with Ph₃Si(OH)₂ yielded a new molecular aluminopolysiloxane [Al(OH)]₄[(Ph₂SiO)₂O]₄, in which there is framework of five aneled eight-membered rings, an Al₆(OH)₈ eight-membered ring lies in the centre of the structure. The idea of cleavage of cyclic siloxane frameworks by the Lewis acid AlCl₃ was applied to the cyclic tetrameric siloxane, in reflushing THF conditions, which resulted in the formation of the spirocyclic aluminosiloxane [Al₆[(O(Ph₂Si)₂O)₃]₃Cl]. This is a first example of an unprecedented siloxane ring shrinkage, which has not been reported to date. The spirocyclic aluminosiloxane is also a very promising building block for fabrication of oligomeric and polymeric aluminosiloxane structures. On reacting AlCl₃ with the silsesquioxane trisilanol ligand a new anionic aluminosilsesquioxane [HNEt₃][Al{(c-C₆H₅)₃Si-O}OH] was isolated. This complex contains two unreacted hydroxyl functionalities that makes it particularly attractive as a molecular model for natural aluminosilicates (zeolites) and as a precursor for novel heterometallic metallasilsesquioxanes.

Keywords: cage molecules, silicon compounds, metal-organic compounds

P07.05.45

Structures of tris{(hydroxymethyl)aminomethane}₅-bromosalicylideneaminato)diorganotin complexes
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Tris(hydroxymethyl)aminomethane and its derivatives are known to display a variety of biological activities such as antibiotic, anticancerous, anitistamine, anti- fungal, anti-inflammatory and many others. Tris{(hydroxymethyl)aminomethane}₅-bromosalicylideneaminato)diorganotin(IV), C₁ and tris{(hydroxymethyl)aminomethane}₅-bromosalicylideneaminato)dimethyltin(IV), C₂ were prepared and their X-ray structures were determined. The X-ray structure of C₁ crystallises in the monoclinic, P₂₁/n space group with the unit cell parameter, a = 18.9301(4) Å, b = 8.8951(2) Å, c = 19.8873(4) Å and β = 114.0750(10)°. Its molecular structure shows that the ligand, tris{(hydroxymethyl)aminomethane}₅-bromosalicylideneaminato) is tridentate in which the two phenolic oxygen and a imino nitrogen atoms are involved in coordination with the tin atom. It is a dimeric structure with coordination involving one of the hydroxymethyl group forming a central Sn₆O₂ stannoxane ring. On the other hand, the X-ray structure of C₂ is mononemic, probably due to the steric effect as a result of the presence of bulky phenyl organic groups. The ligand in C₂ is also tridentate in which the two phenolic oxygen, one imino nitrogen atom and two phenyl rings are involved in coordination with the tin atom. C₂ crystallises in the triclinic, P₁ space group with the unit cell parameter, a = 8.7156(2) Å, b = 10.0110(3) Å, c = 14.8031(4) Å and α = 104.6800(10)°, β = 102.668(6)°, γ = 113.2300(10)°.

Keywords: diorganotin, tridentate, X-ray crystal structure

P07.05.46

Structural studies of 9,10-diheteratriptycenes with group 15 elements and their halogen adducts
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9,10-Diheteratriptycenes have intriguing characters because two heteroatoms of their bridgehead positions have various structural possibilities such as pyramidal, tetrahedral, and octahedral forms. In this study, 9,10-diphosphatriptycene 1, 9-phospha-10-stibatriptycene 2, and 9,10-distibatriptycene 3 and their halogen adducts were newly synthesized and their molecular structures were investigated by X-ray crystallography and NMR spectroscopy. The bromine adduct 3·2Br₂ forms an intramolecular salt composed of a tetracoordinate stibonium cation and a hexacoordinate stiborate anion in the crystalline state. On the other hand, the iodine adduct 3·3I₂, which was obtained by the reaction with excess of iodine, shows an intermolecular salt composed of an iodostibonium ion and I⁻ ion. The bromine and iodine adducts showed the occurrence of a topomerization process in CdCl₂ solution, respectively. We will discuss about the mechanism of the process and structures of the other halogenated adducts in the crystalline state and in their solution.

Keywords: molecular structure, X-ray crystal structure analysis, NMR spectroscopy

P07.05.47

New stable lead(II) complexes with intramolecular coordination: Experimental and theoretical study
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In continuation of our investigations on the relative contributions of different factors to the stabilization of divalent Group 14 compounds [1-5], we report here the synthesis and the results of experimental and theoretical studies of two stable lead(II) complexes Pb(OCH₂CH₂NMe₂)₂ (1) and (SiMe₃)₂NPbOCH₂CH₂NMe₂ (2). The molecular structures of these compounds were studied by NMR, IR and Raman spectroscopy both in solution and solid state as well as X-ray diffraction analysis in the crystal. The electronic structures of 1 and 2 were studied by quantum-chemical calculations within the DFT approach. The reactivity, conformational peculiarities and dynamic behavior in solution of the investigated compounds are discussed.