

Preliminary communication

A NOVEL SERIES OF TRIORGANOTIN COMPOUNDS

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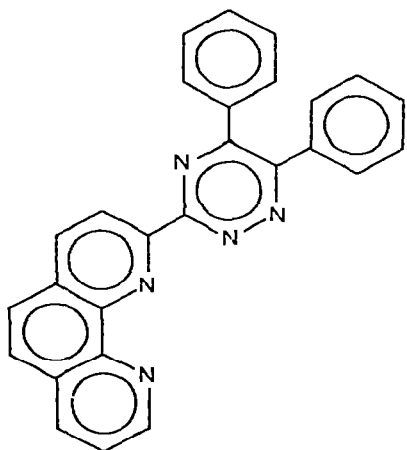
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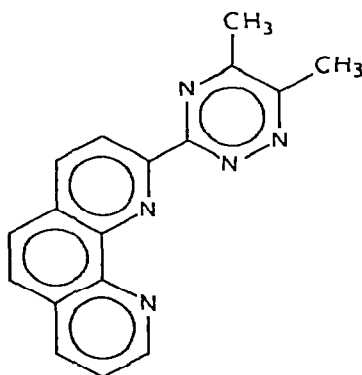
Summary

The tridentate chelating agents 3-[2-(1,10-phenanthrolyl)]-5,6-diphenyl-1,2,4-triazine and 3-[2-(1,10-phenanthrolyl)]-5,6-dimethyl-1,2,4-triazine form 1/1 complexes with triorganotin chlorides and isothiocyanates; the complexes behave as non-electrolytes in nitrobenzene.

We wish to report the isolation of the first members of a series of 1/1 complexes between triorganotin halides and isothiocyanates and the planar tridentate chelating agents 3-[2-(1,10-phenanthrolyl)]-5,6-diphenyl-1,2,4-triazine (I) and 3-[2-(1,10-phenanthrolyl)]-5,6-dimethyl-1,2,4-triazine (II), both of which bear a close structural relationship to 2,2',6',2''-terpyridyl [1]. So far as we are



(I)



(II)

aware, there have been no reports of 1/1 complexes of triorganotin compounds with tridentate ligands of this type. Terpyridyl is reported to have no reaction with triorganotin halides [2].

The following compounds have been isolated: $(\text{CH}_3)_3\text{SnCl}\cdot\text{L}$; $(\text{C}_6\text{H}_5)_3\text{SnCl}\cdot\text{L}$ ($\text{L} = \text{I}, \text{II}$) and $(\text{C}_6\text{H}_5)_3\text{Sn}(\text{NCS})\cdot\text{L}$ ($\text{L} = \text{I}$). The compounds are all buff or yellow stable crystalline solids which behave as non-electrolytes in nitrobenzene. The infrared spectrum of $\text{Ph}_3\text{Sn}(\text{NCS})\cdot\text{L}$ ($\text{L} = \text{I}$) suggests that the thiocyanate group is N-bonded. Table 1 gives Mössbauer parameters for two of the compounds.

TABLE 1
MÖSSBAUER PARAMETERS OF TRIORGANOTIN COMPLEXES

Compound	δ (mm/sec)	Δ (mm/sec)
$(\text{C}_6\text{H}_5)_3\text{SnCl}\cdot\text{L}$ ($\text{L} = \text{I}$)	1.36	3.19
$(\text{C}_6\text{H}_5)_3\text{SnCl}\cdot\text{L}$ ($\text{L} = \text{II}$)	1.26	3.10

No seven-coordinate tin complexes containing three tin-carbon bonds have yet been reported, however the compound dimethyldiisothiocyanato(terpyridyl)tin(IV), which contains two tin-carbon bonds, has recently been shown to be seven-coordinate [3]. A single crystal X-ray diffraction study on one of the compounds reported here is now in progress.

Acknowledgements

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References

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