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Tripotassium bis(acetato-κ^2O,O')-(thiocyanato-κN)plumbate(II) dithiocyanate

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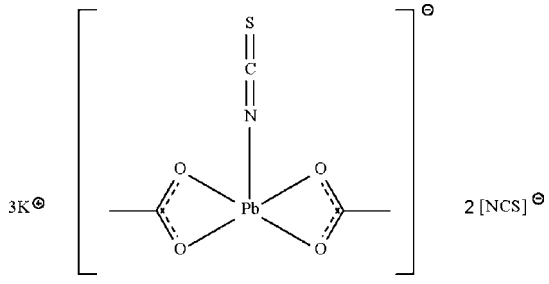
Key indicators: single-crystal X-ray study; T = 140 K; mean σ(C–C) = 0.005 Å; R factor = 0.022; wR factor = 0.056; data-to-parameter ratio = 19.7.

In the crystal structure of the title salt, $K_3[Pb(CH_3COO)_2(NCS)](NCS)_2$, the $[Pb(CH_3COO)_2(NCS)]^-$ anion exists as a covalently bonded entity in which the acetate anions chelate in an anisobidentate manner. The Pb atom shows a distorted ψ-octahedral coordination to four acetate O atoms and one isocyanate N atom, with the stereochemically active lone pair occupying one of the six sites. When the three longer Pb···S interactions are considered, the eight-coordinate geometry is based on a dodecahedron. The $Pb(CH_3COO)_2(NCS)]^-$ anion has mirror symmetry. The potassium cations connect the other constituents into a three-dimensional network through electrostatic K···N and K···S interactions.

Related literature

In $[K_6Pb_6(CH_3CO_2)_{12}(NCS)_2](NCS)_4$, the acetate groups link the lead(II) atoms into a chain; see: Morsali & Mahjoub (2004).



Experimental

Crystal data

$K_3[Pb(C_2H_3O_2)_2(NCS)](NCS)_2$
M_r = 616.82
Monoclinic, $P2_1/m$
a = 6.1968 (1) Å
b = 19.2499 (3) Å
c = 7.6354 (1) Å
β = 106.982 (1)°
V = 871.10 (2) Å^3
Z = 2
Mo $K\alpha$ radiation
μ = 10.77 mm^{-1}
T = 140 K
0.25 × 0.20 × 0.08 mm

Data collection

Bruker SMART APEX diffractometer
Absorption correction: multi-scan (*SADABS*; Sheldrick, 1996)
T_{min} = 0.174, T_{max} = 0.480
(expected range = 0.153–0.422)
6058 measured reflections
2045 independent reflections
2015 reflections with $I > 2\sigma(I)$
R_{int} = 0.023

Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.022
$wR(F^2)$ = 0.056
S = 1.16
2045 reflections
104 parameters
H-atom parameters constrained
$\Delta\rho_{max}$ = 0.81 e Å^{-3}
$\Delta\rho_{min}$ = −2.00 e Å^{-3}

Data collection: *APEX2* (Bruker, 2008); cell refinement: *SAINT* (Bruker, 2008); data reduction: *SAINT*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 2008); program(s) used to refine structure: *SHELXL97* (Sheldrick, 2008); molecular graphics: *X-SEED* (Barbour, 2001); software used to prepare material for publication: *publCIF* (Westrip, 2009).

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Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: TK2472).

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supplementary materials

Acta Cryst. (2009). E**65**, m755 [**doi:10.1107/S1600536809021370**]

Tripotassium bis(acetato-κ^2O,O')(thiocyanato-κN)plumbate(II) dithiocyanate

S. W. Ng

Experimental

2,4-Diamino-6-(1-piperidinyl)-2,4-pyrimidine *N*-oxide (commercial name: minoxidil) (0.5 mmol, 0.10 g), lead(II) acetate (0.5 mmol, 0.17 g) and potassium thiocyanate (1 mmol, 0.10 g) were dissolved in methanol (100 ml). The solution was concentrated to a smaller volume and this was mixed with a similar volume of chloroform. Colorless prisms separated after several days.

Refinement

Hydrogen atoms were placed at calculated positions (C–H 0.98 Å) and were treated as riding on the carbon atom with U(H) set to 1.5U_{eq}(C). The final difference Fourier map had a deep hole at 1 Å from N1.

