

LETTERS
TO THE EDITOR

Reactions of Pentaphenylantimony and Pentaphehylphosphorus with Arylmercury Chlorides

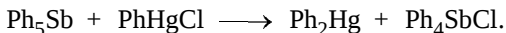
V. V. Sharutin, V. S. Senchurin, B. I. Petrov, and O. K. Sharutina

Blagoveshchensk State Pedagogical University, Blagoveshchensk, Russia

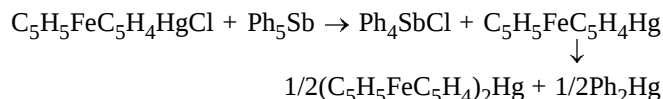
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Proceeding with research into arylating properties of pentaphenyl derivatives of antimony and phosphorus [1, 2], we have studied their reactions with phenylmercury chloride and ferrocenylmercury chloride.

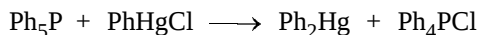
It was shown that pentaphenylantimony reacts with phenylmercury chloride (toluene, 100°C, 1 h) to give diphenylmercury (78%) and tetraphenylantimony chloride (87%).



The reaction of pentaphenylantimony with ferrocenylmercury chloride (toluene, 100°C, 1 h) produces tetraphenylantimony chloride (96%), diphenylmercury (92%), and diferrocenylmercury (95%) by the following scheme:



Pentaphenylphosphorus phenylates phenylmercury chloride under milder conditions (toluene, 20°C, 24 h).



The yields of diphenylmercury and tetraphenylphosphorus chloride are 94 and 90%, respectively.

Reaction of diphenylantimony with phenylmercury chloride. A mixture of 2.00 g of pentaphenylantimony, 1.24 g of phenylmercury chloride, and 10 ml of toluene was heated at 100°C for 1 h. Crystals formed and were filtered off, washed with petroleum ether, and dried to obtain 1.60 g (87%) of tetraphenylantimony chloride, mp 198°C. The solvent was removed from the filtrate, and the residue was chromatographed on Silica gel L 5/40 (eluent petroleum ether) to obtain 1.10 g (78%) diphenylmercury, mp 122°C (published data [3]: mp 122°C).

Reaction of pentaphenylantimony with ferrocenylmercury chloride. A mixture of 0.34 g of pentaphenylantimony, 0.28 g of ferrocenylmercury chloride, and 5 ml of toluene was heated at 100°C for 1 h. The reaction mixture was cooled, the solvent was removed, and the residue was extracted with hot water. The extract was evaporated to obtain 0.30 g (96%) of tetraphenylantimony chloride, mp 198°C. The water-insoluble residue was chromatographed on Silica gel L 5/40 (eluent petroleum ether) to obtain 0.11 g (92%) of diphenylmercury, mp 122°C. The substance insoluble in petroleum ether was crystallized from toluene to give 0.18 g (95%) of diferrocenylmercury, mp 237°C {[published data [3]: mp 234–235°C (decomp.)}.

Reaction of pentaphenylphosphorus with phenylmercury chloride. A mixture of 1.00 g of pentaphenylphosphorus, 0.75 g of phenylmercury chloride, and 6 ml of toluene was allowed to stand at room temperature for 24 h. Crystals formed and were filtered off, washed with petroleum ether, and dried to obtain 0.81 g (90%) of tetraphenylphosphorus chloride. The solvent was removed from the filtrate, and the residue was chromatographed on Silica gel L 5/40 (eluent petroleum ether) to obtain 0.80 g (94%) of diphenylmercury, mp 122°C.

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