)	0.0280 (11)	0.0307 (12)
Cl1	0.0334 (3)	0.0609 (3)	0.0596 (3)	0.0131 (2)	0.0101 (2)	0.0215 (2)
F1	0.0810 (11)	0.0724 (10)	0.0988 (12)	0.0060 (8)	0.0208 (9)	0.0507 (9)
F2	0.0836 (12)	0.1141 (14)	0.0632 (9)	0.0059 (10)	0.0336 (8)	0.0300 (9)
F3	0.1008 (15)	0.1236 (16)	0.163 (2)	0.0524 (12)	0.0641 (14)	0.1074 (16)
F4	0.0483 (9)	0.1549 (19)	0.0854 (12)	−0.0063 (10)	0.0024 (8)	0.0605 (12)
F5	0.0973 (13)	0.0965 (12)	0.0873 (12)	0.0083 (10)	0.0563 (10)	0.0288 (10)
F6	0.0571 (9)	0.0710 (9)	0.0731 (9)	−0.0042 (7)	0.0144 (7)	0.0248 (7)
N1	0.0425 (9)	0.0456 (9)	0.0444 (9)	0.0116 (7)	0.0164 (7)	0.0210 (7)
N2	0.0526 (10)	0.0497 (9)	0.0451 (9)	0.0087 (8)	0.0187 (8)	0.0231 (8)
N3	0.0348 (8)	0.0421 (8)	0.0447 (8)	0.0082 (6)	0.0125 (7)	0.0205 (7)
N4	0.0376 (8)	0.0442 (8)	0.0411 (8)	0.0101 (7)	0.0077 (6)	0.0195 (7)
O1	0.0384 (10)	0.0430 (10)	0.0424 (10)	0.0081 (8)	0.0119 (8)	0.0190 (8)
P1	0.0429 (3)	0.0665 (4)	0.0529 (3)	0.0075 (3)	0.0151 (2)	0.0321 (3)

Geometric parameters (Å, º)

Cr1—O1	1.7986 (7)	C9—H9	0.930
Cr1—N3	2.1206 (18)	C10—C11	1.378 (4)
Cr1—N2	2.1238 (18)	C10—H10	0.930
Cr1—N4	2.2370 (19)	C11—C12	1.370 (3)
Cr1—N1	2.2814 (19)	C11—H11	0.930
Cr1—Cl1	2.3070 (9)	C12—N1	1.351 (3)
O1—Cr1^{i}	1.7986 (7)	C12—H12	0.930
C1—N3	1.341 (3)	C13—N4	1.482 (3)
C1—C2	1.369 (3)	C13—C14	1.516 (3)
C1—H1	0.930	C13—H13A	0.970
C2—C3	1.386 (4)	C13—H13B	0.970
C2—H2	0.930	C14—N2	1.345 (3)
C3—C4	1.376 (4)	C14—C15	1.383 (3)
C3—H3	0.930	C15—C16	1.384 (4)
C4—C5	1.382 (3)	C15—H15	0.930
C4—H4	0.930	C16—C17	1.371 (4)
C5—N3	1.352 (3)	C16—H16	0.930
C5—C6	1.506 (3)	C17—C18	1.369 (4)
C6—N4	1.479 (3)	C17—H17	0.930
C6—H6A	0.970	C18—N2	1.351 (3)
C6—H6B	0.970	C18—H18	0.930
C7—N4	1.483 (3)	F1—P1	1.5939 (17)
C7—C8	1.499 (3)	F2—P1	1.5803 (18)
C7—H7A	0.970	F3—P1	1.582 (2)
C7—H7B	0.970	F4—P1	1.5859 (18)
C8—N1	1.342 (3)	F5—P1	1.5804 (18)
C8—C9	1.379 (3)	F6—P1	1.6129 (17)
C9—C10	1.380 (4)		
O1—Cr1—N3	91.01 (5)	N1—C12—H12	118.5