Figures

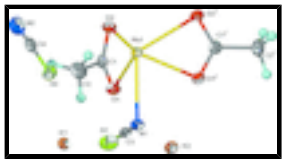

Fig. 1. Thermal ellipsoid plot (Barbour, 2001) of a portion of the polymeric structure of $K_3Pb(NCS)_3(CH_3CO_2)_2$ at the 70% probability level. Hydrogen atoms are drawn as spheres of arbitrary radius. Symmetry operation i: x, 1.5-y, z.

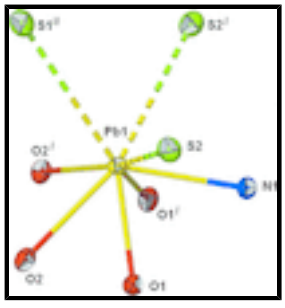

Fig. 2. Detail showing the dodecahedral geometry of the Pb(II) atom.

Tripotassium bis(acetato-κ$^2O,O'$)(thiocyanato-κN)plumbate(II) dithiocyanate

Crystal data

$K_3[Pb(C_2H_3O_2)_2(NCS)](NCS)_2$	F_{000} = 576
M_r = 616.82	D_x = 2.352 Mg m^{-3}
Monoclinic, $P2_1/m$	Mo $K\alpha$ radiation λ = 0.71073 Å
Hall symbol: -P 2yb	Cell parameters from 4971 reflections
a = 6.1968 (1) Å	θ = 2.9–28.3°
b = 19.2499 (3) Å	μ = 10.77 mm^{-1}

c = 7.6354 (1) Å	T = 140 K
β = 106.982 (1)º	Block, colorless
V = 871.10 (2) Å^3	0.25 × 0.20 × 0.08 mm
Z = 2	

Data collection

Bruker SMART APEX diffractometer	2045 independent reflections
Radiation source: fine-focus sealed tube	2015 reflections with $I > 2\sigma(I)$
Monochromator: graphite	R_{int} = 0.023
T = 140 K	θ_{max} = 27.5º
ω scans	θ_{min} = 2.1º
Absorption correction: Multi-scan (SADABS; Sheldrick, 1996)	$h = -7 \rightarrow 8$
T_{min} = 0.174, T_{max} = 0.480	$k = -25 \rightarrow 25$
6058 measured reflections	$l = -9 \rightarrow 9$

Refinement

Refinement on F^2	Secondary atom site location: difference Fourier map
Least-squares matrix: full	Hydrogen site location: inferred from neighbouring sites
$R[F^2 > 2\sigma(F^2)]$ = 0.022	H-atom parameters constrained
$wR(F^2)$ = 0.056	$w = 1/[\sigma^2(F_o^2) + (0.03P)^2 + 1.3438P]$ where $P = (F_o^2 + 2F_c^2)/3$
S = 1.16	$(\Delta/\sigma)_{max}$ = 0.001
2045 reflections	$\Delta\rho_{max}$ = 0.81 e Å^{-3}
104 parameters	$\Delta\rho_{min}$ = −2.00 e Å^{-3}
Primary atom site location: structure-invariant direct methods	Extinction correction: none

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

	x	y	z	U_{iso}*/U_{eq}
Pb1	0.41686 (3)	0.7500	0.47400 (2)	0.01158 (7)
K1	0.85392 (14)	0.59423 (4)	0.42518 (12)	0.01948 (17)
K2	0.74409 (19)	0.7500	0.09371 (15)	0.0160 (2)
S1	1.1475 (2)	0.7500	0.8492 (2)	0.0247 (3)
S2	0.65682 (16)	0.62677 (5)	0.76528 (14)	0.01949 (19)
N1	0.8449 (7)	0.7500	0.4972 (6)	0.0151 (9)
N2	0.2738 (6)	0.54336 (19)	0.6214 (6)	0.0289 (8)
O1	0.4696 (4)	0.66654 (13)	0.2532 (4)	0.0162 (5)
O2	0.1161 (4)	0.66405 (13)	0.2588 (4)	0.0171 (5)
C1	0.2743 (6)	0.63941 (18)	0.2063 (5)	0.0146 (7)
C2	0.2360 (7)	0.5741 (2)	0.0917 (6)	0.0236 (8)
H2A	0.2283	0.5341	0.1689	0.035*
H2B	0.3609	0.5678	0.0388	0.035*

