

MS10 P01

Synthesis, crystal structure and spectral studies of Pt(II) complexes Pt X₂ L₂ (X: halogen, L: phosphine, arsine, stibine ligands) S.Ouis^a, S.Badeche^a, D.A.Rouag^a, S.E.Bouaoud^a ^a Université Mentouri Constantine, laboratoire de chimie moléculaire du contrôle de l'environnement et de mesures physico-chimiques, Constantine Algérie, E-mail: o_sakina@yahoo.fr

Keywords: coordination crystal chemistry, transition metal complex

The complexes *cis*-[PtCl₂(Ph₂As-CH₂-CH₂-AsPh₂)]·solvent (solvent: THF (**1**), CH₂Cl₂ (**2**)) have been synthesized and characterized by IR, RMN (¹H, ¹⁹⁵Pt) and single crystal X ray diffraction the complexes crystallize in the monoclinic *P2₁/c* for *cis*-[PtCl₂(Ph₂As-CH₂-CH₂-AsPh₂)]·THF (**1**) and the orthorhombic *P2₁2₁2₁* for *cis*-[PtCl₂(Ph₂As-CH₂-CH₂-AsPh₂)]·CH₂Cl₂ (**2**) space groups. In both the metal ions have a perfect square-planar coordination with one ligand (Ph₂As-CH₂-CH₂-AsPh₂) which is bidentate and coordinate to the Pt(II) by the two As of the ligand and two Cl ligands (fig 1, 2). For the two complexes the crystal packing is mainly stabilized by C-H...Cl and C-H...O type hydrogen bonds.

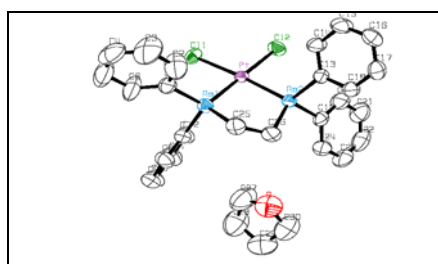


Figure 1

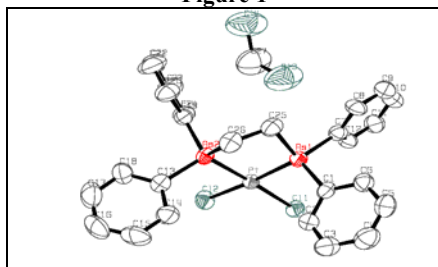


Figure 2

- [1]- A.J.L. Pombeiro, *Inorg. Chem. Commun.* 19 (1980) 1356-1365.
 [2]- J.C.Bailar, H.Itatani. *Journal of American chemical Society* 89(1967) 1592-1599
 [3]- N.W.Alcock, P.G.Leviston. *J.C.S.Dalton trans* 4(1974)1834-1836
 [4]- S.Otto, M.H. Johansson, *Inorg.Chim.Acta* 329(2002)135-140
 [5]- Hansson, C., Carlson, S., Giveen, D., Johansson, M., Yong, S.&Oskarsson, A. (2006). *Acta Cryst B*.

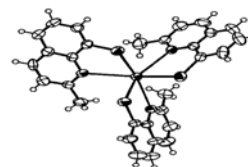
MS10 P02

Synthesis and Crystal Structure of Bismuth 2-Methyl-8-Hydroselenoquinolate Elga Silina^a, Sergey Belyakov^b, Janis Ashaks^a, Andrey Tokmakov^b, Vitaly Belsky^c, Lucia Pech^a, Daina Zaruma^a, ^a*Institute of Inorganic Chemistry of the Riga Technical University, Latvia.* ^b*Latvian Institute of Organic Synthesis, Riga,*

Latvia. ^c*L.Karpov Institute of Physical Chemistry, Moscow, Russia.* E-mail: nki@nki.lv

Keywords: single-crystal X-ray, bismuth compounds, selenium organic compounds

Internal complex bismuth 2-methyl-8-hydroselenoquinolate Bi[C₉H₅(CH₃)SeN]₃ (**I**) has been synthesized in the course of study of complexing activity of 8-hydroselenoquinoline. The complex **I** is formed reacting 2-methyl-8-hydroselenoquinoline with a bismuth-containing solution of hydrochloric and tartaric acids. Single crystals were grown from saturated chloroform solution on slow cooling. Crystal data for **I**: M=872.38, monoclinic, space group *C2/c*, a=40.0731(7), b=8.9124(2), c=16.9524(4)Å, β=111.2521(9)°, V=5642.4(3)Å³, Z=8, D_c=2.054g/cm³ (diffractometer Bruker-Nonius KappaCCD, λMoK_α, μ=10.14 (absorption correction by integration), R=0.0304, wR₂=0.1028 for 5716 reflections). The crystal structure of complex **I** is formed by neutral asymmetric molecules in which bismuth atom is connected bidentately (Se, N) with three 2-methyl-8-hydroselenoquinoline ligands.



The values of the chelate angles SeBiN (70.26° in average) are noticeably lower than 90°. The Bi–Se bonds (2.693(1)–2.702(1)Å) are covalent, the bond angles SeBiSe – in range from 81.30(2) to 91.64(2)°. More weak coordination bonds Bi...N (2.796Å in average) are situated in the *trans*-position to the Bi–Se bonds. The mean value of the angles NBiN is 112.58°. An unshared electron pair (E) may be localized between the Bi...N vectors. The coordination sphere of bismuth atom – a distorted Ψ–octahedron (3Se+3N+E) characterized by diagonal angles SeBiN (157.44° in average). Coordination planes Se/Bi/N in complex **I** are situated approximately perpendicularly. The Se–C bonds are weak covalent bonds (1.906Å in average). Complex **I** and complex Sb[C₉H₅(2-CH₃)SeN]₃ [1] are isostructural; they are also isomolecular with the analogous complexes M[C₉H₅(2-CH₃)SN]₃ [2]. The influence of the unshared electron pair (E) of the V group partial valence p-elements (As, Sb, Bi) on formation of the above complexes is considered. The possibility of existence of the weak branched intramolecular hydrogen bond between the central atom unshared electron pair and hydrogen atoms of methyl groups in position “2” is discussed.

- [1] Silina E.; Belyakov S.; Ashaks J.; Pecha L.; Zaruma D. *Acta Cryst.*, 2007, C63, m62.
 [2] Silina E.J.; Belsky V.K.; Stash A.I.; Ashaks J.V.; Pech L.J.; Bankovsky Yu.A. *Zh. Neorg. Khim.* 2004, 49, 470.