

Transformation of Diaminocarane on the Triosmium Cluster. Absolute Configuration of Cluster with Bridging Imidyl Ligand

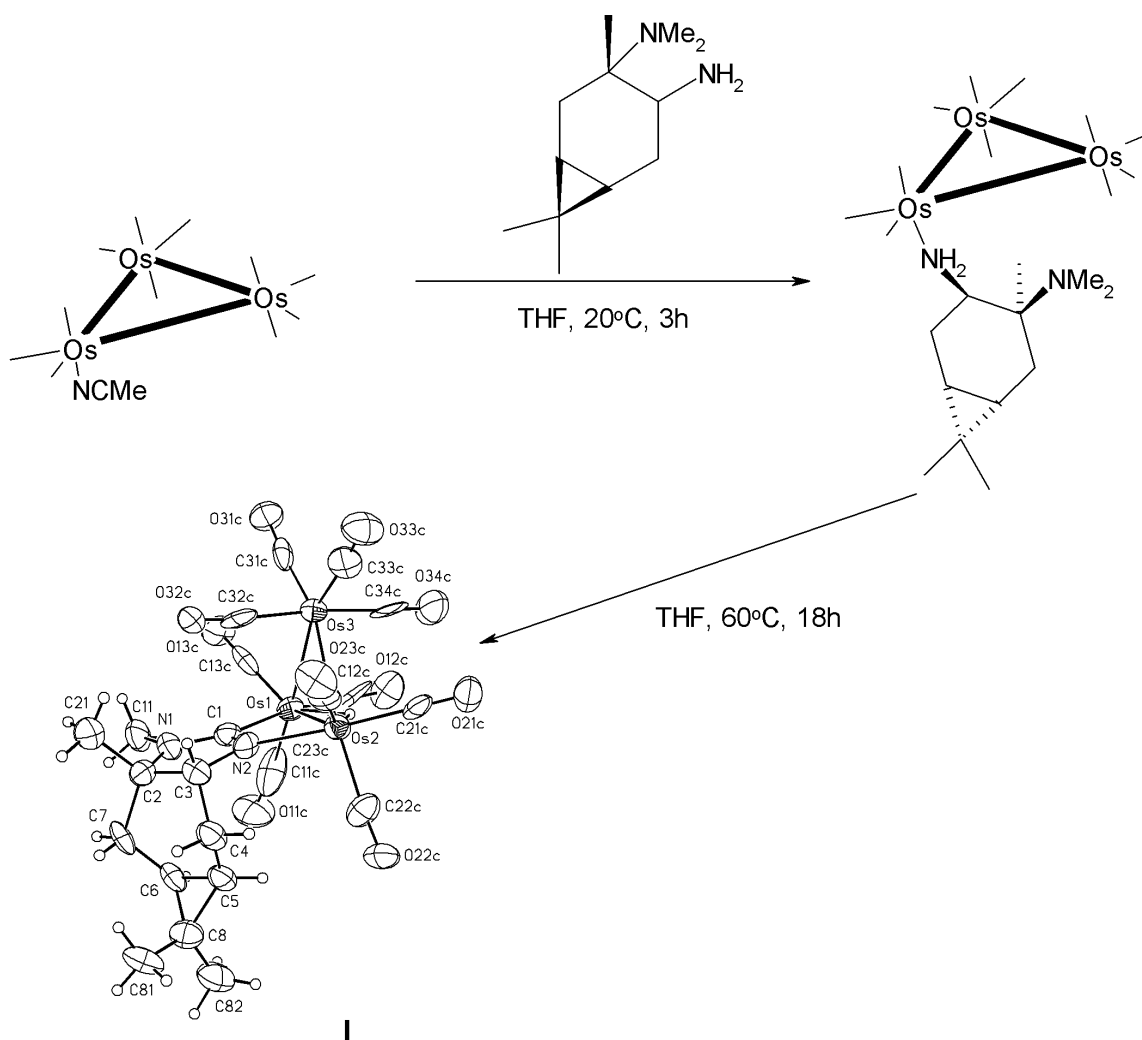
Vladimir A. Maksakov^a, Vladimir P. Kirin^a, Alexander V. Virovets^a, Pavel A. Petukhov^b, Alexey V. Tkachev^b

^aInstitute of Inorganic Chemistry, Siberian Division of RAS, Acad Lavrentyev Ave. 3, Novosibirsk 630090, Russia.

Fax: +7-3832-355960, e-mail: kirin@che.nsk.su

^bNovosibirsk Institute of Organic Chemistry, Siberian Division of RAS, Acad Lavrentyev Ave. 9, Novosibirsk 630090, Russia

Complexes of transition metals clusters with biologically active ligands and that of natural origin are of great interest. Reaction of $\text{Os}_3(\text{CO})_{11}(\text{NCMe})$ with (1S,3S,4R,6R)-3(N,N-dimethylamino)-4-aminocarane results in formation of an unstable cluster with terminally coordinated diaminocarane ligand. Heating of this compound leads to a transformation of the ligand and formation of the cluster with bridging tricyclic imidyl ligand as the final product:



As it was shown by the experiment with the carbon-13 enriched cluster $\text{Os}_3(^{13}\text{CO})_{11}(\text{NCMe})$, of the methyls of the dimethylamino group is the source of the imidyl cycle carbon atom and, therefore, the formation of **I** proceeds *via* activation of the C-H bond under mild conditions.

Cluster **I** is one of two diastereomers obtained in the reaction. Cluster **I** is the main diastereomers and was obtained in crystalline state and studied by X-ray analysis. Its absolute configuration is described as $R\text{-Os}_3(\text{CO})_{12}(\mu\text{-H})\{\mu, \eta^2(\text{N}, \text{C})\text{-}4R, 6R, 8S, 10S\text{-}1, 7, 7, 10\text{-tetramethyl-}1, 3\text{-diazatricyclo}[3.5.0.0]\text{dec-}1\text{-en-}2\text{-yl}\}$.