

20949

S/079/61/031/004/003/006  
B118/B208

5.3400

AUTHORS: Voronkov, M.G. and Rabkina, S.M.TITLE: Studies in the field of alkoxy silanes.  
XVI. Reaction of tetraalkoxy silanes with ketones

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 4, 1961, 1259 - 1265

TEXT: In addition of their paper (Ref. 1: ZhOKh., 30, 1955 (1960)), and considering the available methods of synthesizing aldehyde and ketone acetals, the authors of the present paper studied the effect of substituting methyl radicals for the ethoxy groups in tetraethoxy silane on acetalization. For this purpose, acetone and methyl-ethyl ketone were allowed to react with methyl ethoxy silanes of the formula  $(\text{CH}_3)_n \text{Si}(\text{OC}_2\text{H}_5)_{4-n}$  ( $n=1-3$ ). Substitution of methyl groups for ethoxy groups on the silicon atom considerably reduced the capability of ethoxy silanes to acetalize ketones. The diethyl ketal yield in the reaction of methyl-ethyl ketone with dimethyl diethoxy silane ( $n=2$ ) was quite low, whereas no ketal was formed in the reaction of acetone with trimethyl ethoxy si-

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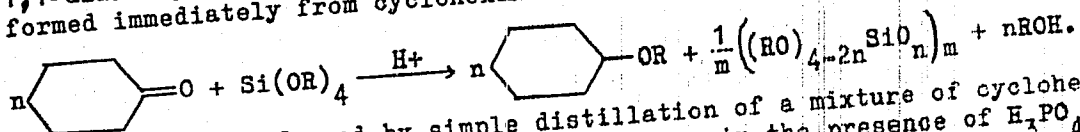
20949

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Studies in the field of alkoxy ...

lane. As acetals in general, and ketals in particular, split off alcohol at elevated temperatures, the synthesized acetals were distilled in the presence of Na or its alcoholate, the acetals otherwise being contaminated by alcohol and the corresponding  $\alpha, \beta$ -unsaturated ether. The ketals of cyclohexanone and its derivatives readily split off alcohol during distillation, and are converted to 1-alkoxy cyclohexenes. This ability of 1,1-dialkoxy cyclohexanes easily yields 1-alkoxy cyclohexenes which are formed immediately from cyclohexanone and tetraalkoxy silanes

X



Synthesis was performed by simple distillation of a mixture of cyclohexanone and the corresponding tetraalkoxy silane in the presence of  $\text{H}_3\text{PO}_4$ . This mixture had previously been boiled for 8-14 hr. Nearly all the alcohol is first distilled off, and immediately afterwards the reaction product containing some alcohol. It was purified by distillation on Na, most suitably at low pressure. Five 1-alkoxy cyclohexenes were synthesized in

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Studies in the field of alkoxy ...

this way with yields between 55 and 70% (Table). The presence of a certain quantity of alcohol in the reaction product is important in acetalization. It was shown that the reaction of tetraalkoxy silanes with aliphatic and alicyclic ketones takes place in the presence of anhydrous orthophosphoric acid as a catalyst and in the absence of alcohols, forming the corresponding ketals. Eight ketals were obtained and identified in this way, as well as the acetal of butyraldehyde. The opinion expressed in publications that aldehydes are acetalized more easily than ketones may only be explained by the fact that ketals hydrolyze more rapidly than aldehyde acetals. Yu.N. Platonov is thanked for making the analyses. There are 1 figure, 1 table, and 26 references: 14 Soviet-bloc and 12 non-Soviet-bloc. The 2 references to English-language publications read as follows: H.E. Carswell, H. Adkins, J. Am. Chem. Soc., 50, 235, (1928); G.L. Pfeifer, H. Adkins, J. Am. Chem. Soc., 53, 1043 (1931).

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR  
(Institute of Silicate Chemistry of the Academy of  
Sciences USSR)

Card. 3/6

3

SERGEYEVA, Z.I.; MATVEYEVA, Z.M.; VORONKOV, M.G.

Organosilicon ethers of ketoximes and of benzaldehyde and  
o-hydroxybenzaldehyde oximes. Zhur.ob.khim. 31 no.6:2017--  
2023 Je '61. (MIRA 14:6)

1. Leningradskiy gosudarstvennyy universitet i Institut khimii  
silikatov AN SSSR.  
(Silicon organic compounds) (Ketones) (Benzaldehyde)

15.6400 1583

22435  
S/O80/61/034/007/010/016  
D223/D305

AUTHORS: Voronkov, M.G., Sharonov, G.P., and Dolbin, V.V.

TITLE: Effect of the nature of sulpho-organic compounds in oil on the frictional wear of metallic surfaces

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 7, 1961, 1562 - 1569

TEXT: The initial wear of new machine parts during the "running in" time can be accelerated by use of sulphurated oils; actual trials have given a time period of 1.5 - 2.0 hours. (Ref. 1: G.P. Sharonov, V.S. Nikandrov, Tankist, 9, 54, 1957). In this connection investigation into the effect of sulphur compounds in oil on running-in and initial machine wear is important both from the theoretical and practical aspects. The article gives the results of investigations on sulphurated oil, its nature, and surveys new sulphurous additions to the oil. The sulphurated oils "industrial 50" and "spindle AV" were produced as follows: To the heated oil

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S/080/61/034/007/010/016  
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Effect of the nature of ...

in a bath at 130-135°C, slowly and with continuous stirring 4.5 wt. % of sulphur flour was added - the additions taking 2 hours - and gradually raising the oil temperature to 150°C. The oil was kept at this temperature for 24 hours, continuously stirring, the total heating time being 28 hours. The sulphurated oil "industrial 50" was obtained containing 4.23 % of sulphur (Ref. 3: Ye.Ya. Anten, N.V. Mitrofanova, T.N. Abramova, G.P. Sharonov, V.S. Nikandrov, Avt. svid. 20319, 1959). The testing on copper sheets showed the disappearance of corrosion for "spindle AV" after 9 hours of sulphuration and for "industrial 50" after 6 hours. The removal of corrosion by the action of sulphur and with increase in the sulphuration time of oil is probably due to the transition of free sulphur into compounded, as well as the elimination from the oil of H<sub>2</sub>S and decomposition of mercaptans, since H<sub>2</sub>S is a product of the reaction of sulphur and hydrocarbons. The friction experiments are then described using machine MI and lubricant MT-16, obtained from sulphurated and emba natural crude oil. These oils had similar viscosities and contained 1.11 and 0.41 % of natural sulphur respec-

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Effect of the nature of ...

tively. In addition to emba crude oil, sulphurated oil was added containing 1.11 % of sulphur, of which 0.41 % was natural sulphur. The frictional drum was made of steel 40X having a microhardness 300-310 while the brake was made from steel 45 which after heat treatment showed a microhardness of 660-680. Fig. 2 shows the curves of temperature change of the surface layer of the brake and frictional movement against the working time of steel samples. Since experimental time was 8 hours per day the curves show discontinuity. It follows that pretreatment of samples using emba oil MT-16 is complete in 68 hours (curve 3, Fig. 2). By this time the frictional movement and temperature of the surface layer measured by a thermocouple have reached their minimum values. The pretreatment of samples in emba oil to which sulphurated oil was added containing 1.11 % of sulphur, was complete in 5 hours (curve 1, Fig. 2) and the minimum values of frictional movement and surface layer temperature did not change after an additional 65 hours. Samples lubricated with MT-16 from crude oil with 1.11 % of natural sulphur were not complete in 70 hours (curve 2, Fig. 2) and

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Effect of the nature of ...

movement and temperature curves show small gradual decrease with time. The contact area of brake to drum was only 35-40 % compared to the sulphurated oil of nearly 100 %. Tests with oils MK with 0.6 % of molybdenum disulphide, AK-10 with additions of different quantities of IP-22 and industrial 12 with 1.5 % of tsiatim-5 did not give positive results, since they behaved in the same manner as natural sulphur. The sulphurated oil protects the working parts of machine by the formation of thin layer of sulphides  $FeS$ ,  $FeS_2$ ,  $Fe_3S_4$ . With the formation of iron sulphides, the cubical lattice of alpha-Fe changes into hexagonal lattice  $FeS$  which, by analogy with graphite, possesses lubricating properties. To investigate the problem of effect of interaction products of S and hydrocarbons and also the additions of different organic compounds of sulphur, tests were done with a series of organic compounds (mercaptan sulphide, de- and polysulphides, thiophen etc.). The results show that disulphides, in particular dibenzenedisulphide have the same effect as sulphurated oil, while other groups of sulphur organic compounds have not. This necessitated an examination of organic

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Effect of the nature of ...

polysulphides  $R_2Sn$ , preferably dibenzenepolysulphides  $C_6H_5CH_2SnCH_2C_6H_5$  with  $n > 2$ . These were prepared by adding corresponding quantities of sulphur to dibenzenedisulphide at  $150^\circ C$ . These compounds with 0.9 - 1.0 % of sulphur were found to be quite effective. There are 5 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Diesel power, 35, 11, 32, 1957.

