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Disproportionations of S-Silyl and S-Arsenic Derivatives of Thiophosphorus Acids

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There is considerable interest in derivatives of tetracoordinated phosphorus thioacids containing the P(S)SE (E = Si, As) fragment, because of their possible use as synthetic intermediates for new organothiophosphorus compounds. The reaction of 2,4-bis(alkylthio)-1,3,2,4-dithiadiphosphetane-2,4-disulfides with trimethyl(dialkyl-amino)silane has been found to give S-trimethylsilyl S-alkyl(dialkyl-amido)trithiophosphates. S-Trimethylsilyl S-ethyl(diethylamido)trithiophosphate was partially transformed into cyclic 2,4-bis(diethylamido)-1,3,2,4-dithiadiphosphetane-2,4-disulfide and trimethyl(ethylthio)silane. The molecular and crystal structure of 2,4-bis(diethylamido)-1,3,2,4-dithiadiphosphetane-2,4-disulfide was established by X-ray single crystal diffraction. In contrast, S-diethylarsenic(III) aryl(dialkylamido)dithiophosphonates obtained in the reaction

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of 2,4-diaryl-1,3,2,4-dithiadiphosphetane-2,4-disulfides with dialkyl-amino diethylarsines were decomposed at heating to yield linear bis(diethylarsino)aryltrithiophosphonates. The molecular structure of bis(diethylarsino) 2,4-di(3,5-di-*tert*-butyl-4-hydroxyphenyl)trithiophosphonate was studied by X-ray single crystal diffraction.