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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

  doi:10.1107/S1600536811037603

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μ-Oxido-bis({4,4′-dibromo-2,2′-ethane-1,2-diylbis(nitrilomethylidyne)]-diphenolato}iron(III))

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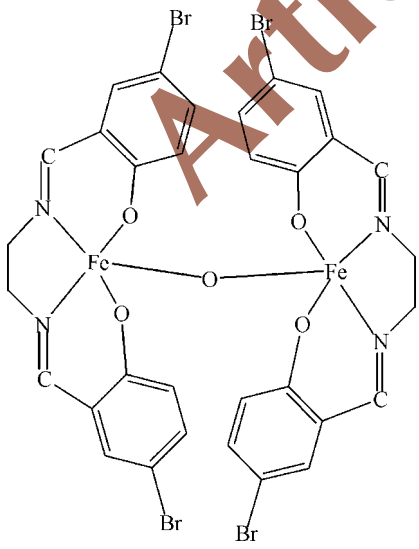
Received 8 November 2007; accepted 25 November 2007

Key indicators: single-crystal X-ray study; T = 293 K; mean σ(C–C) = 0.008 Å; R factor = 0.059; wR factor = 0.147; data-to-parameter ratio = 14.9.

In the title compound, $[Fe_2(C_{16}H_{12}Br_2N_2O_2)_2O]$, the complete molecule is generated by twofold symmetry, with the bridging O atom, which links the iron centres, lying on the roatation rotation axis. The Fe(III) ion is chelated by the *N*,*N*,*O*,*O*-tetradentate Schiff base dianion, resulting in an FeN_2O_3 square-based pyramid, with the two N atoms in the basal plane.

Related literature

For related literature, see: Karacan & Somer (2004); Chen *et al.* (2006).



Experimental

Crystal data

$[Fe_2(C_{16}H_{12}Br_2N_2O_2)_2O]$
M_r = 975.89
Orthorhombic, *Pcca*
a = 21.094 (2) Å
b = 13.8168 (18) Å
c = 11.9619 (12) Å
V = 3486.3 (7) Å^3
Z = 4
Mo $K\alpha$ radiation
μ = 5.46 mm^{-1}
T = 293 (2) K
0.43 × 0.28 × 0.22 mm

Data collection

Bruker APEXII CCD diffractometer
Absorption correction: multi-scan (*SADABS*; Bruker, 2001)
T_{min} = 0.202, T_{max} = 0.380
(expected range = 0.160–0.301)
11548 measured reflections
3182 independent reflections
2257 reflections with $I > 2\sigma(I)$
R_{int} = 0.049

Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.059
$wR(F^2)$ = 0.147
S = 1.00
3182 reflections
213 parameters
H-atom parameters constraned
$\Delta\rho_{max}$ = 1.05 e Å^{-3}
$\Delta\rho_{min}$ = −0.70 e Å^{-3}

Table 1
Selected geometric parameters (Å, °).

Fe1—O3	1.8162 (18)	Fe1—N2	2.116 (4)
Fe1—O2	1.926 (4)	Fe1—N1	2.141 (4)
Fe1—O1	1.930 (4)		
Fe1^{i}—O3—Fe1	139.4 (3)		

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

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*.

The authors thank Liaocheng University for financial support and Professor Jianmin Dou for his help.

Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: HB2647).

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supporting information

Acta Cryst. (2008). E**64**, m63 [https://doi.org/10.1107/S1600536807063143]

μ-Oxido-bis({4,4′-dibromo-2,2′-ethane-1,2-diylbis(nitrilomethylidyne)]diphenolato}iron(III))

Qingguo Meng, Lintong Wang, Yanzhen Liu and Yan Pang

S1. Comment

Recently, Schiff base ligands, especially flexible symmetrical or unsymmetrical Schiff base ligands and their hydrogenated derivatives have been widely employed to assembly alkoxo- or phenoxo-bridged manganese clusters and polymers with novel topological structures and interesting magnetic, catalysis and photochemical properties. (Karacan & Somer, 2004; Chen *et al.*, 2006). In this paper, we report the structure of the title compound, (I).