SUBMITTED: February 1, 1961

Card 5/7

VORONKOV, M.G.

Interatomic distances and nature of Si - O bonds in silicates.  
Dokl.AN SSSR 138 no.1:106-109 My-Je '61.

1. Institut khimii silikatov AN SSSR. Predstavleno akademikom  
N.V.Eflovyn.  
(Silicates) (Chemical bonds)

VORONKOV, MIKHAIL GRIGOR'YEVICH

PHASE I BOOK EXPLOITATION

SOV/6267

Davydova, Viktoriya Pavlovna, and Mikhail Grigor'yevich Voronkov

Polifosfazeny; polimernyye i monomernyye fosfonitril'nyye soyedineniya  
(Polyphosphazenes; Polymeric and Monomeric Phosphonitrile Compounds)  
Moskva, Izd-vo AN SSSR, 1962. 86 p. 2600 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut khimii silikatov.

Resp. Ed.: M. G. Voronkov, Doctor of Chemical Sciences; Ed. of Publishing  
House: V. D. Piastro; Tech. Ed.: G. P. Aref'yeva.

PURPOSE: This book is intended for scientists, engineers, aspirants, teachers,  
and students in advanced courses at schools of higher education working in  
the field of monomeric and high-molecular compounds.

Card 1/4

Polyphosphazenes (Cont.)

SOV/6267

COVERAGE: This book is reportedly the first effort to review and systematize the existing literature on polyphosphazenes. It is based on journal articles and patents published up to 1961. It is expected that materials prepared from phosphonitrile polymers will be better than materials from the polyorganosiloxanes presently used. The chapter on nomenclature was written by M. G. Voronkov, and the other chapters were prepared by V. P. Davydova. There are 23 Soviet and 218 non-Soviet references.

TABLE OF CONTENTS:

Preface	3
Introduction	4
Nomenclature	6
Phosphonitrile Chlorides and Bromides	8

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VORONKOV, M.G.

SOV/6034

PHASE I BOOK EXPLOITATION

Konferentsiya po khimii i primeneniyu fosfororganicheskikh soyedineniy. 2d, Kazan', 1959.

Khimiya i primeneniye fosfororganicheskikh soyedineniy; trudy (Chemistry and Use of Organophosphorus Compounds; Conference Transactions) Moscow, Izd-vo AN SSSR, 1962. 630 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial.

Resp. Ed.: A. Ye. Arbuzov, Academician; Ed. of Publishing House: L. S. Povarov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This collection of conference transactions is intended for chemists, process engineers, physiologists, pharmacists, physicians, veterinarians, and agricultural scientists.

COVERAGE: The transactions include the full texts of most of the scientific papers presented at the Second Conference on the Chemistry and Use of

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Chemistry and the Use of Organophosphorus (Cont.)

SOV/6034

Organophosphorus Compounds held at Kazan' from 2 Nov through 1 Dec 1959. The material is divided into three sections: Chemistry, containing 67 articles; Physiological Activity of Organophosphorus Compounds, containing 26 articles; and Plant Protection, containing 12 articles. The reports reflect the strong interest of Soviet scientists in the chemistry and application of organophosphorus compounds. References accompany individual reports. Short summaries of some of the listed reports have been made and are given below.

TABLE OF CONTENTS: [Abridged]:

Introduction (Academician A. Ye. Arbuzov) 3

TRANSACTIONS OF THE CHEMISTRY SECTION

Gefter, Ye. L. [NII plastmass (Scientific Research Institute of Plastics, Moscow)]. Some Prospects for the Industrial Use of Organophosphorus Compounds 46

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## Chemistry and the Use of Organophosphorus (Cont.)

SOV/6034

The preparation and uses of organophosphorus compounds are discussed, and prospects for obtaining new high-molecular organophosphorus compounds are outlined. Gefer recommends 1) the preparation of new organophosphorus polymers based on oxides of unsaturated tertiary phosphines, 2) the utilization of thermal stability and good mechanical properties of known organophosphorus compounds as a basis for creating new heterochain phosphorus-containing compounds, and 3) application of the latest methods currently used in the chemistry of high-molecular compounds to organophosphorus polymers.

Orlov, N. F., and M. G. Voronkov [Institut khimii silikatov (Institute of Silicate Chemistry, Leningrad)]. New Methods of Synthesis of Triorganosilyl Esters of Orthophosphoric and Alkylphosphonic Acids

212

New methods have been developed for the synthesis of tris-(triorganosilyl)-phosphates  $(R_3SiO)_3PO$ , bis-(triorganosilyl)methylphosphonates  $CH_3(R_3SiO)_2PO$ , and organophosphorus-silicon polymers based on  $H_3PO_4$  and  $CH_3PO(OH)_2$ . One method is based on the interaction of

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ORLOV, N.F., VORONKOV, M.G.

New ways to synthesize triorganosilyl esters of orthophosphoric and  
alkylphosphinic acids.

Khimiya i Primeneniye Fosfororganicheskikh Soedineniy (Chemistry and  
application of organophosphorus compounds) A. YE. APPEL'YAN, Ed.  
Publ. by Kazan Affil. Acad. Sci. USSR, Moscow 1962, 632 pp.

Collection of complete papers presented at the 1965 Kazan Conference on  
Chemistry of Organophosphorus Compounds.



33988  
S/062/62/000/002/013/013  
B117/B138

5.2420  
5.2410

AUTHORS: Shchukovskaya, L. L., Voronkov, M. G., and Pavlova, O. V.

TITLE: New method of N-dimethyl-B-difluoro borazene synthesis

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 2, 1962, 366

TEXT: The new method consists in the separation of hydrogen fluoride from N-dimethyl-B-trifluoro borazene heated with aluminum dust in vaseline oil medium.  $C_2H_7NBF_3$  (boiling point 149 - 150°C (5 mm Hg), dry aluminum dust, and vaseline oil (boiling point 210 - 230°C (2 mm Hg)) were slowly heated in a distilling flask on Wood's alloy. At 278° hydrogen started separating energetically and the collecting vessel connected with the gasometer by way of a cooling trap rapidly filled with white brilliant N-dimethyl-B-difluoro borazene crystals. Owing to the vaseline oil the course of the reaction  $6(CH_3)_2NH \cdot BF_3 + 2Al - 6(CH_3)_2NBF_2 + 2AlF_3 + 3H_2$  was very smooth and easy to control. Yield of N-dimethyl-B-difluoro borazene: 85 - 88%. Some compounds of the type  $R_2NBF_2$ , which are still being examined, were obtained in a similar

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New method of N-dimethyl-B-difluoro...

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S/062/62/000/002/013/013  
B117/B138

manner. Hydrogen fluoride could not be separated from N-dimethyl-B-tri-fluoro borazane by heating with KF. There are 2 non-Soviet references. The two references to English-language publications read as follows: J. F. Brown, J. Amer. Chem. Soc. 74, 1219 (1952); A. B. Burg, J. Banus, J. Amer. Chem. Soc. 76, 3903 (1954).

ASSOCIATION: Institut khimii silikator Akademii nauk SSSR (Institute of Silicate Chemistry of the Academy of Sciences USSR) X

SUBMITTED: August 10, 1961

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33923

S/079/62/032/002/008/011  
D204/D303

5.3700

AUTHORS: Orlov, N.F. and Voronkov, M.G.

TITLE: Silico-organic esters of methyl phosphinic acid (MPA)

PERIODICAL: Zhurnal obshchey khimii, v.32, no. 2, 1962, 608-612

TEXT: This is a description of the methods of synthesis of the hitherto unknown bis (triorganosilyl) methyl phosphinates, based on interaction of  $\text{CH}_3\text{P}(\text{O})(\text{OH})_2$  with: (1) Triorganosilanol:  $\text{CH}_3\text{P}(\text{O})[\text{OSiEt}_3]_2$  was prepared in 68% yield from  $\text{Et}_3\text{SiOH}$  (2 moles) and MPA (1 mole), by heating for 2 hrs, removing continuously the water formed. (2) Triorganosilanes:  $\text{CH}_3\text{P}(\text{O})[\text{OSiEt}_2\text{Me}]_2$ ,  $\text{CH}_3\text{P}(\text{O})[\text{OSiEt}_3]_2$ ,  $\text{CH}_3\text{P}(\text{O})[\text{OSiMe}(\text{n-Pr})_2]_2$ ,  $\text{CH}_3\text{P}(\text{O})[\text{OSiMe}(\text{Ph})_2]_2$  and  $\text{CH}_3\text{P}(\text{O})[\text{OSiEt}(\text{Ph})_2]_2$  were synthesized from the corresponding trisubstituted silanes and MPA in the molar ratio of 2:4:1, in presence of colloidal Ni, in 70-90% yields, by heating for ~3 hr at  $130^\circ\text{C}$ . (3) Triorganoalkoxysilanes:  $\text{CH}_3\text{P}(\text{O})[\text{OSiEt}_3]_2$  and  $\text{CH}_3\text{P}(\text{O})$

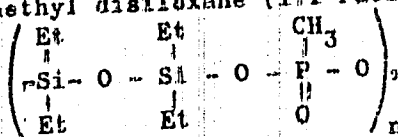
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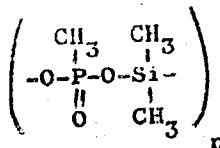
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D204/D303

Silico-organic esters of ...

