

Solid-state Formation of a Coordination Polymer starting from a Monomeric Thiodiacetate Manganese Complex

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Compounds $[\text{Mn}(\text{tda})(\text{H}_2\text{O})_3]\cdot\text{H}_2\text{O}$ (**1**) and $[\text{Mn}(\text{tda})(\text{H}_2\text{O})]_n$ (**2**) (tda = thiodiacetate, $\text{S}(\text{CH}_2\text{COO})_2^{2-}$) were obtained by the reaction of aqueous solutions of manganese dichloride and a 1:1 mixture of Na_2CO_3 and thiodiacetic acid with the appropriate work-up. The X-ray study of **1** shows that the complex is a monomer containing the typical tridentate thiodiacetate ligand with a facial configuration. For compound **2**, as previously reported by us [1], we propose a structure similar to that published for the homologous cadmium derivative [2], namely a 2D-polymer with $\{\text{Mn}(\text{tda})(\text{H}_2\text{O})\}$ subunits bridged by the carboxylate groups of tda.

In this communication we will report the unprecedented solid-state polymerization of compound $[\text{Mn}(\text{tda})(\text{H}_2\text{O})_3]\cdot\text{H}_2\text{O}$ (**1**) to afford $[\text{Mn}(\text{tda})(\text{H}_2\text{O})]_n$ (**2**). The formation of a coordination polymer from the corresponding monomer occurred in the solid state and the process can be monitored straightforwardly by IR spectroscopy.

Additionally, we will describe some preliminary results concerning the use of these derivatives and the related oxydiacetate compounds as catalyst precursors in the oxidation reaction of alcohols to aldehydes with dioxygen, a “clean reagent”.

[1] Grirrane A., Pastor A., Galindo A., Ienco A., Mealli C., *Chem. Commun.*, 2003, 512. [2] Whitlow S.H., *Acta Cryst.*, 1975, **B31**, 2531.

Keywords: thiodiacetate, crystal structures, oxydiacetate