As shown in Fig. 1, the Fe(III) ion in (I) is chelated by the dianionic Schiff base ligand in a tetradentate N,*N*,*O*,*O* coordination in an approximately square planar arrangement. An oxo ligand (site symmetry 2) caps the FeN_2O_2 grouping to result in a square based pyramid. The oxo ligand also bridges to a second, crystallographically generated Fe atom. The Fe—O capping distance is much shorter than the other bonds (Table 1). The Fe···Fe^{i} (i = -*x*, *y*, 1/2 - *z*) distance is 3.4066 (12) %A.

S2. Experimental

A mixture of iron(III) chloride (1 mmol) and *N*,*N*′-bis(2-hydroxy-5-bromobenzyl)ethylenediamine (1 mmol) in 20 ml methanol was refluxed for two hours. The above cooled solution was filterated and the filtrate was evaporated naturally at room temperature. Two days later, brown blocks of (I) were obtained with a yield of 32%. Anal. Calc. for $C_{32}H_{24}Br_4Fe_2N_4O_5$: C 39.34, H 2.46, N 5.74%; Found: C 39.32, H 2.48, N 5.69%.

S3. Refinement

The H atoms were included in calculated positions (C—H = 0.93–0.97 Å) and refined as riding with U_{iso}(H) = 1.2U_{eq}(C) or 1.5U_{eq}(methyl C).

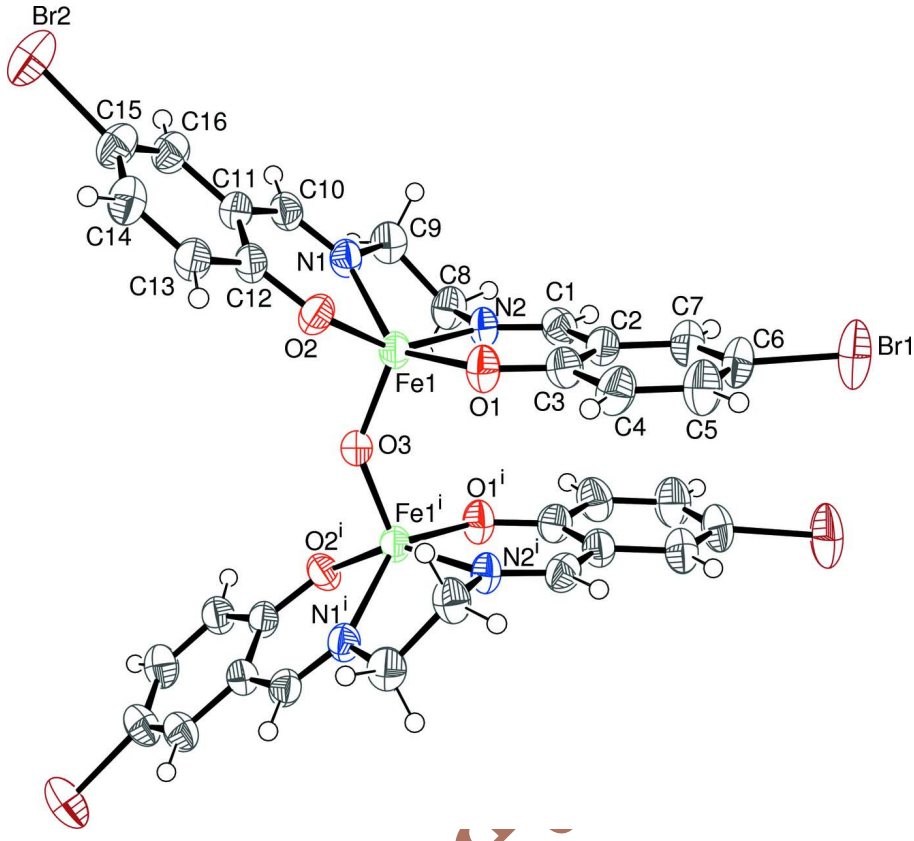

Figure 1

The molecular structure of (I), drawn with 50% probability displacement ellipsoids for the non-hydrogen atoms. Symmetry code: (i) -*x*, *y*, 1/2 - *z*.