$[\text{OSi}(\text{Ph})_3]_2$  were obtained from  $\text{Et}_3\text{SiOMe}$  and  $(\text{Ph})_3\text{SiOEt}$  taken in the molar ratio of silane: MPA equal to 2.4:1 and 2:1 respectively, in 60 and 70% yields. The reaction of MPA and tetraethyl disiloxane (1:1 ratio) was catalyzed by colloidal Ni and yielded



whilst another polymer:



was obtained from an equimolecul.

lar mixture of MPA and dimethyl diethoxysilane. All the phosphinates, with the exception of crystalline  $\text{CH}_3\text{P}(\text{O})[\text{OSi}(\text{Ph})_3]_2$ , were colorless, high-boiling liquids, readily hydrolyzed by water. The polymers were pale yellow oils. Experimental details are given and physical constants of

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D204/D303

Silico-organic esters of ...

the products are tabulated. There are 1 table and 17 references: 11 Soviet-bloc and 6 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: R.O. Sauer, J.Am.Chem.Soc., 66, 1707, (1944); W.H. Keeber and H.W. Post, J.Org.Ch., 21, 509, (1958); Canadian Pat. 496,623 (1953); Ch.A., 47, 4128, (1953).

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the Academy of Sciences, USSR)

SUBMITTED: March 2, 1961

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Card 3/3

S/079/62/032/002/009/011  
D204/D303

AUTHORS: Orlov, N.F., Bogatkin, R.A., Sergeyeva, Z.I., and Veronkov,  
M.G.

TITLE: Interaction of triorganosilanes with carboxylic acids in  
the presence of colloidal nickel

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 2, 1962, 650-651

TEXT: A short note on the reactions of triethyl silane with carboxylic acid, using colloidal Ni as a catalyst. Monocarboxylic acids reacted giving the corresponding triorganosilyl esters, in 50-85% yield. Esters of general formula  $\text{Et}_3\text{SiOCO}(\text{CH}_2)_n\text{OCOSiEt}_3$  were synthesized in 60-80% yields from simple dicarboxylic acids. Colloidal Ni promoted hydrogenation as well as dehydrocondensation, as was shown by the reactions of  $\text{Et}_3\text{SiH}$  with halogenated and unsaturated acids. Monochloroacetic acid yielded either  $\text{Et}_3\text{SiOCOCH}_2\text{Cl}$  or  $(\text{Et}_3\text{SiOCOCH}_3 + \text{Et}_3\text{SiCl})$ , depending on the molar ratio of the reagents. Unsaturated acids yield hydrogenated



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Interaction of triorganosilanes ...

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products; e.g. crotonic acid gave the n-butyric ester. Action of  $H_2PtCl_6$  as the catalyst is similar to that of colloidal Ni. No experimental details are given. There are 3 Soviet-bloc references.

SUBMITTED: July 17, 1961

Card 2/2

VORONKOV, M.G.

Nature of Si - O bonds in silicates. Zhur.ob.khim. 32 no.7:2391-  
2392 J1 '62. (MIRA 15:7)

1. Institut organicheskogo sinteza AN Latvyskoy SSR.  
(Silicates) (Chemical bonds)



ORLOV, N.F.; BOGATKIN, R.A.; SERGEYEVA, Z.I.; VORONKOV, M.G.

Interaction of hydroxysilanes with saturated acids in the  
presence of colloidal nickel. Zhur.ob.khim. 32 no.3:2561-2566  
Ag '62. (MIRA 15:9)

(Silane) (Acids, Organic)

35036

S/080/62/035/003/015/024  
D227/D302

157140

AUTHORS: Lasskaya, Ye. A. and Voronkov, M. G.  
TITLE: Application of organosilicon compounds for hydrophobing heat insulating articles made of expanded perlite  
PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 3, 1962, 612-617

TEXT: To improve water resistance of articles made of expanded perlite, the authors studied the use of organosilicon compounds as possible hydrophobic agents. The compounds tested were: aqueous solution of polyethylhydrosiloxane ПЖ-94 (GKZh-94) and aqueous solutions of sodium methyl silicate МСГ-9 (MSG-9) and ethyl silicate GKZh-10. The solutions were deposited onto air-dried perlite samples in one or two layers and their effectiveness was determined by immersing the samples in water and measuring the amount of water absorbed. The results showed that water-proofing of articles substantially reduces the water absorption capacity. For perlites bonded with concrete, glass and silica, GKZh-94 (~10%) proved to be very effective. The high hydrophobic activity of polyethylhydrosi-

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Application of organosilicon ...

S/080/62/035/003/015/024  
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loxanes on the alkali-containing materials is explained by the chemical reaction of the surface materials with Si-H bond giving an organosilicon film and also by hydrolysis of this bond resulting in fusion of the polysiloxane chains. For gypsum and lime-bonded perlites, sodium alkyl silicates (3 - 4%) proved more effective. In general, treatment of various perlites with the mentioned silicon compounds tended to increase their water resistance by up to 65 times. A series of experiments has also been conducted to determine the effect of hydrophobing treatment on other properties of expanded perlite such as water desorption and frost stability. It has been shown that after the treatment with up to 5% solutions of the silicon compound, the samples could withstand up to 25 "freeze-thaw" cycles and up to 30 of "wet-dry" cycles. There are 8 tables and 2 Soviet-bloc references.

SUBMITTED: September 26, 1961

Card 2/2

LASSKAYA, Ye.A.; VORONKOV, M.G.

Imparting hydrophobic properties to natural siliceous-limestone materials by treating them with organosilicon compounds.

Zhur.prikl.khim. 35 no.5:1093-1107, My '62. (MIRA 15:5)

(Building materials)

(Waterproofing)

(Silicon organic compounds)

SHCHUKOVSKAYA, L.L.; VORONKOV, M.G.; PAVLOVA, O.V.

New methods of synthesizing  $\beta$ -monohalo-substituted N-dialkylborazines and N-trialkylborazines. Dokl. AN SSSR 143 no.4: 887-889 Ap '62. (MIRA 15:3)

1. Institut khimii silikatov AN SSSR. Predstavleno akademikom A.V.Topchiyevym.

(Borazane) (Borazine)

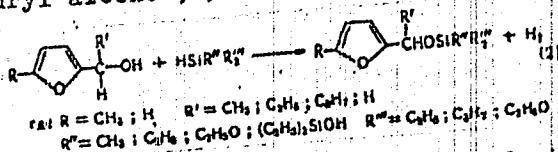
S/020/62/145/004/017/024  
B110/B144

AUTHORS: Lukevits, E. Ya., Romadan, Yu. P., Giller, S. A., Academician  
AS LatSSR, and Voronkov, M. G.

TITLE: Organosilicon compounds of the furan series. Organosilicon  
derivatives of furyl carbinols and 5-substituted furfuryl  
alcohols

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 4, 1962, 806 - 808

TEXT: Furfuryl oxysilanes were produced: (1) by reaction of trialkyl  
chlorosilanes with furyl alkyl and furyl aryl carbinols, (2) by reaction  
of silanes with furfuryl alcohol, 5-methyl furfuryl alcohol, and furyl  
alkyl carbinols



using  $10^{-5}$  moles of  $\text{H}_2\text{PtCl}_6$  per 1 mole of isopropyl alcohol as catalyst at

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Organosilicon compounds of the ...

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B110/B144

80 - 100°C. Their composition and properties are indicated (Table).  
5-nitro-furfuryl oxytrimethyl silane was obtained from ethereal solutions  
of 5-nitro-furfuryl alcohol, pyridine, and trimethyl chlorosilane.  
Silane reacts with  $H_2PtCl_6$  in isopropyl alcohol to give furfuryl oxysilane. ✓  
Dioxane containing 0.05 moles of  $H_2O$  hydrolyzes triethyl silane in the  
presence of  $H_2PtCl_6$  to give triethyl silanol. Triethyl silane reacting  
with triethyl silanol in the presence of  $H_2PtCl_6$  yields small amounts of  
hexaethyl disiloxane by anhydrocondensation. There is 1 table.

