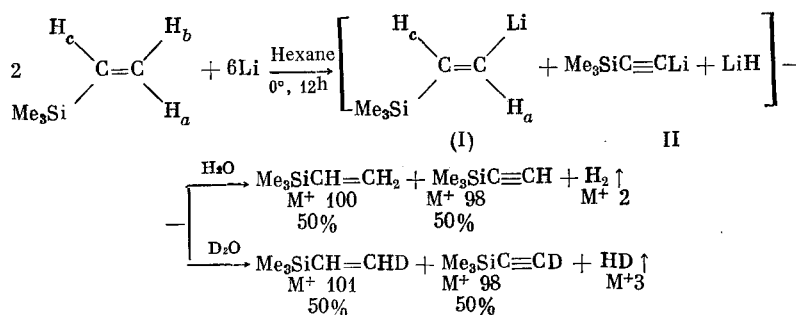


REACTION OF VINYLTRIMETHYLSILANE WITH LITHIUM IN
A HYDROCARBON MEDIUM

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It was shown in [1] that on interacting stoichiometric amounts of vinyltriphenylsilane (VTPS) with Li in THF the reaction product was 1,4-bis(triphenylsilyl)-1,4-dilithiobutane, i.e., the dimer of the adduct of VTPS and Li in the ratio of 1:1. According to our data in the case of vinyltrimethylsilane (VTMS) in THF, the formation occurred of a dimer of analogous structure. On carrying out the reaction of VTMS with Li in a hydrocarbon medium it was discovered by us for the first time that these reactions proceed with the formation of different products according to the scheme



Also in favor of the formation of the lithium-containing compounds (I), (II) and LiH as the primary reaction products were the results of investigations of the PMR spectra for liquid compounds resulting on hydrolysis and deuterolysis of reaction mixtures and chromatographic mass spectrometric analysis of the liquid and gaseous products of hydrolysis and deuterolysis.

According to PMR data the hydrolyzed reaction products consisted of VTMS and ethynyltrimethylsilane (ETMS) the spectral parameters of which are known [2, 3]. After decomposition of the reaction mixture with D₂O signals at δ 2.12 ppm (≡CH) from ETMS and the signal of the H_b proton at δ 5.87 ppm (=CH_b) from VTMS were absent from the PMR spectra of the compounds. The vinylic portion of the spectrum consisted of two doublets at δ 6.13 (=CH_c) and 5.6 ppm (=CH_a), J_{H_aH_c} = 20.4 Hz. The components of the low field proton H_c were additionally split as a result of the spin-spin H_c-D_b interaction with J_{H_cH_b} = 2.0 Hz. These spectral data indicate that in the vinyl derivative the deuterium atom and consequently the Li in (I) is in the trans position to the Me₃Si group.

The ethynyltrimethylsilane isolated from the reaction mixture had physical constants corresponding to [4].

The found reaction may be used for the preparative synthesis of acetylenic organosilanes.

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