

channels, filled with easily removable water, and empty isolated hydrophobic cavities [1].

By crystallization of **1** from  $\text{CHCl}_3$  and water X-ray quality single crystals have been obtained at the interphase. The structure analysis displays a new triclinic structure ( $a = 11.259(3) \text{ \AA}$ ,  $b = 17.330(4) \text{ \AA}$ ,  $c = 9.993(3) \text{ \AA}$ ,  $\alpha = 92.73(2)^\circ$ ,  $\beta = 104.74(2)^\circ$ ,  $\gamma = 85.03(2)^\circ$ ) with 2 calixarene molecules, 2 water molecules and 2 chloroform molecules in the unit cell.

A powder mixture of cubic and triclinic phase has been characterized by High Resolution X-Ray Powder Diffraction (HRXRPD) at beam line ID31 (ESRF) before and after 3 days exposure to  $\text{CCl}_4$  showing that the triclinic phase disappears and the sample can be indexed as a single cubic phase ( $a = 36.66847(15) \text{ \AA}$ ). The increase in the lattice parameter with respect to the previously characterized cubic phase can be accounted for considering that possibly the  $\text{CCl}_4$  molecules could enter the channels and substitute the water molecules.

These results seem to highlight the assembly possibilities of **1** and these can be triggered by appropriate solvent choice.

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#### MS18 P09

**Chemical Induction of carbonyl Substitution Catalysed by Electron Transfer in tri Iron Complex  $(\mu\text{-S})_2\text{Fe}_3(\text{CO})_9$** , Mousser H.<sup>1</sup>, Mousser A.<sup>2</sup>, Darchen A.<sup>3</sup> and Mousset G.<sup>4</sup> <sup>1</sup>Département de Chimie Industrielle, Université Mentouri Constantine, Algérie, [hmbouzidi@yahoo.com](mailto:hmbouzidi@yahoo.com); <sup>2</sup>Département de Chimie, Université Mentouri Constantine, Algérie; <sup>3</sup>Laboratoire d'Electrochimie, Ecole Nationale Supérieure de Chimie, Rennes, France; <sup>4</sup>Laboratoire d'Electrochimie Organique, Université Blaise Pascal, Aubière, France.

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The reactions of carbonyl substitutions, by other ligands L, were the subject of many studies devoted to various organometallic substrates [1]. According to the nature of the substrate or ligand, these reactions can be led under various activation modes (thermal, photochemical, chemical, catalytic...) [2]. These catalytic reactions illustrate the great reactivity of the paramagnetic species "cluster anion" in the exchange ligand reactions [3, 4]. We show on the trinuclear iron complex  $(\mu\text{-S})_2\text{Fe}_3(\text{CO})_9$ , that not reducer chemical reagents can induce a catalysis by electron transfer.

The studied complex  $(\mu\text{-S})_2\text{Fe}_3(\text{CO})_9$  is easily reducible and very active in carbonyl replacement reactions which are catalysed by electron transfer. Spectrum EPR of the cluster, recorded in the presence of nucleophilic, shows a single signal, of increasing intensity, with  $g = 2.0178$  ascribable to the cluster anion  $(\mu\text{-S})_2\text{Fe}_3(\text{CO})_9^-$ . In the presence of an excess of ligand L ( $L = \text{P}(\text{OMe})_3$ ,  $\text{PPh}_3$ , 2,6- $\text{Me}_2\text{PhCN}$ ) and nucleophilic (triethylamine), this cluster reacts quickly and leads quantitatively to the mono substituted complex. The spectroscopic information is insufficient to specify the regioselectivity and the stereochemistry of the exchange reaction. The X-ray structure of the mono substituted  $(\mu\text{-S})_2\text{Fe}_3(\text{CO})_8[\text{P}(\text{OMe})_3]$  complex was solved on single crystal by direct methods in P21/m space group and refined by least squares methods to  $R = 0.010$ . The ligand  $\text{P}(\text{OMe})_3$  is on the sulphured iron atom in axial position in trans with the iron-iron bond. The angle iron-iron-phosphorus is of  $144.2(4)$ .

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