ASSOCIATION: Institut organicheskogo sinteza Akademii nauk LatvSSR  
(Institute of Organic Synthesis of the Academy of Sciences  
LatSSR)

SUBMITTED: March 12, 1962

Table. Furfuryl oxysilanes ( $R'-\text{C}_5\text{H}_3\text{O}-R'$ ). Legend: (1) mode of production,  
(2) boiling point, °C, (3) pressure, mm Hg.

Card 2/0 2

VORONKOV, M. G.; DEYCH, A. Y.;

"Donor-acceptor properties of the siloxane bond."

Second Dresden Conference on Organic and Non-Silicate Chemistry, 26-30 March 63, East Germany."

Institute for Organic syntheses of the Latvian Academy of Science, Riga, USSR.



VORONKOV, M.G.; SHOROKHOV, N.V. [deceased]; DYMARSKAYA, O., red.;  
PILADZE, Ye., tekhn. red.

[Water-repellent coatings in construction] Vodoottalkivaiushchie pokrytiia v stroitel'stve. Riga, Izd-vo Akad. nauk Latviskoi SSR, 1963. 189 p. (MIRA 16:4)  
(Waterproofing) (Silicon organic compounds)



L 19424-65

ACCESSION NR: AR4048174

SUB CODE: OC, GC

ENCL: 00

Card 2, 2

CITED SOURCE: Izv. AN LatvSSR Ser. Khim., no. 6, 1963, 595-599

TOPIC TAGS: nuclear spectroscopy, line spectrum, resonance lines, nuclear quadrupole resonance

... and signal intensity ratios of

ORLOV, N.F.; BOGATKIN, R.A.; SERGEYEVA, Z.I.; VORONKOV, M.G.

Nickel catalyst in the reactions of organosilane hydrides with  
organic acids. Zhur.ob.khim. 33 no.6:1934-1938 Jn '63.

(MIRA 16:7)

1. Leningradskiy gosudarstvennyy universitet i Institut  
khimii silikatov AN SSSR.

(Silane) (Acids, Organic) (Nickel catalysts)

VORONKOV, M.G.; LIPSHITS, T.S.

Use of the EN-3 polyethylmethylhydrosiloxane waterproofing agent  
for the emulsion water-repellent treatment of textile materials.  
Zhur.prikl.khim. 36 no.1:152-156 Ja '63. (MIRA 16:5)  
(Waterproofing of fibers) (Silicon organic compounds)

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L 45216-55  
ACCESSION NR AM5003774

describes typical examples of synthesis. The book includes a general table of  
the 2600 reactions of the hydrolysis of the various types of esters and amides  
and a list of reactions of the various types of esters and amides. The book  
also includes a list of reactions of the various types of esters and amides.  
The book is a valuable reference for the chemist and the student of chemistry.

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L. 45810-85

ACCESSION NR AN500377L

Part 3. Examples of preparative syntheses --- 89

Part 4. Tables of the hydrolytic stability, hydrogermanification and hydro-  
silylation for each case

Bibliography --- 350

SUBMITTED: 21Jan16L

SUB CODE: CIG

NO REF SOV: 207

ORDER: 132

Card 3/3

VORONKOV, M. G.; DEYCH, A. Ya., Riga

"Acceptor complexes of monosubstituted benzenes  $C_6H_5X$  with electron donor organic compounds."

report submitted for 8th Intl Conf on Coordination Chemistry, Vienna, 7-11 Sep  
64

L 16707-65 ENI(m)/EPI(e)/EPP(j) Pa-4/Pc-4/Pr-4 (Cm) 1-2 HM  
ACCESSION NR: AN5000783 E/0018/00/000/010/DO40/DO40

SOURCE: Ref. zh. Fizika, Abs. 100319

AUTHORS: Vukov, I. P.; Safin, I. A.; Voronkov, M. G.

TITLE: Nuclear quadrupole resonance of certain organyl chlorosilanes and organo-germanes

CITED SOURCE: Izv. AN LatvSSR. Ser. Khim., no. 2, 1964, 181-184

TOPIC TAGS: nuclear quadrupole resonance, piezoelectric property, organo-chlorosilane, organochlorogermane

The NQR spectra of 7 organylchlorosilanes and 4-germanes were investigated. These compounds and 1-germanes were obtained in ethyl alcohol solution, indicating that this compound has piezoelectric properties. A doublet signal was observed in the NQR spectrum of dichloropropylsilane and a triplet signal was observed in the NQR spectrum of dichloropropylgermane. A more exact value is obtained for the NQR triplets for vinyl dichlorosilanes.

Card 1/2

L 16707-65  
ACCESSION NR: AR5000783

0

trichlorosilane The widths of the lines for the observed signals were esti-  
mated. It is noted that the regular chemical non-equivalents of the second  
and third positions in the unit crystal lattice contain  
two kinds of the type of groups.

SUB CODE: NP, OC

ENCL: CC

Card 2/2

ACCESSION NR: AP4042871 3/00062/dh/000/007/LA15/1212

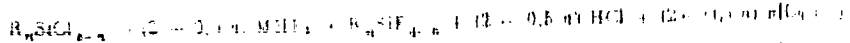
AUTHOR: Voronkov, M. G.; Sharik, Yu. I.

TITLE: Synthesis of organofluorosilanes

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1959, 1211-1221

TOPIC TAGS: organofluorosilanes, synthesis, glycolysis, ammonium bifluoride, potassium bifluoride, alkyl fluorosilanes, cycloalkyl fluorosilanes, arylalkyl fluorosilanes, trialkylchlorosilane

ABSTRACT: A direct and inexpensive method was worked out for the synthesis of organofluorosilanes based on reaction of the corresponding organochlorosilane with anhydrous powdered potassium or ammonium bifluoride



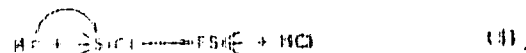
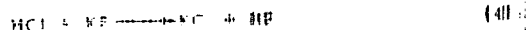
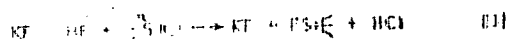
The following alkyl, cycloalkyl and arylalkyl fluorosilanes were obtained in 80-90% yields: trimethyl(ethyl or n-propyl)fluorosilane, dimethyl(cyclohexyl or methyl)fluorosilane, dimethyl(cyclohexyl or ethyl)fluorosilane, dimethyl(cyclohexyl or n-butyl, n-pentyl, n-heptyl or cyclohexyl)fluorosilane

Card 2/3

L 6940-69  
 ACCESSION NO: AP4042871

hexyldifluorosilane. The last three compounds were new in the literature. Reactions of hexyldifluorosilane with  $\text{C}_6\text{H}_5\text{O}_2$  by this method resulted in the cleavage of 50% phenyl radicals

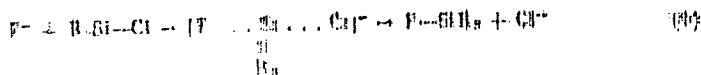
The presence of 1 or 2 alkyl radicals on the Si in addition to the phenyl radical prevented side reactions. The following mechanism was proposed for these reactions:



Trialkylchlorosilanes may be converted to the corresponding difluorodervatives in 50-60% yield by reaction with saturated aqueous solutions of ammonium or potassium fluoride or bifluoride:

Card 2/3

ACCESSION NR: AP4042071



A method was also worked out for the synthesis of trialkylchlorosilanes by reacting the corresponding trialkylsilane with  $TiCl_4$  or  $SbCl_5$ . Orig. art. has 6 equations, and 2 formulas.

ASSOCIATION: Institut khimii silikatoov im. Y. V. Grebenshchikova Akademii nauk SSSR (Institute of Silicate Chemistry Academy of Sciences, USSR), Institute organicheskoi khimii im. P. M. Balandina Akademii nauk SSSR (Institute of Organic Chemistry Academy of Sciences, LatvSSR)

SUBMITTED: 13Dec66

INCL: 00

SUB CODE: 00

NO REF SOV: 008

OTHER: 000

Card 3/3

VORONKOV, M.G.; DEYCH, A.Ya.

Donor-acceptor characteristics of a siloxane bonding. Dokl.  
strukt. khim. 5 no.3:482-489 My-Je '64.

(MIRA 18:7)

1. Institut organicheskogo sinteza AN Latvviyskoy SSR.



SOKOLOV, G.P.; GILLER, S.A., akademik; VORONKOV, M.G.

Reaction of organomagnesium compounds with 2,5-dimethoxy-2,5-dihydrofurans.  
Dokl. AN SSSR 158 no.3:675-678 S '64. (MIRA 17:10)

1. Institut organicheskogo sinteza AN Latvyskoy SSR. 2. AN Latvyskoy  
SSR (for Giller).

VORONKOV, M.G.; BIRYUKOV, I.P.

Problem of the additive scheme of calculation of a mean frequency in the nuclear quadrupole resonance spectrum of organylchlorosilanes. Teoret. i eksper. khim. 1 no.1:122-124 Ja '65.