O1—Cr1—N2	92.46 (5)	C11—C12—H12	118.5
N3—Cr1—N2	154.67 (7)	N4—C13—C14	110.48 (16)
O1—Cr1—N4	91.36 (6)	N4—C13—H13A	109.6
N3—Cr1—N4	78.03 (7)	C14—C13—H13A	109.6
N2—Cr1—N4	76.81 (7)	N4—C13—H13B	109.6
O1—Cr1—N1	166.58 (5)	C14—C13—H13B	109.6
N3—Cr1—N1	81.87 (7)	H13A—C13—H13B	108.1
N2—Cr1—N1	89.30 (7)	N2—C14—C15	120.7 (2)
N4—Cr1—N1	76.09 (7)	N2—C14—C13	116.67 (18)
O1—Cr1—Cl1	103.29 (5)	C15—C14—C13	122.5 (2)
N3—Cr1—Cl1	104.03 (5)	C14—C15—C16	118.4 (3)
N2—Cr1—Cl1	99.56 (6)	C14—C15—H15	120.8
N4—Cr1—Cl1	165.11 (5)	C16—C15—H15	120.8
N1—Cr1—Cl1	89.52 (6)	C17—C16—C15	120.8 (2)
N3—C1—C2	122.1 (2)	C17—C16—H16	119.6
N3—C1—H1	118.9	C15—C16—H16	119.6
C2—C1—H1	119.0	C16—C17—C18	118.2 (3)
C3—C2—C1	118.8 (2)	C16—C17—H17	120.9
C3—C2—H2	120.6	C18—C17—H17	120.9
C1—C2—H2	120.6	N2—C18—C17	121.8 (3)
C2—C3—C4	119.4 (2)	N2—C18—H18	119.1
C2—C3—H3	120.3	C17—C18—H18	119.1
C4—C3—H3	120.3	C12—N1—C8	117.79 (18)
C3—C4—C5	119.3 (2)	C12—N1—Cr1	126.02 (15)
C3—C4—H4	120.4	C8—N1—Cr1	115.61 (13)
C5—C4—H4	120.4	C14—N2—C18	120.1 (2)
N3—C5—C4	120.95 (19)	C14—N2—Cr1	114.45 (14)
N3—C5—C6	116.79 (18)	C18—N2—Cr1	124.62 (17)
C4—C5—C6	122.07 (19)	C1—N3—C5	119.42 (18)
N4—C6—C5	112.19 (16)	C1—N3—Cr1	125.22 (14)
N4—C6—H6A	109.2	C5—N3—Cr1	115.07 (13)
C5—C6—H6A	109.2	C6—N4—C7	112.30 (18)
N4—C6—H6B	109.2	C6—N4—C13	112.63 (16)
C5—C6—H6B	109.2	C7—N4—C13	109.74 (17)
H6A—C6—H6B	107.9	C6—N4—Cr1	105.11 (12)
N4—C7—C8	114.97 (17)	C7—N4—Cr1	112.78 (13)
N4—C7—H7A	108.5	C13—N4—Cr1	103.96 (12)
C8—C7—H7A	108.5	Cr1—O1—Cr1^{i}	180.0
N4—C7—H7B	108.5	F5—P1—F3	90.59 (12)
C8—C7—H7B	108.5	F5—P1—F2	178.06 (11)
H7A—C7—H7B	107.5	F3—P1—F2	90.59 (13)
N1—C8—C9	122.2 (2)	F5—P1—F4	90.15 (11)
N1—C8—C7	117.57 (17)	F3—P1—F4	91.62 (13)
C9—C8—C7	120.13 (19)	F2—P1—F4	91.35 (11)
C10—C9—C8	119.3 (2)	F5—P1—F1	89.58 (11)
C10—C9—H9	120.4	F3—P1—F1	179.22 (11)
C8—C9—H9	120.4	F2—P1—F1	89.22 (11)
C11—C10—C9	118.9 (2)	F4—P1—F1	89.14 (11)

C11—C10—H10	120.5	F5—P1—F6	90.19 (10)
C9—C10—H10	120.5	F3—P1—F6	90.39 (12)
C10—C11—C12	118.9 (2)	F2—P1—F6	88.26 (10)
C10—C11—H11	120.6	F4—P1—F6	177.95 (11)
C12—C11—H11	120.6	F1—P1—F6	88.85 (10)
N1—C12—C11	122.9 (2)		

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