Synthesis, Spectroscopic Studies, and Crystal Structure of Diethylchlorotin Dimethylphosphinate $Et_2ClSnO_2PMe_2$

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Crystal Structure, IR Data, Mass Spectroscopic Data, Diethylchlorotin Dimethylphosphinate

Diethylchlorotin dimethylphosphinate has been synthesized by treating $(Et_2ClSn)_2O$ with HO_2PMe_2 in toluene. Single crystal X-ray analysis shows that O_2PMe_2 groups behave as bidentate bridge ligands between Et_2ClSn units leading to a polymeric chain structure in which the tin atoms exhibit a distorted trigonal bipyramidal geometry with the oxygen atoms in the axial positions. The Sn–Cl bond lies on a C_2 axis of symmetry in the (C_{2v}) OCClSnCO unit. $Et_2ClSnO_2PMe_2$ crystallizes in the monoclinic space group C2/c (a = 877.9 (2), b = 1907.8 (4), c = 695.5 (1) pm, β = 106.72 (2)°, Z = 4 and R = 0.043). The characteristic IR bands of $Et_2ClSnO_2PMe_2$ are assigned and the mass spectrum is reported and discussed.

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