

MS15-1-3 Copper–cyano–thiocyanato anionic frameworks
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Abstract

The reaction of CuCN and CuSCN with manganese(II) nitrate in DMSO (DMSO - dimethyl sulfoxide) affords to produce a novel coordination compound of composition $[\text{Mn}(\text{DMSO})_4(\text{H}_2\text{O})_2][\text{Cu}_8(\text{SCN})_4(\text{CN})_6](\text{DMSO})$ (**1**) (Figure). The crystal structure of **1** (sp. gr. $P4_2/n$) contains a unique anionic $\{[\text{Cu}_8(\text{SCN})_4(\text{CN})_6]^{2-}\}_n$ network of unknown topology with infinite square channels of about $12 \times 12 \text{ \AA}$, filled by solvated Mn^{2+} complex cations and partially disordered DMSO molecules. The related compounds with Cu^{2+} (**2**), Co^{2+} (**3**) and Ni^{2+} (**4**) instead of Mn^{2+} possess similar structure (space groups: $P4_2/n$ **2**, $P4_2/n$ **3**, **4**), but their complex $[\text{M}(\text{DMSO})_4(\text{H}_2\text{O})_2]^{2+}$ cations are strongly disordered.