Nuclear quadrupole resonance spectra of chlorogermanes. Ibid.:124-126 (MIRA 18:7)

1. Institut organicheskogo sinteza AN Latvyskoy SSR, Riga.

BIRYUKOV, I.P.; VORONKOV, M.G.; SAFIN, I.A.

Study of the induction effect of substituents in organochlorosilanes  
by the nuclear quadrupole resonance method. Teoret. i eksper.  
khim. 1 no.3:373-380 My-Ja '65. (MIRA 18:9)

1. Institut organicheskogo sinteza AN Latvviyskoy SSR, Riga.

L 12982-66 SWT(L)/EWP(J)/T RPL WW/RM  
ACC NR: AP6001461 SOURCE CODE: UR/0379/65/001/005/0663/0674

35  
15

AUTHOR: Voronkov, M. G. ; Deych, A. Ya.

ORG: Institute of Organic Synthesis, AN Latv. SSR, Riga (Institut organicheskogo sinteza);  
Riga Institute of Civil Aviation Engineers (Rizhskiy institut inzhenerov gornichdanskoy aviatsii)

TITLE: Formation of complexes with charge transfer in systems of monosubstituted benzenes  
C<sub>6</sub>H<sub>5</sub>X with electron-donor organic compounds

SOURCE: Teoreticheskaya i eksperimental'naya khimiya, v. 1, no. 6, 1959, 663-674

TOPIC TAGS: intermolecular complex, benzene, electron donor

ABSTRACT: The paper deals with the formation of labile complexes with charge transfer in systems of C<sub>6</sub>H<sub>5</sub>X monosubstituted benzenes with organic compounds (D) containing a hetero atom with an unshared pair of electrons (O, N, and Cl). Using refractometry, from the character of n(V) isotherms of over 400 liquid binary systems: C<sub>6</sub>H<sub>5</sub>X-D, the authors found that the tendency of C<sub>6</sub>H<sub>5</sub> molecules to form complexes is most pronounced if X is a meta-orientant, and increases with increasing dipole moment of the molecule. The complexing tendency of electron-donor components (D) decreases in the following order of variation of the hetero atom in D: O > Cl > N, and is not proportional to the basicity of the nonbenzenoid component. Complex-formation in C<sub>6</sub>H<sub>5</sub>X-D systems has a donor-acceptor character and is due to the transfer of an electron from D to the aromatic ring with the lower π-electron

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L 12982-66

ACC NR: AP6001461

density. Since the complexes formed differ from ordinary aromatic  $\pi$  complexes by a reverse direction of the shift of  $\pi$  electrons, they may be termed "reverse  $\pi$  complexes." The intermediate formation of "reverse complexes" during the initial stage of reactions of nucleophilic aromatic substitution is postulated. Orig. art. has: 3 figures and 4 tables.

SUB CODE: 07 / SUBM DATE: 08Mar65 / ORIG REF: 013 / OTH REF: 015

Card 2/2



...the presence of the same catalytic ...  
 ...yielding ...  
 ...

ASSOCIATION: Institut khimii silyntov imeni Ia M. Grebenskikh, Akademii nauk SSSR i Institut organicheskogo sinteza Akademii nauk Latvyskoye SSh (Institute of ...)

SUBMITTED: 28Oct63

ISSUE: 00

SUB NO: 11

NO REF SOW: 003

ORDER: 007

Card 2/2

L 53043-65 EWP(j)/EWP(m)/EWP(n)/EWP(o) Pp-Ly/Pg-Li H1/H2  
ACCESSION NR: AF501777 UN/OCBO/65/033/007/1431/1480  
546,287

625  
11

AUTHOR: Veronkov, M. G.; Laskaya, Ye. A.; Pashchenko, A. A.

TITLE: Nature of the bonding between water-repellent organosilicon coatings and the surface of materials treated

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 7, 1965, 1443-1487

TOPIC TAGS: hydrophobization, organosilicon compound, water repellent additive, organosilicon coating, polysiloxane film, carbonation, glass bonding

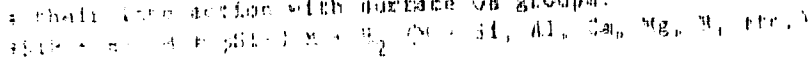
ABSTRACT: The formation of a chemical bond between a water-repellent polysiloxane coating and the surface of a material during its hydrophobization with alkylchlorosilanes is studied.

Card 1/2



ACCESSION NR: AP501777

glass with the formation of a surface polysiloxane film which is linked in a continuous fashion to the polymeric skeleton of quartz. It was shown that the main reaction leading to the formation of water-repellent films on polyalkylsiloxane is chain-end reaction with surface OH groups:



A special study was made to determine the role of carbon dioxide (carbonation) in the process of formation of a hydrophobic film based on water-insoluble sodium silicate coatings. (Fig. 4, Table 1, figure and 7 formulae.)

ASSOCIATION: None

IDENTIFIED: 03Mar63

ENCL: 00

REFS CITE: 14

PREP: 00

L 13461-66 ENT(D)/EMP(J)/T RM

ACC NR: AP6002222 (A) SOURCE CODE: UR/0080/55/030/012/2840/2050

AUTHOR: Voronkov, H. G.; Faytel'son, P. D. 35ORG: Institute of Organic Synthesis AN Latvian SSR (Institut organicheskogo sinteza AN Latviyskoy SSR) BTITLE: Low temperature setting of organosilicon resins, lacs and enamels 6.11.55

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 12, 1965, 2840-2850

TOPIC TAGS: organosilicon compound, silicon plastic, resin, plastic coating, secondary amine, INDUSTRIAL CATALYST

ABSTRACT: Two higher secondary amines  $(n-C_4H_9)_2NH$  and  $(n-C_5H_{11})_2NH$ , were evaluated as catalysts for setting (hardening) silicoorganic resins, lacs, and enamels at 20°C. The object of the work was to compare low temperature catalytic setting of silicoorganic resins with high temperature (200°C) non-catalytic setting technique. Secondary amines in the amount of 0.2-0.6 wt % were added to commercial K-41, K-43, K-44, K-48 and K-54 silicoorganic resins containing such pigments as  $TiO_2$  and SiC. The resins were sprayed onto a copper base. The setting period was in the 20-240 min range. It was found that aliphatic secondary

Card 1/2

UDC: 661.718.5

L 13481-66

ACC NR: AP6002222

amines containing 8 and 10 carbon atoms are suitable low temperature setting catalysts for silicoorganic resins as they do not cause gelation of lacs and enamels based on silicoorganic resins. The lacs and enamels prepared at 20°C by the use of amine catalysts exhibited mechanical and electrical properties and adhesion to the copper base comparable to those resulting from non-catalytic setting of silicoorganic resins at 200°C. It was found that lower amines do not possess catalytic properties for low temperature setting of silicoorganic resins. Orig. art. has: 1 table. 0

SUB CODE: 07,11/ SUBM DATE: 30Nov64/ ORIG REF: 003/ OTH REF: 002

*DR*  
Card 2/2

BIRYUKOV, I.P.; VORONKOV, M.G.; BABICH, E.D.; ARKHIPOVA, T.N.; VDOVIN, V.M.;  
NAMETKIN, N.S.

Nuclear quadrupole resonance of 1,1-dichloro and 1-methyl-1-  
chloro-1-silacycloalkanes. Dokl. AN SSSR 161 no. 5:1336-1338  
Ap '65. (MIRA 18:5)

1. Institut organicheskogo sinteza AN LatvSSR i Institut  
neftekhimicheskogo sinteza im. A.V.Topchiyeva AN SSSR.
2. Chlen-korrespondent AN SSSR (for Nametkin).

BIRYUKOV, I.P.; VORONKOV, M.G.; MOTSAREV, G.V.; ROZENBERG, V.R.; SAFIN, I.A.

Nuclear quadrupole resonance method of studying organosilicon compounds containing Si-Cl and C-Cl bonds. Dokl. AN SSSR 162 no.1:130-132 My. '65. (MIRA 18:5)

1. Institut organicheskogo sinteza AN Latvyskoy SSR i Kazanskiy fiziko-tekhnicheskii institut AN SSSR. Submitted November 17. 1964.