H2C	0.0940	0.5782	−0.0069	0.035*
C3	0.9724 (8)	0.7500	0.6432 (7)	0.0142 (10)
C4	0.4309 (6)	0.57822 (19)	0.6821 (5)	0.0180 (7)

Atomic displacement parameters (Å^2)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Pb1	0.01294 (11)	0.01291 (10)	0.01004 (11)	0.000	0.00516 (7)	0.000
K1	0.0164 (4)	0.0153 (4)	0.0286 (4)	0.0018 (3)	0.0095 (3)	0.0037 (3)
K2	0.0168 (5)	0.0192 (5)	0.0129 (5)	0.000	0.0058 (4)	0.000
S1	0.0184 (6)	0.0388 (8)	0.0144 (6)	0.000	0.0011 (5)	0.000
S2	0.0194 (4)	0.0185 (4)	0.0210 (5)	−0.0041 (3)	0.0065 (4)	−0.0016 (4)
N1	0.0119 (19)	0.020 (2)	0.013 (2)	0.000	0.0035 (17)	0.000
N2	0.0217 (18)	0.0232 (17)	0.036 (2)	−0.0019 (14)	0.0000 (16)	0.0014 (15)
O1	0.0136 (12)	0.0192 (12)	0.0162 (13)	−0.0004 (9)	0.0050 (10)	−0.0031 (10)
O2	0.0142 (12)	0.0194 (12)	0.0191 (13)	0.0017 (9)	0.0071 (10)	−0.0002 (10)
C1	0.0171 (16)	0.0143 (15)	0.0107 (16)	0.0017 (12)	0.0015 (13)	0.0049 (13)
C2	0.0234 (19)	0.0199 (18)	0.025 (2)	−0.0010 (15)	0.0034 (17)	−0.0079 (16)
C3	0.012 (2)	0.012 (2)	0.020 (3)	0.000	0.008 (2)	0.000
C4	0.0175 (18)	0.0142 (16)	0.0205 (19)	0.0032 (13)	0.0031 (15)	0.0034 (14)

Geometric parameters (Å, °)

Pb1—O1	2.419 (3)	K2—S2^{vi}	3.3788 (13)
Pb1—O1^{i}	2.419 (3)	K2—S2^{vii}	3.3788 (13)
Pb1—O2	2.669 (3)	S1—C3	1.630 (5)
Pb1—O2^{i}	2.669 (3)	S2—C4	1.649 (4)
Pb1—N1	2.606 (4)	S2—K2^{viii}	3.3788 (13)
Pb1—S1^{ii}	3.713 (1)	N1—C3	1.163 (7)
Pb1—S2	3.294 (1)	N1—K1^{i}	3.0520 (12)
Pb1—S2^{i}	3.294 (1)	N2—C4	1.162 (5)
K1—O2^{iii}	2.696 (3)	N2—K1^{iv}	2.757 (4)
K1—O1	2.740 (3)	N2—K1^{ii}	2.774 (4)
K1—N2^{iv}	2.757 (4)	O1—C1	1.270 (4)
K1—N2^{iii}	2.774 (4)	O2—C1	1.255 (5)
K1—N1	3.0520 (12)	O2—K1^{ii}	2.696 (3)
K1—S2	3.2373 (13)	O2—K2^{ii}	2.818 (3)
K2—O2^{v}	2.818 (3)	C1—C2	1.509 (5)
K2—O2^{iii}	2.818 (3)	C2—H2A	0.9800
K2—O1	2.858 (3)	C2—H2B	0.9800
K2—O1^{i}	2.858 (3)	C2—H2C	0.9800
K2—N1	2.959 (5)	C3—K1^{i}	3.404 (3)
O1—Pb1—O1^{i}	83.23 (13)	O2^{v}—K2—S1^{ix}	143.98 (5)
O1—Pb1—N1	72.87 (9)	O2^{iii}—K2—S1^{ix}	143.98 (5)
O1^{i}—Pb1—N1	72.87 (9)	O1—K2—S1^{ix}	64.83 (6)

