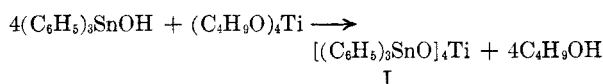

Communications TO THE EDITOR

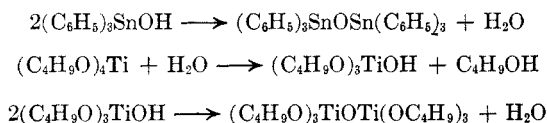
Synthesis of Tetrakis(triphenylstannoxy)titanium

Sir:

In recent years several reports have appeared on the isolation of trialkylsiloxy and triarylsiloxy derivatives of titanium.¹⁻⁴ However, tetrakis(triphenylstannoxy)titanium (I) prepared herein appears to be the first compound containing a tin-oxygen-titanium linkage. This was synthesized by an ester interchange between tetra-*n*-butyl titanate and triphenyltin hydroxide:



A 20% yield was obtained. Side reactions may occur in the following manner:



(1) W. D. English and L. H. Sommer, *J. Am. Chem. Soc.*, **77**, 170 (1955).

(2) V. A. Zeitler and C. A. Brown, *J. Am. Chem. Soc.*, **79**, 4616 (1957).

(3) D. C. Bradley and I. M. Thomas, *J. Chem. Soc.*, **17**, (1958).

(4) B. N. Dolgov and N. F. Orlov, *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1395 (1957).

No attempt was made to increase the yield of final product by azeotropic distillation of the water and alcohol or by purification of the triphenyltin hydroxide.

Tetrakis(triphenylstannoxy)titanium melts at 215–216° and is quite soluble in benzene. In comparison tetrakis(triphenylsiloxy)titanium melted² at 460–470° and was very slightly soluble in benzene.

Tetra-*n*-butyl titanate was obtained from Matheson, Coleman & Bell and purified by fractional distillation (b.p. 156–157° at 2.5 mm.). Triphenyltin hydroxide (Practical Grade) was obtained from Anderson Chemical Co.

Preparation of tetrakis(triphenylstannoxy)titanium, I. A 0.0125-mol. sample of triphenyltin hydroxide was added to 100 ml. of hot benzene and filtered; 0.0030 mol. of tetra-*n*-butyl titanate in 50 ml. benzene was added slowly with stirring to the triphenyltin hydroxide solution. A small amount of light brown residue was obtained on filtration. The supernatant liquid was evaporated by use of a Rinco evaporator leaving a light yellow solid residue. Upon recrystallization from benzene and then washing with petroleum ether a white solid was isolated, m.p. 215–216° (hot stage melting point apparatus). *Anal.* Calcd. for $[(\text{C}_6\text{H}_5)_3\text{SnO}]_4\text{Ti}$: C, 57.20; H, 4.00; Sn, 31.40; Ti, 3.17. Found: C, 57.43, 57.55; H, 4.25, 4.35; Sn, 31.10; Ti, 2.95, 3.03.

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