μ-Oxido-bis({4,4′-dibromo-2,2′-ethane-1,2-diylbis(nitrilomethylidyne)]diphenolato}iron(III))

Crystal data

$[Fe_2(C_{16}H_{12}Br_2N_2O_2)_2O]$
$M_r = 975.89$
Orthorhombic, *Pcca*
Hall symbol: -P 2a 2ac
$a = 21.094\ (2)$ Å
$b = 13.8168\ (18)$ Å
$c = 11.9619\ (12)$ Å
$V = 3486.3\ (7)$ Å^3
$Z = 4$
$F(000) = 1904$
$D_x = 1.859$ Mg m^{-3}
Mo $K\alpha$ radiation, $\lambda = 0.71073$ Å
Cell parameters from 3182 reflections
$\theta = 3.0–25.4°$
$\mu = 5.46$ mm^{-1}
$T = 293$ K
Block, brown
0.43 × 0.28 × 0.22 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)
$T_{min} = 0.202$, $T_{max} = 0.380$
11548 measured reflections
3182 independent reflections
2257 reflections with $I > 2\sigma(I)$
$R_{int} = 0.049$
$\theta_{max} = 25.4°$, $\theta_{min} = 3.0°$
$h = -25\rightarrow25$
$k = -16\rightarrow16$
$l = 0\rightarrow14$

Refinement

Refinement on F^2
Least-squares matrix: full
$R[F^2 > 2\sigma(F^2)] = 0.059$
$wR(F^2) = 0.147$
$S = 1.00$
3182 reflections
213 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
$w = 1/[\sigma^2(F_o^2) + (0.077P)^2]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max} = 0.018$
$\Delta\rho_{max} = 1.05$ e Å^{-3}
$\Delta\rho_{min} = -0.70$ e Å^{-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 (Å²)

	x	*y*	*z*	U_{iso}*/U_{eq}
Fe1	0.07194 (4)	0.12987 (5)	0.31467 (6)	0.0342 (2)
Br1	0.10796 (4)	0.66034 (5)	0.24478 (7)	0.0776 (3)
Br2	0.28253 (3)	−0.28115 (5)	0.48690 (6)	0.0663 (3)
C1	0.0405 (3)	0.3280 (4)	0.4134 (4)	0.0404 (13)
H1	0.0230	0.3670	0.4687	0.048*
C2	0.0734 (3)	0.3750 (4)	0.3197 (5)	0.0392 (12)
C3	0.1029 (3)	0.3259 (4)	0.2294 (5)	0.0405 (13)
C4	0.1303 (3)	0.3799 (4)	0.1413 (5)	0.0514 (15)
H4	0.1477	0.3477	0.0803	0.062*
C5	0.1316 (3)	0.4776 (4)	0.1447 (6)	0.0574 (17)
H5	0.1504	0.5126	0.0872	0.069*
C6	0.1039 (3)	0.5260 (4)	0.2367 (5)	0.0519 (16)
C7	0.0744 (3)	0.4748 (4)	0.3235 (5)	0.0476 (14)
H7	0.0557	0.5077	0.3829	0.057*
C8	0.0009 (3)	0.1958 (4)	0.5204 (5)	0.0432 (14)
H8A	−0.0382	0.1650	0.4970	0.052*
H8B	−0.0091	0.2462	0.5741	0.052*
C9	0.0461 (3)	0.1213 (4)	0.5721 (4)	0.0423 (13)
H9A	0.0765	0.1534	0.6202	0.051*
H9B	0.0224	0.0751	0.6166	0.051*
C10	0.1146 (3)	−0.0002 (4)	0.5091 (4)	0.0385 (13)
H10	0.1140	−0.0181	0.5840	0.046*
C11	0.1561 (3)	−0.0556 (4)	0.4331 (4)	0.0370 (12)
C12	0.1643 (3)	−0.0340 (3)	0.3168 (4)	0.0356 (11)
C13	0.2041 (3)	−0.0949 (4)	0.2516 (5)	0.0410 (13)