O1—Pb1—O2	51.04 (8)	$O1^{i}$—K2—$S1^{ix}$	64.83 (6)
$O1^{i}$—Pb1—O2	101.23 (8)	N1—K2—$S1^{ix}$	114.20 (9)
N1—Pb1—O2	123.76 (9)	$S2^{vi}$—K2—$S1^{ix}$	72.51 (3)
O1—Pb1—$O2^{i}$	101.23 (8)	$S2^{vii}$—K2—$S1^{ix}$	72.51 (3)
$O1^{i}$—Pb1—$O2^{i}$	51.04 (8)	$S1^{vi}$—K2—$S1^{ix}$	120.08 (5)
N1—Pb1—$O2^{i}$	123.76 (9)	C3—S1—$K2^{viii}$	97.79 (19)
O2—Pb1—$O2^{i}$	76.62 (11)	C3—S1—$K2^{x}$	142.1 (2)
$O2^{iii}$—K1—O1	94.59 (8)	$K2^{viii}$—S1—$K2^{x}$	120.08 (5)
$O2^{iii}$—K1—$N2^{iv}$	127.44 (11)	C4—S2—K1	93.34 (15)
O1—K1—$N2^{iv}$	104.45 (9)	C4—S2—$K2^{viii}$	128.15 (15)
$O2^{iii}$—K1—$N2^{iii}$	80.28 (10)	K1—S2—$K2^{viii}$	135.65 (4)
O1—K1—$N2^{iii}$	170.07 (10)	C3—N1—Pb1	117.3 (4)
$N2^{iv}$—K1—$N2^{iii}$	85.36 (11)	C3—N1—K2	151.1 (4)
$O2^{iii}$—K1—N1	68.92 (10)	Pb1—N1—K2	91.61 (13)
O1—K1—N1	61.85 (10)	C3—N1—K1	97.45 (9)
$N2^{iv}$—K1—N1	161.31 (12)	Pb1—N1—K1	93.42 (8)
$N2^{iii}$—K1—N1	108.25 (11)	K2—N1—K1	79.74 (8)
$O2^{iii}$—K1—S2	134.60 (6)	C3—N1—$K1^{i}$	97.45 (9)
O1—K1—S2	78.90 (6)	Pb1—N1—$K1^{i}$	93.42 (8)
$N2^{iv}$—K1—S2	97.35 (9)	K2—N1—$K1^{i}$	79.74 (8)
$N2^{iii}$—K1—S2	98.58 (9)	K1—N1—$K1^{i}$	158.52 (17)
N1—K1—S2	68.55 (9)	C4—N2—$K1^{iv}$	141.4 (3)
$O2^{v}$—K2—$O2^{iii}$	71.90 (11)	C4—N2—$K1^{ii}$	123.8 (3)
$O2^{v}$—K2—O1	130.58 (9)	$K1^{iv}$—N2—$K1^{ii}$	94.64 (11)
$O2^{iii}$—K2—O1	89.45 (8)	C1—O1—Pb1	99.1 (2)
$O2^{v}$—K2—$O1^{i}$	89.45 (8)	C1—O1—K1	123.3 (2)
$O2^{iii}$—K2—$O1^{i}$	130.58 (9)	Pb1—O1—K1	106.18 (9)
O1—K2—$O1^{i}$	68.41 (10)	C1—O1—K2	138.4 (2)
$O2^{v}$—K2—N1	68.78 (9)	Pb1—O1—K2	98.16 (8)
$O2^{iii}$—K2—N1	68.78 (9)	K1—O1—K2	86.99 (8)
O1—K2—N1	61.80 (9)	C1—O2—Pb1	87.8 (2)
$O1^{i}$—K2—N1	61.80 (9)	C1—O2—$K1^{ii}$	126.6 (2)
$O2^{v}$—K2—$S2^{vi}$	132.59 (7)	Pb1—O2—$K1^{ii}$	115.30 (10)
$O2^{iii}$—K2—$S2^{vi}$	81.51 (6)	C1—O2—$K2^{ii}$	133.8 (2)
O1—K2—$S2^{vi}$	86.29 (6)	Pb1—O2—$K2^{ii}$	104.14 (8)
$O1^{i}$—K2—$S2^{vi}$	136.45 (7)	$K1^{ii}$—O2—$K2^{ii}$	88.66 (8)
N1—K2—$S2^{vi}$	135.40 (2)	O2—C1—O1	121.6 (3)
$O2^{v}$—K2—$S2^{vii}$	81.51 (6)	O2—C1—C2	119.6 (3)
$O2^{iii}$—K2—$S2^{vii}$	132.59 (7)	O1—C1—C2	118.8 (3)
O1—K2—$S2^{vii}$	136.45 (6)	C1—C2—H2A	109.5
$O1^{i}$—K2—$S2^{vii}$	86.29 (6)	C1—C2—H2B	109.5

