

2. The hydrogenation of 1,3-pentadiene is highly selective, with the predominant formation of trans-2-pentene. The reaction probably proceeds via the intermediate step of the hydride.

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ALKYL(ARYL)ALKOXYHYDROXYSILANES AND POLYFUNCTIONAL SILOXANES DERIVED FROM THEM

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UDC 542.91:547.1'128

It is known that the organoalkoxy- and organohydroxysilanes differ in their reactivity in the heterofunctional condensation reactions with chlorosilanes [1, 2]. Organosilicon compounds with three alkoxy groups and one OH group on the silicon atom are known [3], but data are lacking on the synthesis of compounds that contain two hydrocarbon radicals, and both an alkoxy and hydroxyl group on the silicon atom.

The purpose of the present paper was to synthesize alkyl(aryl)alkoxyhydroxysilanes (AS) in which the different reactivity of the hydroxyl and ethoxyl groups could be utilized to discover paths for obtaining cross-shaped tetrafunctional organosilicon compounds. The latter could then be used as potential starting compounds for the synthesis of polymers with a spirocyclic structure of the chain [4].

AS with different hydrocarbon radicals on the silicon atom, and with an alkoxy group where the hydrocarbon radical is unbranched, were obtained by the hydrolysis of alkyl(aryl)-alkoxychlorosilanes with water in the presence of a HCl acceptor.

The AS are clear, mobile, odorless liquids. It should be mentioned that the OH group in AS resembles the organohydroxysilanes with small hydrocarbon radicals on the silicon atom [5], and easily enters into the homofunctional condensation reaction at $7 < \text{pH} < 7$ or when heated. This explains why the yield of the AS drops from 63.4% for $(\text{CH}_3)_2\text{Si}(\text{OC}_2\text{H}_5)\text{OH}$ to 38.5% for $\text{CH}_3(\text{C}_6\text{H}_5)\text{Si}(\text{OC}_2\text{H}_5)\text{OH}$ during fractional distillation as the boiling point increases.

The AS have two functional groups, which react with SiCl_4 under different conditions. The presence of a HCl acceptor and a low temperature are favorable conditions for reaction of the $\equiv\text{Si}-\text{OH}$ groups, whereas the presence of a catalyst (FeCl_3 , AlCl_3) and heat are necessary for the reaction of the $\equiv\text{Si}-\text{OC}_2\text{H}_5$ groups. The reaction of the AS with SiCl_4 in the presence

Institute of Heteroorganic Compounds, Academy of Sciences of the USSR, Moscow. Translated from Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No. 9, pp. 2115-2116, September, 1977. Original article submitted December 6, 1976.

siloxy)silane. Tetrakis(methylvinylethoxysiloxy)silane was obtained in a similar manner.

CONCLUSIONS

1. The hydrolysis of alkyl(aryl)ethoxychlorosilanes under mild conditions gave alkyl(aryl)ethoxyhydroxysilanes.
2. Tetrafunctional pentasiloxanes were obtained by the heterofunctional condensation of alkylethoxyhydroxysilanes with SiCl_4 .

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DECOMPOSITION OF HYDROGEN TELLURIDE THAT PROCEEDS AS DEFLAGRATION COMBUSTION

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UDC 541.124:541.126:546.241.1

Hydrogen telluride is a thermodynamically unstable compound [1]; its decomposition is accompanied by the liberation of a large amount of heat (23.83 kcal/mole) [2], and it assumes the character of an explosion under conditions where this heat cannot escape. In the present paper are reported the results of studying the principal characteristics of the decomposition of H_2Te in the gas phase, which proceeds as deflagration combustion.

EXPERIMENTAL

The study was run as described in [3-5]. See [6] for a description of the experimental procedure and the equipment used to make the measurements. In the experiments we used H_2Te that was obtained by the electrolysis of 80% orthophosphoric acid solution using a tellurium cathode [7]. Based on the mass spectral data the amount of oxygen was <0.4 vol. %, H_2S 0.04%, H_2Se 0.2%, and hydrocarbons 0.2%. All of the experiments were run at $\sim 20^\circ\text{C}$. The experimental values were processed by the method of least squares. The obtained data are plotted in Figs. 1-3.

While measuring the minimum ignition energy we determined the lower ignition limit of H_2Te based on a pressure equal to 23 mm (see Fig. 2). The formation and propagation of a stable flame front failed to occur at this pressure after a high-voltage discharge with an energy of some 20-30 joules.

To determine the normal combustion rate we use the "constant volume bomb" method [3, 8]. The magnitude of this value was calculated from the oscillograph recording of the pressure vs time curve [3]. As can be seen from Fig. 3, the normal combustion rate of H_2Te has a small value and is slightly dependent on the pressure. It is known that the rates of slow flame propagation processes fluctuate greatly. This apparently explains the quite large scattering of the experimental data.

DISCUSSION OF RESULTS

A comparison of the obtained data with the analogous values, determined in [6] for

Institute of Chemistry, Academy of Sciences of the USSR, Gorki. Translated from *Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya*, No. 9, pp. 2117-2119, September, 1977. Original article submitted December 6, 1976.