L 17627-66 EWT(m)/ENP(j) RM

ACC NR: AP6001734

SOURCE CODE: UR/0020/65/165/004/0857/0859

AUTHORS: Biryukov, I. P.; Voronkov, M. G.; Safin, I. A.ORG: Institute for Organic Synthesis, Academy of Sciences, Latvian SSR  
(Institut organicheskogo sinteza Akademii nauk LatvSSR)TITLE: Correlation of the mean nuclear quadrupole resonance frequency with the inductive constants of substituents in organylchlorosilanes 7,44,55

SOURCE: AN SSSR, Doklady, v. 165, no. 4, 1965, 857-859

TOPIC TAGS: NMR, NMR spectroscopy, quadrupole moment, organosilicon compound

ABSTRACT: The mean nuclear quadrupole resonance frequency,  $\nu_m^{77}$  at 77K, of 36 organylchlorosilanes (general formula  $RR'R'SiCl_3$ ) was correlated with Taft's  $\sigma^*$  of the various substituents R, R' and R'' on the central silicon atom to extend the work of the authors (Soveshch. po magnitnomu rezonansu, Krasnoyarsk, 1964). The experimental results are presented in graphs and tables. The correlation was effected by the use of equations

$$\nu_m^{77} = \nu_0^{77} + k \sum_i \sigma_i^* \quad (1)$$

Card 1/2

UDC: 541.67+546.287 2

L 17627-66

ACC NR: AP6001734

$$\sum_i \alpha_i = k^{-1} (\nu_m^{77} - \nu_0^{77}) = \alpha \nu_m^{77} - \beta, \quad (2)$$

where  $\nu_0^{77}$ ,  $k$ ,  $\alpha$ , and  $\beta$  are constants,  $\nu_m^{77}$  the measured frequency, and  $\sigma$  is Taft's induction constant. It is concluded that a comparison of nmr and ngr studies may yield valuable results which will extend the understanding of the nature of the chemical bond. This paper was presented by academician Ya. K. Syrkin on 12 April 1965. Orig. art. has: 3 tables and 1 graph.

SUB CODE: 07/ SUBM DATE: 03Apr65/ ORIG REF: 007/ OTH REF: 003

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Card 2/2

L 32200-66 EWT(m)/T/EWP(j) IJP(c) WW/RM

ACC NR: AP6007119

SOURCE CODE: UR/0079/66/036/002/0347/0350

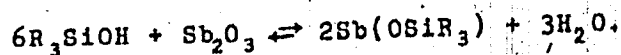
AUTHOR: Orlov, N. F.; Voronkov, M. G.

ORG: Leningrad Institute of Textiles and Light Industry im. S. M. Kirov (Leningradskiy institut tekstil'noy i legkoy promyshlennosti); Institute of Organic Synthesis, AN LatSSR (Institut organicheskogo sinteza AN LatSSR)

TITLE: Tris(triorganylsilyl) antimonites 45  
44  
P

SOURCE: Zhurnal obshchey khimii, v. 36, no. 2, 1966, 347-350

TOPIC TAGS: antimony compound, organic synthetic process, silicon compound  
 ABSTRACT: A study by N. F. Orlov and M. G. Voronkov contains data on two new methods for the synthesis of tris(trialkylsilyl) antimonites. The first method (A), which is simple and economical, consists of reacting a trialkylsilanol with antimony trioxide on heating:



The water formed is removed by azeotropic distillation with an inert solvent, e. g., benzene, toluene, etc. The yield reaches 70% of the theoretical. Previously, the authors used a similar method to prepare tri-

Card 1/3

UDC: 546.287+546.863



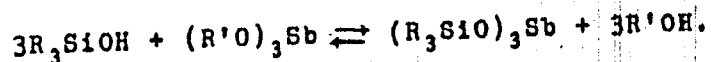
L 32200-66

ACC NR: AP6007119

silanol derivatives of some other trivalent elements or groups: boron, phosphorus, or vanadyl.

The method is similar to that used in the preparation of trialkyl antimonites,  $Sb(OR)_3$ , by reacting  $Sb_2O_3$  with alcohols. The higher reactivity of trialkylsilanols, as compared with alcohols, can be explained by their higher acidity caused by the  $p_\pi - d_\pi$  interactions between silicon and oxygen atoms.

The second method (B) suggested is the silanolysis of trialkyl antimonites:



On heating of the mixture the alcohol formed is stripped off. It is advisable to add the silanols in small quantities, e. g., dropwise, especially in benzene solution, in order to prevent silanol condensation, thereby increasing the yield of the desired product.

The presence of sodium in catalytic amounts accelerates the reaction; however, the reaction proceeds readily even without any catalyst.

Tris(trialkylsilyl) antimonites are either colorless liquids or crystals with a weak silanol odor. They are stable on storage in dry air, but

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L 32200-66

ACC NR: AP6007119

hydrolyze in humid air. Hydrolytic stability of tris(trialkylsilyl) antimonites increases with increasing length of the organic radical, and is higher than that of the trialkyl antimonites.

The properties of the five compounds synthesized (four of them for the first time) are given in Table 1.

Table 1. Tris(trialkylsilyl) antimonites

Compound	Preparative method	Yield %	bp °C (p mm Hg)	d <sub>4</sub> <sup>20</sup>	n <sub>D</sub> <sup>20</sup>	MR <sub>D</sub>		Found %		Formula	Calculated	
						Found	Calculated	Sb	Si		Sb	Si
(CH <sub>3</sub> ) <sub>3</sub> SiO <sub>3</sub> Sb	B	67.0	80° (3)	1.1448	1.4374	89.17	89.13	31.25, 31.71	21.52, 21.29	C <sub>9</sub> H <sub>27</sub> O <sub>3</sub> SbSi <sub>3</sub>	31.27	21.64
(CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> SiO <sub>3</sub> Sb	B	00.0	132 (6)	1.1313	1.4508	102.59	102.66	28.25, 28.83	—	C <sub>11</sub> H <sub>29</sub> O <sub>3</sub> SbSi <sub>3</sub>	28.22	—
(CH <sub>3</sub> (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> SiO <sub>3</sub> Sb	A	61.5	150 (3.5)	1.1132	1.4588	116.23	116.19	25.75, 25.64	17.60, 17.44	C <sub>13</sub> H <sub>29</sub> O <sub>3</sub> SbSi <sub>3</sub>	25.72	17.60
(C <sub>2</sub> H <sub>5</sub> ) <sub>3</sub> SiO <sub>3</sub> Sb	A	63.0	170 (3)	1.1041	1.4675	129.69	129.72	23.83, 23.89	16.01, 16.01	C <sub>15</sub> H <sub>35</sub> O <sub>3</sub> SbSi <sub>3</sub>	23.61	16.34
(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> SiO <sub>3</sub> Sb	B	00.5	203 (30)	1.1038	1.4681	129.94	129.72	—	16.06, 16.14	C <sub>11</sub> H <sub>25</sub> O <sub>3</sub> SbSi <sub>3</sub>	23.61	16.34
	B											
(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> SiO <sub>3</sub> Sb			mp 214° (benzene)			—	—	12.68, 12.16	8.38, 8.38	C <sub>11</sub> H <sub>25</sub> O <sub>3</sub> SbSi <sub>3</sub>	12.64	8.59

The refraction increment for the Sb-O bond, absent in the literature according to the authors, was computed to be equal to 5.25 ± 0.05 cm<sup>3</sup>. Orig. art. has: 1 table.

[FSB: v.2, no.5]

SUB CODE: 07 / SUBM DATE: 05 Jan 65 / ORIG REF: 010 / OTH REF: 002

Card 3/3

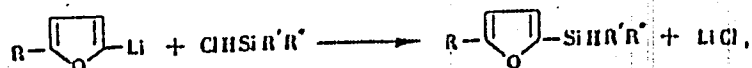
J. 116301-66 EMP(j), ENT(m) RM/WW

ACC NR: AF6023577

SOURCE CODE: UR/C409/66/000/003/0328/0331

AUTHOR: Lukevits, E. Ya.; Voronkov, M. G.ORG: Institute of Organic Synthesis, Academy of Sciences, Latvian SSR, Riga (Institut organicheskogo sinteza Akademii nauk Latvyskoy SSR)TITLE: Organosilicon compounds of the furan series. Part 12. Furylorganylhydro-  
silanesSOURCE: Khimiya geterotsiklicheskih soyedineniy, no. 3, 1966, 328-331

TOPIC TAGS: organosilicon compound, furan compound, silane

ABSTRACT: The synthesis of dialkyl(2-furyl)- and dialkyl(5-methyl-2-furyl)hydro-  
silanes was carried out as follows:

In the reaction of 2-furyllithium with trichlorosilane, the main product is tetra(2-furyl)silane (I), and tri(2-furyl)silane is formed in only a slight quantity. 2-Furylorganylhydro-silanes react readily with the participation of Si-H bonds, and the reactions are rapid and exothermic. Thus, 2-furyl- and 5-methyl-2-furylorganylhydro-si-