N1—K2—S2^{vii}	135.40 (2)	H2A—C2—H2B	109.5
S2^{vi}—K2—S2^{vii}	89.19 (4)	C1—C2—H2C	109.5
O2^{v}—K2—S1^{vi}	67.87 (6)	H2A—C2—H2C	109.5
O2^{iii}—K2—S1^{vi}	67.87 (6)	H2B—C2—H2C	109.5
O1—K2—S1^{vi}	145.78 (5)	N1—C3—S1	179.1 (5)
O1^{i}—K2—S1^{vi}	145.78 (5)	N1—C3—K1^{i}	62.76 (9)
N1—K2—S1^{vi}	125.72 (9)	S1—C3—K1^{i}	117.37 (8)
S2^{vi}—K2—S1^{vi}	65.92 (3)	N2—C4—S2	178.7 (4)
S2^{vii}—K2—S1^{vi}	65.92 (3)		
O2^{iii}—K1—S2—C4	150.92 (15)	O1^{i}—Pb1—O1—C1	−114.5 (2)
O1—K1—S2—C4	65.45 (14)	N1—Pb1—O1—C1	171.4 (2)
N2^{iv}—K1—S2—C4	−37.91 (15)	O2—Pb1—O1—C1	−4.14 (19)
N2^{iii}—K1—S2—C4	−124.30 (15)	O2^{i}—Pb1—O1—C1	−66.5 (2)
N1—K1—S2—C4	129.38 (15)	O1^{i}—Pb1—O1—K1	116.73 (7)
O2^{iii}—K1—S2—K2^{viii}	−9.98 (11)	N1—Pb1—O1—K1	42.61 (10)
O1—K1—S2—K2^{viii}	−95.45 (7)	O2—Pb1—O1—K1	−132.90 (14)
N2^{iv}—K1—S2—K2^{viii}	161.19 (9)	O2^{i}—Pb1—O1—K1	164.73 (9)
N2^{iii}—K1—S2—K2^{viii}	74.80 (9)	O1^{i}—Pb1—O1—K2	27.51 (11)
N1—K1—S2—K2^{viii}	−31.52 (10)	N1—Pb1—O1—K2	−46.61 (9)
O1—Pb1—N1—C3	−135.98 (7)	O2—Pb1—O1—K2	137.88 (13)
O1^{i}—Pb1—N1—C3	135.98 (7)	O2^{i}—Pb1—O1—K2	75.51 (9)
O2—Pb1—N1—C3	−131.78 (8)	O2^{iii}—K1—O1—C1	145.2 (3)
O2^{i}—Pb1—N1—C3	131.78 (8)	N2^{iv}—K1—O1—C1	14.7 (3)
O1—Pb1—N1—K2	44.02 (7)	N1—K1—O1—C1	−151.6 (3)
O1^{i}—Pb1—N1—K2	−44.02 (7)	S2—K1—O1—C1	−80.2 (3)
O2—Pb1—N1—K2	48.22 (8)	O2^{iii}—K1—O1—Pb1	−101.92 (10)
O2^{i}—Pb1—N1—K2	−48.22 (8)	N2^{iv}—K1—O1—Pb1	127.50 (12)
O1—Pb1—N1—K1	−35.79 (10)	N1—K1—O1—Pb1	−38.80 (11)
O1^{i}—Pb1—N1—K1	−123.83 (13)	S2—K1—O1—Pb1	32.68 (7)
O2—Pb1—N1—K1	−31.60 (15)	O2^{iii}—K1—O1—K2	−4.30 (8)
O2^{i}—Pb1—N1—K1	−128.03 (8)	N2^{iv}—K1—O1—K2	−134.88 (10)
O1—Pb1—N1—K1^{i}	123.83 (13)	N1—K1—O1—K2	58.82 (11)
O1^{i}—Pb1—N1—K1^{i}	35.79 (10)	S2—K1—O1—K2	130.30 (6)
O2—Pb1—N1—K1^{i}	128.03 (8)	O2^{v}—K2—O1—C1	158.4 (3)
O2^{i}—Pb1—N1—K1^{i}	31.60 (15)	O2^{iii}—K2—O1—C1	−136.3 (3)
O2^{v}—K2—N1—C3	−39.03 (6)	O1^{i}—K2—O1—C1	89.0 (3)
O2^{iii}—K2—N1—C3	39.03 (6)	N1—K2—O1—C1	157.7 (4)
O1—K2—N1—C3	140.36 (6)	S2^{vi}—K2—O1—C1	−54.7 (3)
O1^{i}—K2—N1—C3	−140.36 (7)	S2^{vii}—K2—O1—C1	30.2 (4)
S2^{vi}—K2—N1—C3	90.78 (10)	S1^{vi}—K2—O1—C1	−89.4 (4)
S2^{vii}—K2—N1—C3	−90.78 (10)	S1^{ix}—K2—O1—C1	17.7 (3)

