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SHORT COMMUNICATION

$(Me_4N)_2O_2CSO_3Sn(O_2CSO_3)_2 \cdot 7Me_4NSnCl_5$: SYNTHESIS AND INFRARED STUDY

Daouda Ndoye, Libasse Diop*

Université Cheikh Anta Diop Dakar, Faculté des Sciences et Techniques, Département de Chimie, Laboratoire de Chimie Minérale et Analytique, Dakar, Sénégal

*Corresponding author: dlibasse@gmail.com

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Abstract: On allowing $Me_4NO_2CSO_3H$ (in water) to react with $SnCl_4$ (in ethanol) the studied complex is obtained. The suggested structure is discrete, the anion behaving as a polydentate and chelating ligand, the environment around tin being octahedral.

Keywords: *coordinating $O_2CSO_3H^-$, discrete structure, pentagonal environment, supramolecular architecture*

INTRODUCTION

Several adducts containing $SnCl_5^-$ have been reported [1 - 4]. In the framework of our research work on the coordinating ability of oxyanions we have yet published two papers dealing with and containing $SnCl_5^-$ complex-anion [5] or MX_2 [6].
In this dynamic, we have initiated in this work the study of the interactions between $Me_4NO_2CSO_3H$ and $SnCl_4$ which have yielded the studied octanuclear complex, infrared study of which have been carried out, then a structure suggested on the basis of infrared data.

EXPERIMENTAL

On reacting imino (amino)methane sulfonic acid with Me_4NOH in water in 1/1 ratio the $Me_4NO_2CSO_3H$ salt (white powder) is collected after a solvent evaporation at 60°C. When a mixed solution (water/ethanol) of $Me_4NO_2CSO_3H$ is allowed to react with an ethanolic solution of $SnCl_4$ in 1/1 ratio, a clear solution is obtained and stirred during two hours.
A white powder is obtained when this solution is submitted to a slow solvent evaporation. The elemental analyses data: % calculated (% found):
%**C**: 14.74 (13.97); %**H**: 3.40 (3.92); %**N**: 3.97 (4.68) have allowed to suggest $(Me_4N)_2O_2CSO_3Sn(O_2CSO_3)_2{\cdot}7Me_4NSnCl_5$ formula.
The elemental analyses were performed by Department of Chemistry, University of Bath (UK).
The infrared spectra were recorded by a FTIR-Nicolet (4000-400 cm^{-1}) spectrometer at the University of Addis Ababa (Ethiopia), the sample being as Nujol mulls, using CsI windows.
Infrared data are given in cm^{-1}. IR abbreviations: (br) broad, (vs) very strong, (s) strong, (m) medium, (sh) shoulder, (vw) very weak.
All the chemicals were purchased from Aldrich and used without any further purification.

RESULTS AND DISCUSSION

The spectroscopic infrared data (cm^{-1}): νSO_3^-: 1146 (m); $\nu_{as}CO_2^-$: 1655 (m); $\nu_sCO_2^-$: 1292 (m).
The environment around the central tin centre is pentagonal. Two oxyanions bearing each one two $[SnCl_5]^-$ are symmetrically chelating the central tin. The third one bearing three $[SnCl_5]^-$ is monocoordinated to the central tin. The proposed structure of $(Me_4N)_2O_2CSO_3Sn(O_2CSO_3)_2{\cdot}7Me_4NSnCl_5$ are presented in Figure 1.

CONCLUSIONS

The studied complex has a discrete structure with tridentate or monochelating and bidentate anion, the environment around the tin centre being octahedral or pentagonal.

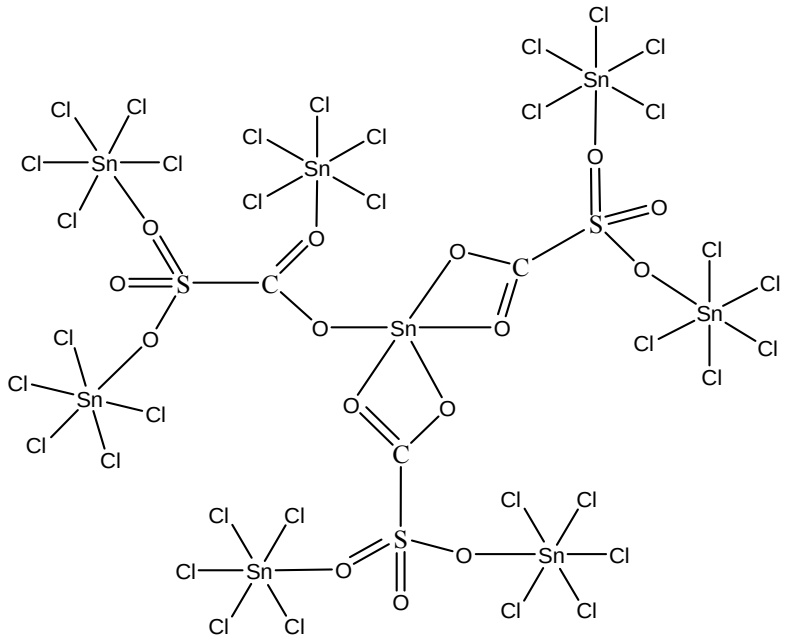

Figure 1. *Proposed structure for the compound* $(Me_4N)_2O_2CSO_3Sn(O_2CSO_3)_2 \cdot 7Me_4NSnCl_5$

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