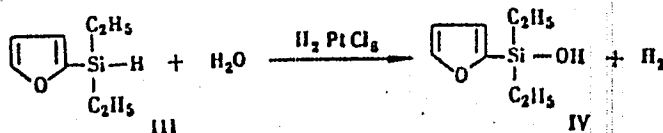
Card 1/3

UDC: 547.72+546.287

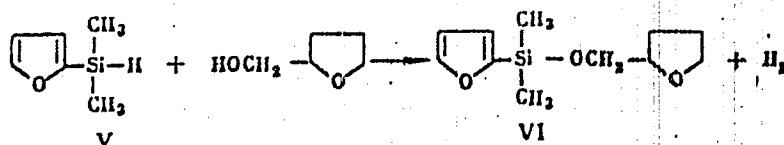
L 46301-66

ACC NR: AP6023577

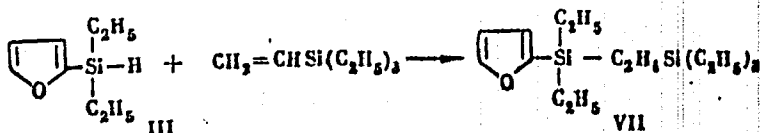
lanes in pyridine instantaneously reduce  $H_2Cl_2$  to Hg metal. In the presence of  $H_2PtCl_6$ , they react vigorously with water dissolved in dioxane. The authors thus synthesized the first representative of 2-furylorganylsilanols, diethyl(2-furyl)silanol:



The dehydrocondensation of dimethyl(2-furyl)silane (V) with tetrahydrofurfuryl alcohol is just as rapid, and forms dimethyl(2-furyl)tetrahydrofurfuryloxysilane (VI):



Addition of III to triethylvinylsilane in the presence of  $H_2PtCl_6$  also occurs readily:



Card 2/3

L 46301-66

ACC NR: AP6023577

The physical constants, yields, and data of analysis of all the new synthesized fur-  
rylorganylsilanes are tabulated. Orig. art. has: 1 table.

SUB CODE: 07/ SUEM DATE: 03Apr65/ ORIG REF: 003

*ms*  
Card 3/3

L 40102-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6019567

SOURCE CODE: UR/0080/66/039/006/1345/1351 50

AUTHOR: Voronkov, M. G.; Pashchenko, A. A.; Lasskaya, Ye. A.; Karibayev, K. K. BORG: Institute of Organic Synthesis, AN LatvSSR (Institut organicheskogo sinteza AN LatvSSR); Kiev Polytechnic Institute (Kiyevskiy politekhnicheskiy institut); Kiev Engineering and Construction Institute (Kiyevskiy inzhenerno-stroitel'nyy institut)TITLE: Chemical stability of hydrophobic organosilicon coatings on glass 15

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 6, 1966, 1345-1351

TOPIC TAGS: polysiloxane, organosilicon compound, protective coating, *CHEMICAL STABILITY, CORROSION, COATED GLASS*

ABSTRACT: The chemical stability of hydrophobic polyorganosiloxane films deposited on a glass surface from 5% toluene solutions of  $\text{RSiCl}_3$  was studied by determining their change of wettability, infrared spectra, and thermograms after exposure to the action of aqueous solutions of inorganic acids ( $\text{HNO}_3$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{HCl}$ ), bases ( $\text{NaOH}$ ,  $\text{Ca}(\text{OH})_2$ ), and salts ( $\text{Na}_2\text{SO}_4$ ,  $\text{Na}_2\text{CO}_3$ ,  $\text{CaCl}_2$ ,  $\text{NaCl}$ ,  $\text{KMnO}_4$ ). This action was found to break the Si-R bonds. The corrosive attack of the acids and bases increases with their concentration. The greatest stability to the action of corrosive media was displayed by polymethylsiloxane films, and the lowest by polyethylsiloxane ones. Polyallylsiloxanes showed an unexpectedly high chemical stability. Changes in the intensity of the infrared absorption bands and in the heights of exopeaks on the thermograms after exposure to the corrosive agents showed that the stability of the water-

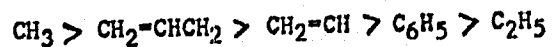
Card 1/2

UDC: 661.718.5

L 40102-66

ACC NR: AP6019567

repellent films as a function of the organic radical R generally decreases in the order



The same order is arrived at by studying the angles of wetting of the polysiloxane films. Orig. art. has: 3 figures and 1 table.

SUB CODE: 07/ SUM DATE: 26Jul65/ ORIG REF: 012/ OTH REF: 004

Card

2/2 *llb*

ACC NR: AP6033300

SOURCE CODE: UR/0409/66/000/004/05.1/0514

AUTHOR: Voronkov, M. G.; Zelchan, G. I.

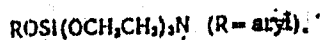
ORG: Institute of Organic Synthesis Academy of Sciences LatSSR, Riga  
(Institut organicheskogo sinteza Akademii nauk LatSSR)

TITLE: Atranes. VIII. 1-Aryloxysilatranes

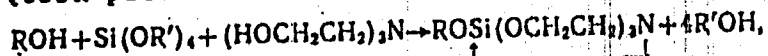
SOURCE: Khimiya geterotsiklicheskich soedineniy, no. 4, 1966, 511-514

TOPIC TAGS: aryloxysilatrane, ~~biologically active compound~~ phenyl  
compound, heterocyclic base compound, esterification, aromatic hydrocarbon

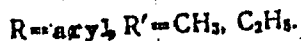
ABSTRACT: The previously unreported 1-aryloxysilatranes (I)



were obtained by the previously described transesterification (USSR patent No. 165722, 1964):



where



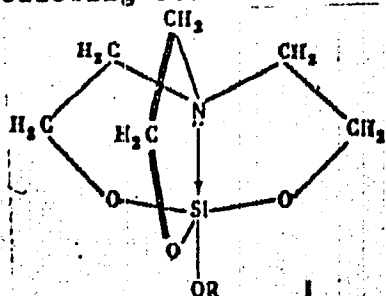
Card 1/5

UDC: 542.95+546.287+547.89



ACC NR: AP6033300

The reaction takes place on distilling an equimolar mixture of tetraethoxy- or tetramethoxysilanes, triethanolamine, the appropriate phenol (or naphthol), an inert solvent (xylene or toluene), and catalytic amounts of an alkali metal hydroxide or without it. In the case of phenol and its derivatives, the presence of the catalyst increases the yield of I by 5—40%, while in the case of nitrophenoxysilatrane, the yield of I decreased by 4—25% in the presence of the catalyst. Composition, yields, and melting points of I are given in the table. The l-aryoxysilatrane are colorless crystals (with the exception of l-nitrophenoxysilatrane, which is a yellow crystal), soluble in organic solvents and to a certain extent in water. Data on dipole moments and IR and PMR spectra indicate that I have the following structure:



Card 2/5

ACC-NRAP6033300

1-ARYLOXYSIATRANES RO<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>N

	M.P. °C	Formulas
C <sub>11</sub> H <sub>11</sub>	228-229.5	C <sub>11</sub> H <sub>11</sub> NO <sub>2</sub> SI
2-CH <sub>3</sub> CH <sub>2</sub>	218-219.5	C <sub>11</sub> H <sub>11</sub> NO <sub>2</sub> SI
3-CH <sub>3</sub> CH <sub>2</sub>	162.5-163.5	C <sub>11</sub> H <sub>11</sub> NO <sub>2</sub> SI
4-CH <sub>3</sub> CH <sub>2</sub>	188-189	C <sub>11</sub> H <sub>11</sub> NO <sub>2</sub> SI
4-(CH <sub>3</sub> ) <sub>2</sub> CC <sub>2</sub> H <sub>5</sub>	252-253	C <sub>11</sub> H <sub>11</sub> NO <sub>2</sub> SI
5-CH <sub>3</sub> ; 2-(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>3</sub>	217.5-218.5	C <sub>11</sub> H <sub>11</sub> NO <sub>2</sub> SI
4-ClC <sub>2</sub> H <sub>4</sub>	166-167	C <sub>11</sub> H <sub>10</sub> ClNO <sub>2</sub> SI
2,4,6-Cl <sub>3</sub> C <sub>6</sub> H <sub>3</sub>	230-230.5	C <sub>11</sub> H <sub>6</sub> Cl <sub>3</sub> NO <sub>2</sub> SI
2-O <sub>2</sub> NCH <sub>2</sub>	233-234	C <sub>11</sub> H <sub>10</sub> N <sub>2</sub> O <sub>4</sub> SI
3-O <sub>2</sub> NCH <sub>2</sub>	197.5-198.5	C <sub>11</sub> H <sub>10</sub> N <sub>2</sub> O <sub>4</sub> SI
4-O <sub>2</sub> NCH <sub>2</sub>	182.5-184	C <sub>11</sub> H <sub>10</sub> N <sub>2</sub> O <sub>4</sub> SI
2-C <sub>6</sub> H <sub>5</sub>	184.5-185.5	C <sub>11</sub> H <sub>9</sub> NO <sub>2</sub> SI

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ACC NRAP6033300

Table cont.

