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# Bis(2-formylphenolato-$\kappa^2O,O'$)manganese(II)

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**Key indicators**

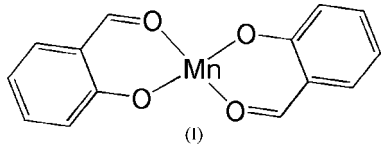
Single-crystal X-ray study
$T$ = 293 K
Mean $\sigma$(C–C) = 0.007 Å
$R$ factor = 0.065
$wR$ factor = 0.172
Data-to-parameter ratio = 16.4

For details of how these key indicators were automatically derived from the article, see http://journals.iucr.org/e.

The title compound, $[Mn(C_7H_5O_2)_2]$, is a mononuclear manganese(II) complex. The $Mn^{II}$ atom, lying on an inversion centre, is four-coordinated by four O atoms from two salicylaldehyde ligands, forming a square-planar geometry.

## Comment

Manganese(II) complexes are very important in biological chemistry and supramolecular chemistry (Miyasaka *et al.*, 1996; Ciringh *et al.*, 1997; Mabad *et al.*, 1986). We report here the crystal structure of the new title manganese(II) complex, (I).



(I)

The $Mn^{II}$ ion in complex (I), lying on an inversion centre, is four-coordinated by four O atoms from two salicylaldehyde ligands, forming a square-planar geometry (Fig. 1). The bond lengths and angles (Table 1) involving the $Mn^{II}$ ion are comparable with the values observed in other manganese complexes (Nakasuka *et al.*, 1985; Zhang, 2006; Gao & Liu, 2005; Okabe & Koizumi, 1998).

## Experimental

Salicylaldehyde (1.0 mmol, 122.1 mg) and $Mn(CH_3COO)_2{\cdot}2H_2O$ (0.5 mmol, 104.5 mg) were dissolved in ethanol (80 ml). The mixture was refluxed at 345 K under an argon atmosphere for about 1 h to give a red solution. After allowing this solution to stand in air for 7 d, deep-brown plate-shaped crystals were formed at the bottom of the vessel.

### *Crystal data*

$[Mn(C_7H_5O_2)_2]$
$M_r$ = 297.16
Monoclinic, $P2_1/c$
$a$ = 12.918 (2) Å
$b$ = 5.831 (1) Å
$c$ = 8.101 (3) Å
$\beta$ = 95.54 (3)°
$V$ = 607.4 (3) Å$^3$
$Z$ = 2
$D_x$ = 1.625 Mg m$^{-3}$
Mo $K\alpha$ radiation
$\mu$ = 1.09 mm$^{-1}$
$T$ = 293 (2) K
Plate, brown
0.10 × 0.10 × 0.03 mm

### *Data collection*

Bruker SMART CCD area-detector diffractometer
$\omega$ scans
Absorption correction: multi-scan (*SADABS*; Sheldrick, 1996)
$T_{min}$ = 0.899, $T_{max}$ = 0.968
5037 measured reflections
1446 independent reflections
1133 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.049
$\theta_{max}$ = 28.3°

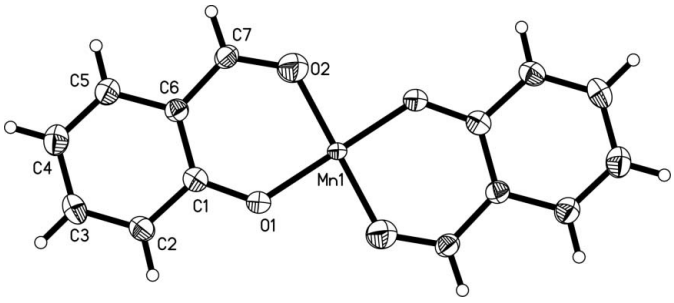



**Figure 1**
The structure of (I), showing 30% probability displacement ellipsoids and the atom-numbering scheme. Unlabelled atoms are related to the labelled atoms by the symmetry operation $(-x, 2-y, 1-z)$.

*Refinement*

| | |
|---|---|
| Refinement on $F^2$ | $w = 1/[\sigma^2(F_o^2) + (0.0704P)^2 + 1.5184P]$ where $P = (F_o^2 + 2F_c^2)/3$ |
| $R[F^2 > 2\sigma(F^2)] = 0.065$ | $(\Delta/\sigma)_{max} < 0.001$ |
| $wR(F^2) = 0.172$ | $\Delta\rho_{max} = 0.48$ e Å$^{-3}$ |
| $S = 1.07$ | $\Delta\rho_{min} = -0.75$ e Å$^{-3}$ |
| 1446 reflections | |
| 88 parameters | |
| H-atom parameters constrained | |

**Table 1**
Selected geometric parameters (Å, °).

| | | | |
|---|---|---|---|
| Mn1—O1 | 1.833 (3) | Mn1—O2 | 1.844 (4) |
| O1$^{i}$—Mn1—O1 | 180 | O1—Mn1—O2 | 94.90 (17) |
| O1—Mn1—O2$^{i}$ | 85.10 (17) | O2$^{i}$—Mn1—O2 | 180 |

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

All H atoms were placed in idealized positions and constrained to ride on their parent atoms, with C—H distances of 0.93 Å and with $U_{iso}$(H) set to $1.2U_{eq}$(C).

Data collection: *SMART* (Bruker, 1998); cell refinement: *SAINT* (Bruker, 1998); data reduction: *SAINT*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 1997*a*); program(s) used to refine structure: *SHELXL97* (Sheldrick, 1997*a*); molecular graphics: *SHELXTL* (Sheldrick, 1997*b*); software used to prepare material for publication: *SHELXTL*.

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