

## THIOCYANATE COORDINATION TO THE $\{\text{Ta}_6\text{I}_{12}\}^{2+}$ CLUSTER.

### PREPARATION AND CRYSTAL STRUCTURE

#### OF $[\text{K}(\text{C}_{24}\text{H}_{32}\text{O}_8)(\text{CH}_3\text{COCH}_3)]_2(\text{Ph}_4\text{P})_2[\text{Ta}_6\text{I}_{12}(\text{NCS})_6]$

M. V. Shamshurin<sup>1</sup>, T. S. Sukhikh<sup>1</sup>,  
M. A. Mikhailov<sup>1</sup>, D. G. Sheven<sup>1</sup>,  
and M. N. Sokolov<sup>1,2,3\*</sup>

The reaction of  $\text{Ta}_6\text{I}_{14}$  with KNCS in acetonitrile in the presence of 24-dibenzo-crown-8 leads to dissolution of the tantalum iodide cluster to form the  $[\text{Ta}_6\text{I}_{12}(\text{NCS})_6]^{4-}$  complex. By evaporation of the solution with the subsequent treatment of the precipitate with acetone and  $\text{PPh}_4\text{Br}$ , dark green single crystals of the composition  $[\text{K}(\text{C}_{24}\text{H}_{32}\text{O}_8)(\text{CH}_3\text{COCH}_3)]_2(\text{Ph}_4\text{P})_2[\text{Ta}_6\text{I}_{12}(\text{NCS})_6] \cdot \text{CH}_3\text{COCH}_3$  (**1**) are obtained with a yield of 29%. The product is characterized by elemental analysis, IR, and mass spectra. The crystal structure is determined by the X-ray diffraction analysis.

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### INTRODUCTION

Octahedral halide clusters of niobium and tantalum belong to a vast class of inorganic high-valence clusters in which the octahedral metal cluster core is bonded to 12 bridging ligands  $X^i$  (F, Cl, Br, I). Each metal atom has one coordination site that can be occupied by a terminal non-cluster-core ligand  $X^a$  (Fig. 1) [1-3]. The *i* index refers to the bridging ligands (from German *inner*); the *a* index refers to the terminal ligands (from German *ausser*).

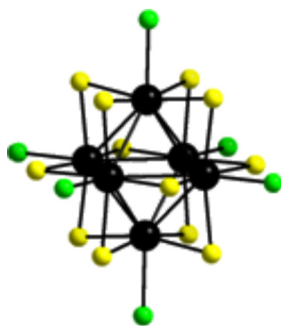


Fig. 1. Structure of the  $[\{\text{M}_6\text{X}_{12}\}\text{X}_6^a]$  cluster.

<sup>1</sup>Nikolaev Institute of Inorganic Chemistry, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia; \*caesar@niic.nsc.ru. <sup>2</sup>Novosibirsk State University, Novosibirsk, Russia. <sup>3</sup>Kazan (Privolzhsky) Federal University, Kazan, Republic of Tatarstan, Russia. Original article submitted October 31, 2019; revised December 9, 2019; accepted December 12, 2019.