H13	0.2075	−0.0849	0.1749	0.049*
C14	0.2370 (3)	−0.1675 (4)	0.3005 (5)	0.0474 (14)
H14	0.2640	−0.2058	0.2576	0.057*
C15	0.2308 (3)	−0.1858 (4)	0.4169 (5)	0.0463 (14)
C16	0.1901 (3)	−0.1313 (4)	0.4831 (5)	0.0428 (14)
H16	0.1856	−0.1448	0.5589	0.051*
N1	0.0797 (2)	0.0703 (3)	0.4793 (4)	0.0363 (10)
N2	0.0348 (2)	0.2370 (3)	0.4227 (4)	0.0360 (10)
O1	0.10571 (18)	0.2321 (3)	0.2223 (3)	0.0435 (9)
O2	0.13721 (19)	0.0409 (3)	0.2686 (3)	0.0414 (9)
O3	0.0000	0.0842 (4)	0.2500	0.0388 (12)

Atomic displacement parameters (Å²)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Fe1	0.0433 (5)	0.0267 (4)	0.0327 (4)	0.0006 (3)	0.0003 (3)	−0.0002 (3)
Br1	0.1084 (7)	0.0293 (4)	0.0950 (6)	−0.0024 (3)	0.0277 (5)	0.0093 (4)
Br2	0.0660 (5)	0.0586 (5)	0.0744 (5)	0.0225 (3)	0.0087 (4)	0.0251 (4)
C1	0.044 (3)	0.036 (3)	0.041 (3)	0.001 (2)	0.001 (3)	−0.007 (2)
C2	0.042 (3)	0.031 (3)	0.045 (3)	0.000 (2)	−0.001 (3)	0.002 (2)
C3	0.042 (3)	0.037 (3)	0.043 (3)	−0.003 (2)	0.003 (3)	0.001 (3)
C4	0.062 (4)	0.042 (3)	0.050 (3)	0.001 (3)	0.007 (3)	0.011 (3)
C5	0.067 (4)	0.040 (3)	0.066 (4)	−0.007 (3)	0.013 (3)	0.009 (3)
C6	0.064 (4)	0.029 (3)	0.064 (4)	−0.004 (3)	0.005 (3)	0.012 (3)
C7	0.051 (4)	0.032 (3)	0.060 (4)	0.001 (3)	0.004 (3)	0.002 (3)
C8	0.050 (4)	0.038 (3)	0.042 (3)	0.001 (3)	0.011 (3)	0.004 (3)
C9	0.052 (3)	0.041 (3)	0.034 (3)	−0.001 (3)	0.010 (3)	0.001 (2)
C10	0.051 (4)	0.030 (3)	0.035 (3)	−0.006 (2)	−0.001 (3)	0.001 (2)
C11	0.041 (3)	0.030 (3)	0.041 (3)	−0.001 (2)	−0.003 (2)	0.003 (2)
C12	0.043 (3)	0.027 (2)	0.037 (3)	−0.001 (2)	0.001 (2)	−0.001 (2)
C13	0.049 (3)	0.034 (3)	0.041 (3)	0.003 (2)	0.001 (3)	0.001 (2)
C14	0.048 (3)	0.038 (3)	0.057 (4)	0.005 (3)	0.008 (3)	0.002 (3)
C15	0.044 (3)	0.043 (3)	0.052 (3)	0.003 (3)	0.005 (3)	0.016 (3)
C16	0.047 (3)	0.038 (3)	0.043 (3)	−0.001 (3)	0.002 (3)	0.010 (3)
N1	0.045 (3)	0.029 (2)	0.035 (2)	0.0013 (19)	0.002 (2)	−0.0019 (19)
N2	0.042 (3)	0.025 (2)	0.041 (2)	−0.0042 (18)	0.005 (2)	0.0019 (19)
O1	0.055 (3)	0.030 (2)	0.045 (2)	−0.0026 (17)	0.0101 (19)	0.0019 (17)
O2	0.056 (2)	0.034 (2)	0.0346 (18)	0.0113 (17)	−0.0020 (18)	0.0024 (16)
O3	0.045 (3)	0.028 (3)	0.043 (3)	0.000	−0.009 (2)	0.000

Geometric parameters (Å, º)

Fe1—O3	1.8162 (18)	C8—C9	1.533 (8)
Fe1—O2	1.926 (4)	C8—H8A	0.9700
Fe1—O1	1.930 (4)	C8—H8B	0.9700
Fe1—N2	2.116 (4)	C9—N1	1.493 (7)
Fe1—N1	2.141 (4)	C9—H9A	0.9700
Br1—C6	1.861 (6)	C9—H9B	0.9700

