

Synthesis and thermal stability of S-trimethylsilyl esters of tetracoordinated phosphorus amidothioacids

Nizamov I., Bolshakova O., Al'metkina L., Sergeenko G., Frolova L., Krivolapov D., Batyeva E., Litvinov I.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

S-(Diethylamino)dimethylsilyl bis(diethylamido)dithiophosphate 3 was obtained by the reaction of tetraphosphorus decasulfide 1 with bis(diethylamino)dimethylsilane 2a. The reactions of Lawesson's reagent 5 with 2a and the alkyl homologues of Davy's reagent 8a,b with trimethyl(diethylamino) silane 6 were studied. On the basis of these reactions, methods of synthesizing S-(diethylamino)dimethylsilyl or S-(diethylamino)-diphenylsilyl 4-methoxyphenyl (diethylamido)dithiophosphonates 7a and 7b and S-trimethylsilyl S-alkyl(diethylamido)trithiophosphates 9a,b are described. The optimal reaction conditions and thermal stability of S-trimethylsilyl S-ethyl(diethylamido) trithiophosphate 9a were defined by differential thermal analyses. Compound 9a have been decomposed to form 2,4-bis(diethylamido)-1,3,2,4-dithiadiphosphetane- 2,4-disulfide 10 which structure was established by X-ray single crystal diffraction. © 2006 Wiley Periodicals, Inc.

<http://dx.doi.org/10.1002/hc.20231>