S1^{vi}—K2—N1—C3	0.000 (2)	O2^{v}—K2—O1—Pb1	44.69 (13)
S1^{ix}—K2—N1—C3	180.000 (3)	O2^{iii}—K2—O1—Pb1	110.02 (9)
O2^{v}—K2—N1—Pb1	140.97 (6)	O1^{i}—K2—O1—Pb1	−24.68 (10)
O2^{iii}—K2—N1—Pb1	−140.97 (6)	N1—K2—O1—Pb1	43.94 (8)
O1—K2—N1—Pb1	−39.64 (6)	S2^{vi}—K2—O1—Pb1	−168.45 (8)
O1^{i}—K2—N1—Pb1	39.64 (6)	S2^{vii}—K2—O1—Pb1	−83.54 (10)
S2^{vi}—K2—N1—Pb1	−89.22 (10)	S1^{vi}—K2—O1—Pb1	156.87 (8)
S2^{vii}—K2—N1—Pb1	89.22 (10)	S1^{ix}—K2—O1—Pb1	−96.05 (8)
S1^{vi}—K2—N1—Pb1	180.0	O2^{v}—K2—O1—K1	−61.24 (11)
S1^{ix}—K2—N1—Pb1	0.0	O2^{iii}—K2—O1—K1	4.10 (8)
O2^{v}—K2—N1—K1	−125.85 (11)	O1^{i}—K2—O1—K1	−130.60 (4)
O2^{iii}—K2—N1—K1	−47.79 (8)	N1—K2—O1—K1	−61.98 (8)
O1—K2—N1—K1	53.55 (7)	S2^{vi}—K2—O1—K1	85.63 (6)
O1^{i}—K2—N1—K1	132.82 (11)	S2^{vii}—K2—O1—K1	170.54 (5)
S2^{vi}—K2—N1—K1	3.96 (16)	S1^{vi}—K2—O1—K1	50.94 (14)
S2^{vii}—K2—N1—K1	−177.60 (6)	S1^{ix}—K2—O1—K1	158.03 (8)
S1^{vi}—K2—N1—K1	−86.82 (7)	O1—Pb1—O2—C1	4.13 (19)
S1^{ix}—K2—N1—K1	93.18 (7)	O1^{i}—Pb1—O2—C1	75.8 (2)
O2^{v}—K2—N1—K1^{i}	47.79 (8)	N1—Pb1—O2—C1	−1.0 (2)
O2^{iii}—K2—N1—K1^{i}	125.85 (11)	O2^{i}—Pb1—O2—C1	120.85 (18)
O1—K2—N1—K1^{i}	−132.82 (11)	O1—Pb1—O2—K1^{ii}	134.06 (15)
O1^{i}—K2—N1—K1^{i}	−53.55 (7)	O1^{i}—Pb1—O2—K1^{ii}	−154.31 (10)
S2^{vi}—K2—N1—K1^{i}	177.60 (6)	N1—Pb1—O2—K1^{ii}	128.90 (11)
S2^{vii}—K2—N1—K1^{i}	−3.96 (16)	O2^{i}—Pb1—O2—K1^{ii}	−109.23 (8)
S1^{vi}—K2—N1—K1^{i}	86.82 (7)	O1—Pb1—O2—K2^{ii}	−130.64 (13)
S1^{ix}—K2—N1—K1^{i}	−93.18 (7)	O1^{i}—Pb1—O2—K2^{ii}	−59.01 (10)
O2^{iii}—K1—N1—C3	−100.2 (4)	N1—Pb1—O2—K2^{ii}	−135.80 (10)
O1—K1—N1—C3	152.1 (4)	O2^{i}—Pb1—O2—K2^{ii}	−13.92 (12)
N2^{iv}—K1—N1—C3	106.4 (5)	Pb1—O2—C1—O1	−7.2 (3)
N2^{iii}—K1—N1—C3	−28.7 (4)	K1^{ii}—O2—C1—O1	−127.5 (3)
S2—K1—N1—C3	63.5 (3)	K2^{ii}—O2—C1—O1	100.3 (4)
O2^{iii}—K1—N1—Pb1	141.70 (14)	Pb1—O2—C1—C2	170.0 (3)
O1—K1—N1—Pb1	34.03 (9)	K1^{ii}—O2—C1—C2	49.7 (4)
N2^{iv}—K1—N1—Pb1	−11.7 (4)	K2^{ii}—O2—C1—C2	−82.5 (4)
N2^{iii}—K1—N1—Pb1	−146.82 (12)	Pb1—O1—C1—O2	8.0 (4)
S2—K1—N1—Pb1	−54.57 (9)	K1—O1—C1—O2	124.4 (3)
O2^{iii}—K1—N1—K2	50.68 (9)	K2—O1—C1—O2	−105.3 (4)
O1—K1—N1—K2	−56.99 (9)	Pb1—O1—C1—C2	−169.2 (3)
N2^{iv}—K1—N1—K2	−102.7 (4)	K1—O1—C1—C2	−52.9 (4)
N2^{iii}—K1—N1—K2	122.16 (11)	K2—O1—C1—C2	77.4 (4)
S2—K1—N1—K2	−145.59 (10)	Pb1—N1—C3—K1^{i}	−97.76 (12)

