



## Synthesis and spectroscopic properties of adducts of organotin(IV) nitrates with diphosphines

P.G. Harrison, O.A. Idowu

C. Pelizzi, G. Pelizzi, P. Tarasconi

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### Abstract

Triphenyltin(IV) nitrate and diphenyltin(IV) dinitrate react with the diphosphines 1,2-bis(diphenylphosphino)ethane (DPPE) and its *cis*-1,2-bis(diphenylphosphino)ethylene (DPPET) in methanol/benzene or acetonitrile/benzene to yield adducts of the general formula  $(Ph_{4-n}Sn(NO_3)_{n2} \cdot L)$  ( $n = 1, 2$ ;  $L = DPPE, DPPET$ ). Infrared and tin-119 Mössbauer data indicate a *mer*-six-coordinated geometry when  $n = 1$  and a pentagonal bipyramidal stereochemistry with mutually *trans* axial phenyl groups when  $n = 2$ , with bidentate nitrate groups. The diphosphine ligand bridges two tin centres in each case. When the reactions are performed in other solvents, oxidation of the diphosphine ligand occurs.