Title:	Structural studies of diorganotin(IV) sulfonates: The synthesis of [(n-C4H 9)2Sn{OSO2C 6H 3(CH 3)2-2,5}2] and [(n-C 4H 9)2Sn{OSO 2R)2 · 2(hexamethylphosphoric triamide)] [R=CH3, 4-C6H4CH3, 2,5-C6 H3(CH3)2] 2,5,6-C6H2(CH3)3] and crystal structures of [(n-C4H9)2Sn(μ-OH)(OSO2C6H3(CH3)2-2,5)]2 and (n-C4H9)2Sn{OSO2R)2· 2(hexamethylphosphoric triamide)] [R=4-C6H4CH3, 2,5-C6H3(CH3)2, 2,4,6-C6H2(CH3)3]
Authors:	Kapoor, Ramesh (/jspui/browse?type=author&value=Kapoor%2C+Ramesh)
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Abstract:	The synthesis of [(n-C 4H 9)2Sn{OSO2C6H3(CH3)2-2,5} 2] and [(n-C 4H 9)2Sn{OSO2R)2 · 2(hexamethylphosphoric triamide)] [R = CH3 (3), 4-C6H4CH 3, (4) 2,5-C6H3(CH3) 2 (5), 2,4,6-C6H2(CH3) 3 (6) and have been carried out to study their structures and to delineate the coordination behavior of the weakly coordinating sulfonate anions. Compound 1 hydrolyzes slowly to [(n-C4H9) 2Sn(μ-OH)(OSO2C6H3(CH3)2-2,5)]2 (2) when kept in CH2Cl2 for a few days. The crystal structure shows that 2 has a dimeric structure in which tin atoms are bridged by two hydroxy groups and each tin atom is further bonded to two n-Bu groups and a mono-coordinated sulfonate anion thus generating a trigonal bipyramidal geometry at tin atom. However, the coordination geometry at tin can be visualized as a severely distorted octahedron, if a relatively weak Sn-O bond of 2.690 Å between Sn and an O atom of the neighboring sulfonate anion is also considered. Compounds 3-6 are obtained by the consecutive reaction of (n-C4H9)2SnO with the appropriate sulphonic acid and hexamethylphosphoric triamide (HMPA). X-ray crystal structures of 4, 5 and 6 show octahedral geometry around tin atom in the two compounds in which the sulfonate ligands are covalently bonded in a monodentate mode. Compounds 3-6 are nonionic in polar solvents. The Sn-O (sulfonate) bond distances 2.354(2), 2; 2.233(2), 4; 2.237(5), 5 and 2.227(3) Å, 6 suggest some degree of ionic character in the metal-anion bonds. These compounds have also been characterized by multinuclear (1H,13C and119Sn) NMR studies.
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