SHORT COMMUNICATION

The transmetalation of triphenylbismuth with antimony

The displacement of one metal from one of its organometallic compounds by another metal has been one of the preparative mainstays of organometallic chemistry. The application of this reaction to Group V elements was studied by Krafft and Neumann[1] who showed that phosphorus would replace arsenic in triphenylarsenic and arsenic the antimony of triphenylantimony. We have demonstrated the expulsion of bismuth from triphenylbismuth by antimony, thus completing the series.

*Experimental**

Triphenylbismuth (44.0 g, 0.1 mole) and antimony powder (12.18 g, 0.1 mole) were added to a three-necked flask provided with a thermometer, reflux condenser, and mechanical stirring. During stirring the mixture was heated for one hour, during which time the reaction temperature reached and was maintained at 300° for a period of five minutes. After cooling, the oily residue was extracted from the metallic residue with one 50-ml portion of cyclohexane. The solvent was removed from the extract using a Rinco evaporator to give 33.5 g of an oil which crystallized upon cooling in a dry ice/acetone bath. The crude product was found, by VPC**, to consist of triphenylantimony (89.20 % wt.), and triphenylbismuth (9.05 % wt.). This crude material was recrystallized from pentane to a constant melting point of 53–57° (triphenylantimony, m.p. 53.3–54.5°). A mixed melting point with an authentic sample of triphenylantimony gave 52–54°. The X-ray powder pattern of the crystallized product was identical with that of a reference sample of triphenylantimony.

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1 F. KRAFFT AND R. NEUMANN, *Ber.*, 34 (1901) 565.

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* Melting points are uncorrected.

** An F&M Model 720, with a 4 ft. × ¼ in. glass column packed with 5 % SE-30 silicone oil on Chromasorb W 60/80 mesh, was used. Injection port temperature was 290°, column temperature 220° and detector temperature was 320°. The carrier gas was helium at a flow rate of 100 cc/min. Mr. S. DIGIOVANNI performed the analysis.