

SYNTHESIS AND X-RAY CHARACTERISATION OF A NEW MIXED-VALENT TRINUCLEAR IRON CLUSTER

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Abstract. This paper reports on the synthesis of a new trinuclear homometalic mixed-valent iron carboxylate cluster with furan-2-carboxylic acid. The complex with the formula $[\text{Fe}_2^{\text{III}}\text{Fe}^{\text{II}}\text{O}(\text{C}_4\text{H}_3\text{OCOO})_6(\text{H}_2\text{O})_3] \cdot 0.5\text{CH}_3\text{CN} \cdot 2.25\text{H}_2\text{O}$ was characterized by X-ray analysis that revealed that the compound crystallizes in the triclinic centrosymmetric group *P*-1, with the following unit cell parameters: $a = 10.2758(6)$ Å, $b = 11.5991(9)$ Å, $c = 19.7349(15)$ Å, $\alpha = 105.060(7)^\circ$, $\beta = 94.216(6)^\circ$, $\gamma = 101.662(6)^\circ$.

Keywords: iron cluster, mixed valence, X-ray analysis, μ_3 -oxo, crystal structure, hydrogen bonds.