The dataset contains data for this study:

Elemental microanalyses.

X-ray Crystallographic data:

- Structure of **1[BF_4]$_2$**·2CH_3CN at 120 K (CCDC 2078647).
- Structure of **1[BF_4]$_2$**·CH_3CN at 200 K (CCDC 2078648).
- Structure of **1[BF_4]$_2$**·CH_3CN at 125 K (CCDC 2078649).
- Variable temperature unit cell data for **1[BF_4]$_2$**·CH_3CN.
- Structure of **1[ClO_4]$_2$**·CH_3CN at 200 K (CCDC 2078650).
- Structure of **1[ClO_4]$_2$**·CH_3CN at 160 K (CCDC 2078651).
- Variable temperature unit cell data for **1[ClO_4]$_2$**·CH_3CN.
- Structure of **1[BF_4]$_2$**·C_2H_5CN at 200 K (CCDC 2078652).
- Structure of **1[BF_4]$_2$**·C_2H_5CN at 187 K (CCDC 2078653).
- Structure of **1[BF_4]$_2$**·C_2H_5CN at 160 K (CCDC 2078654).
- Variable temperature unit cell data for **1[BF_4]$_2$**·C_2H_5CN.
- Structure of **1[ClO_4]$_2$**·C_2H_5CN, phase 1 at 240 K (CCDC 2078655).
- Structure of **1[ClO_4]$_2$**·C_2H_5CN, phase 2 at 170 K (CCDC 2078656).
- Structure of **1[ClO_4]$_2$**·C_2H_5CN, phase 1 at 120 K (CCDC 2078657).
- Variable temperature unit cell data for **1[ClO_4]$_2$**·C_2H_5CN.
- Structure of **1[BF_4]$_{0.9}$[ClO_4]$_{1.1}$**·C_2H_5CN, phase 1 at 240 K (CCDC 2078658).
- Structure of **1[BF_4]$_{0.9}$[ClO_4]$_{1.1}$**·C_2H_5CN, phase 2 at 170 K (CCDC 2078659).
- Structure of **1[BF_4]$_{0.9}$[ClO_4]$_{1.1}$**·C_2H_5CN, phase 1 at 120 K (CCDC 2078660).
- Variable temperature unit cell data for **1[BF_4]$_{0.9}$[ClO_4]$_{1.1}$**·C_2H_5CN.
- Structure of **1[BF_4]$_2$**·2CH_3NO_2 at 120 K (CCDC 2078661).
- Structure of **1[ClO_4]$_2$**·2CH_3NO_2 at 120 K (CCDC 2078662).
- Structure of **1[BF_4]$_2$**·CH_3OH at 120 K (CCDC 2078663).
- Structure of **1[ClO_4]$_2$**·½C_2H_5OH at 120 K (CCDC 2078664).

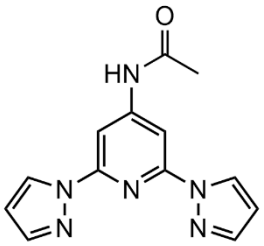
X-ray powder diffraction data (measured and simulated).

Thermogravimetric analyses (raw and plotted data).

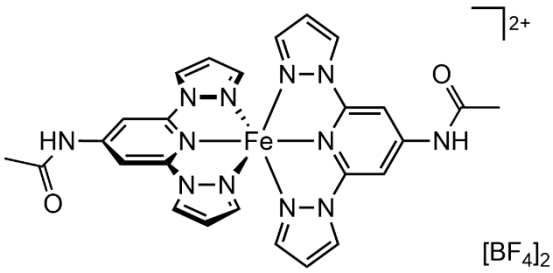
Solid state magnetic susceptibility measurements (raw and processed data).

Solution magnetic susceptibility measurements by Evans method (NMR spectra and processed data).

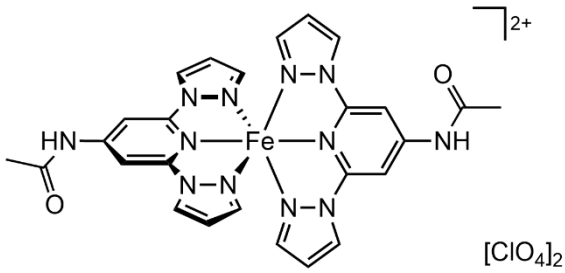
Compounds referred to in this dataset



L
N-(2,6-di{pyrazol-1-yl}pyrid-4-yl)acetamide
$C_{13}H_{12}N_6O$



$[Fe\mathit{L}_2][BF_4]_2$
$1[BF_4]_2$
Bis[*N*-(2,6-di{pyrazol-1-yl}pyrid-4-yl)acetamide]iron(II) di(tetrafluoroborate)
$C_{26}H_{24}B_2F_8FeN_{12}O_2$



$[Fe\mathit{L}_2][ClO_4]_2$
$1[ClO_4]_2$
Bis[*N*-(2,6-di{pyrazol-1-yl}pyrid-4-yl)acetamide]iron(II) diperchlorate
$C_{26}H_{24}Cl_2FeN_{12}O_{10}$