Br2—C15	1.905 (6)	C10—N1	1.272 (7)
C1—N2	1.268 (6)	C10—C11	1.474 (7)
C1—C2	1.470 (7)	C10—H10	0.9300
C1—H1	0.9300	C11—C16	1.404 (7)
C2—C7	1.380 (7)	C11—C12	1.434 (7)
C2—C3	1.419 (8)	C12—O2	1.314 (6)
C3—O1	1.299 (6)	C12—C13	1.422 (7)
C3—C4	1.414 (8)	C13—C14	1.354 (8)
C4—C5	1.351 (8)	C13—H13	0.9300
C4—H4	0.9300	C14—C15	1.421 (8)
C5—C6	1.414 (9)	C14—H14	0.9300
C5—H5	0.9300	C15—C16	1.388 (8)
C6—C7	1.402 (8)	C16—H16	0.9300
C7—H7	0.9300	O3—Fe1^{i}	1.8162 (18)
C8—N2	1.483 (7)		

O3—Fe1—O2	104.71 (16)	N1—C9—C8	108.2 (4)
O3—Fe1—O1	108.58 (16)	N1—C9—H9A	110.1
O2—Fe1—O1	92.29 (16)	C8—C9—H9A	110.1
O3—Fe1—N2	101.14 (16)	N1—C9—H9B	110.1
O2—Fe1—N2	152.39 (17)	C8—C9—H9B	110.1
O1—Fe1—N2	88.51 (16)	H9A—C9—H9B	108.4
O3—Fe1—N1	108.78 (15)	N1—C10—C11	124.6 (5)
O2—Fe1—N1	87.89 (16)	N1—C10—H10	117.7
O1—Fe1—N1	141.27 (17)	C11—C10—H10	117.7
N2—Fe1—N1	74.66 (16)	C16—C11—C12	120.4 (5)
N2—C1—C2	123.4 (5)	C16—C11—C10	115.4 (5)
N2—C1—H1	118.3	C12—C11—C10	124.2 (5)
C2—C1—H1	118.3	O2—C12—C13	118.8 (4)
C7—C2—C3	119.8 (5)	O2—C12—C11	122.4 (5)
C7—C2—C1	115.0 (5)	C13—C12—C11	118.7 (5)
C3—C2—C1	125.1 (5)	C14—C13—C12	120.3 (5)
O1—C3—C2	123.1 (5)	C14—C13—H13	119.8
O1—C3—C4	117.3 (5)	C12—C13—H13	119.8
C2—C3—C4	119.6 (5)	C13—C14—C15	120.5 (5)
C5—C4—C3	120.9 (6)	C13—C14—H14	119.8
C5—C4—H4	119.6	C15—C14—H14	119.8
C3—C4—H4	119.6	C16—C15—C14	121.3 (5)
C4—C5—C6	119.2 (6)	C16—C15—Br2	118.6 (4)
C4—C5—H5	120.4	C14—C15—Br2	120.0 (4)
C6—C5—H5	120.4	C15—C16—C11	118.5 (5)
C7—C6—C5	121.4 (5)	C15—C16—H16	120.7
C7—C6—Br1	119.0 (5)	C11—C16—H16	120.7
C5—C6—Br1	119.5 (4)	C10—N1—C9	115.4 (4)
C2—C7—C6	119.1 (6)	C10—N1—Fe1	126.6 (4)
C2—C7—H7	120.5	C9—N1—Fe1	117.8 (3)
C6—C7—H7	120.5	C1—N2—C8	119.7 (5)
N2—C8—C9	106.0 (4)	C1—N2—Fe1	127.2 (4)

N2—C8—H8A	110.5	C8—N2—Fe1	113.0 (3)
C9—C8—H8A	110.5	C3—O1—Fe1	132.5 (3)
N2—C8—H8B	110.5	C12—O2—Fe1	133.4 (3)
C9—C8—H8B	110.5	Fe1^{i}—O3—Fe1	139.4 (3)
H8A—C8—H8B	108.7		

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