O2^{iii}—K1—N1—K1^{i}	33.4 (4)	K2—N1—C3—K1^{i}	82.24 (12)
O1—K1—N1—K1^{i}	−74.3 (4)	K1—N1—C3—K1^{i}	164.5 (2)
N2^{iv}—K1—N1—K1^{i}	−120.0 (5)	K2^{viii}—S1—C3—K1^{i}	97.27 (19)
N2^{iii}—K1—N1—K1^{i}	104.8 (4)	K2^{x}—S1—C3—K1^{i}	−82.73 (19)
S2—K1—N1—K1^{i}	−162.9 (5)		

Symmetry codes: (i) *x*, −*y*+3/2, *z*; (ii) *x*−1, *y*, *z*; (iii) *x*+1, *y*, *z*; (iv) −*x*+1, −*y*+1, −*z*+1; (v) *x*+1, −*y*+3/2, *z*; (vi) *x*, *y*, *z*−1; (vii) *x*, −*y*+3/2, *z*−1; (viii) *x*, *y*, *z*+1; (ix) *x*−1, *y*, *z*−1; (x) *x*+1, *y*, *z*+1.

Fig. 1

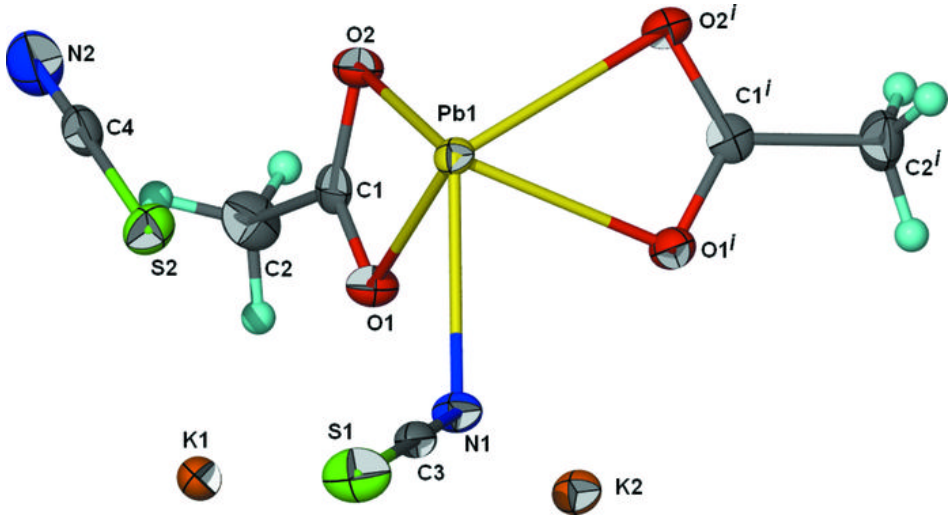

Fig. 2