SI	Found, %			Calcd, %			Yield %	
	C	H	N	C	H	N		
10.44	54.12	6.75	5.36	10.50	53.91	6.41	5.24	89
10.51								89
10.03	55.31	6.69	5.04	9.98	55.49	6.81	4.98	89
10.03								89
10.22	55.86	6.96	5.23	9.98	55.49	6.81	4.98	82
10.14								82
9.79	55.30	7.05	5.15	9.95	55.49	6.81	4.98	89
9.97								89
8.89	58.95	7.64	4.31	8.68	59.41	7.79	4.33	70
8.74								90
8.81	59.60	7.59	4.53	8.68	59.41	7.79	4.33	81
9.51								~100
9.49	47.61	5.60	4.59	9.31	47.76	5.34	4.64	~100
7.48								28
7.47	38.69	3.88	4.06	7.58	38.88	3.81	3.78	28
9.20	45.93	5.33	8.73	8.99	46.14	5.16	8.65	58
9.35								87
9.10	46.50	5.13	8.09	8.99	46.14	5.16	8.65	91
9.16								87
8.67	46.42	5.22	9.17	8.99	46.14	5.16	8.65	75
8.97								~100
8.95	60.45	6.01	4.61	8.85	60.54	6.03	4.41	88
8.98								88

\*Without a catalyst

Card 4/5

ACC NRAP6033300

Physiological activity of I is considerably lower than that of 1-arylsilatranes, e.g., 1-phenoxyilatranes is 500 times less toxic than 1-phenylsilatrane. The introduction of substituents into aromatic ring of the aryloxyilatranes ( $\text{CH}_3$ ,  $(\text{CH}_3)_2\text{CH}$ , Cl, and  $\text{NO}_2$ ) further decreased their toxicity, as shown from the  $\text{LD}_{50}$  data obtained for white mice:

R	$\text{LD}_{50}$ , mg/kg
$\text{C}_6\text{H}_5$	200
<i>p</i> - $\text{NC}_6\text{H}_4$	700
<i>p</i> - $\text{ClC}_6\text{H}_4$	1050
<i>p</i> - $\text{CH}_3\text{C}_6\text{H}_4$	1275
<i>s</i> - $\text{CH}_3$ -2-( $\text{CH}_3$ ) $_2\text{CHC}_6\text{H}_3$	4000

Orig. art. has: 1 table

[WA-50; CBE No. 14]

SUB CODE: 07/ SUBM DATE: 12Feb65/ ORIG REF: 007

Card 5/5

SOV/120-59-1-48/50

AUTHORS: Berezin, I. A., Voronkov, M. I.

TITLE: A Capillary Tap (Kapillyarnyy kran)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, p 152 (USSR)

ABSTRACT: The device is illustrated diagrammatically in the figure (see lower half of p 152). It is in the form of a two-way valve with two apertures in its plug. The aperture 2 is used in the preliminary evacuation of the tube leading to the gas container. The gas is let in through the capillary tube 1, whose diameter can be arbitrarily small. This permits a very accurate regulation of the pressure of the gas which is admitted into the vacuum system. The paper contains 1 figure.

ASSOCIATION: Fizicheskiky institut AN SSSR (Physics Institute of the Academy of Sciences USSR)

SUBMITTED: January 20, 1958.

Card 1/1

SOV/120-59-1-47/50

AUTHORS: Berezin, I. A., Voronkov, M. I.

TITLE: A Device for Loading the Samples into a Vacuum System (Bunker dlya zagruzki obraztsov v vakuumnuyu ustanovku)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, p 152 (USSR)

ABSTRACT: The device described is shown diagrammatically in the figure (see upper half of p 152). The tube 3 contains a polished plug 4 with a helix 2. The tube 3 is inserted into the system in such a way that the open end 1 of the helix is above the crucible of a vacuum furnace. The samples are loaded through the open end of the helical tube in such a way that each turn of the tube contains one sample. The plug is then lubricated with vacuum grease and inserted into the tube. The samples are loaded into the furnace by turning the plug. In this way, the samples are progressively displaced in the helical tube and fall into the oven from the open end of the tube. The paper contains 1 figure.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute of the Academy of Sciences, USSR)

SUBMITTED: January 22, 1958.

Card 1/1

ZAGOSKINA, Ye.D.; SIKORSKIY, K.P.; ZEVINA, A.N., otv. red.; VORONKOV,  
M.I., red.

[Recommended mathematics curriculum for the second half of  
the 1962-1963 school-year (grade 5 to 11)] Primernyi plan  
raboty po matematike vo vtorom polugodii 1962-1963 uchebnogo  
goda (V-XI klassy). Moskva, 1963. 83 p. (MIRA 16:8)

1. Moscow. Gorodskoy institut usovershenstvovaniya uchiteley.
2. Direktor Moskovskogo gorodskogo instituta usovershenstvovaniya uchiteley (for Zevina).  
(Mathematics--Study and teaching)

VORONKOV, N., kand.tekhn.nauk

Design of reinforced concrete elements for crack resistance.  
Prom. stroi. i inzh. soor. 4 no.1:46-47 Ja-F '63. (MIRA 16:3)  
(Precast concrete)



VORONKOV, N., dots., otv. za vyp.

[Papers published by the Physics Department] Sbornik na-  
uchnykh trudov kafedry fiziki. Dnepropetrovsk, No.7. 1960.  
48 p. (MIRA 16:10)

1. Dnepropetrovsk. Inzhenerno-stroitel'nyy institut. 2. Zame-  
stitel' direktora Dnepropetrovskogo inzhenerno-stroitel'nogo  
instituta po nauchnoy rabote (for Voronkov).  
(Paramagnetic resonance and relaxation)  
(Luminescence)

VORONKOV, N. A.

127-12-2/28

AUTHOR: Voronkov, N.A., Mining Engineer

TITLE: Analysis of the Economic Efficiency of the Scraper and Screen Systems of Ore Conveying (Analiz ekonomichnosti skrepernoy i grokhotnoy skhem dostavki rudy)

PERIODICAL: Gornyy Zhurnal, 1957, No 12, pp 8-12 (USSR)

ABSTRACT: The author analyzed the expenses of ore conveying in the mines of the Kursk Magnetic Anomaly (the chamber-and-pillar system of mining is used), of the Krivoy Rog Basin (the system of breaking off the ore from the sublevel galleries) and of the Tyrnauz Combine (the level stoping system with ore breaking by blasting charges). Considering all the items composing the total cost of ore conveying, the author concludes that only expenses for driving preparatory and development openings depend on the height of the level, and these expenses are equal for both the scraper and screen systems. Expenses independent of the level height are less with the scraper conveying system than with the screen system. Therefore, the sum of expenses with the scraper system will be lower than that with the screen system for any height of the level. The article contains 4 graphs.

Card 1/2

127-12-2/28

Analysis of the Economic Efficiency of the Scraper and Screen Systems of  
Ore Conveying

ASSOCIATION: Moscow Institute of Non-Ferrous Metals and Gold (Moskovskiy  
institut tsvetnykh metallov i zolota)

AVAILABLE: Library of Congress

Card 2/2

GUSEV, V.V.; ABRAMOV, V.F.; BUSYREV, V.M.; VORONOV, M.A.

Improving the systems of underground mining of apatite deposits.  
Ger. zh. no. 194-195 0 165. (MIR, 1961)

GAYEL', A.G.; VORONKOV, N.A.

Root system of the Scotch pine (*Pinus silvestris* L.) in the sandy soils of Kazakhstan and the Don Valley. Bot. zhur. 50 no.4:503-516 Ap '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut agrosomeliioratsii, Pushkino, Moskovskoy oblasti.

GAYEL', A.G.; VORONKOV, N.A.

Interrelationship between trees and herbaceous vegetation in  
isolated pine woods of Kazakhstan. Nauch.dokl.vys.shkoly;  
biol.nauki no.2:131-140 '63. (MIRA 16:4)

1. Rekomendovana kafedroy geobotaniki Moskovskogo gosudarstven-  
nogo universiteta im. M.V.Lomonosova. (FOREST ECOLOGY)  
(KUSTANAY PROVINCE--PINE)

VORONKOV, N.A.

Water economy and the formation of young pine growths on the sands  
of the Middle Don. Nauch., dokl. vys. shkoly; biol. nauki no.3:  
131-138 '63. (MIRA 16:9)

1. Rekomendovana kafedroy geobotaniki Moskovskogo gosudarstvennogo  
universiteta im. M.V.Lomnosova.  
(Don Valley--Pine) (Plants, Effect of aridity on)

VORONKOV, N.A.

Effect of precipitation and its distribution on the growth of  
pine in height in isolated pinewoods of Kazakhstan. Vest. Mosk.  
un. Ser. 6: Biol., pochv. 17 no.1:59-64. Jan. 1962. (MIRA 15:1)

1. Kafedra gosbotaniki Moskovskogo universiteta.  
(Kazakhstan--Pine)



FUGZAN, M.D., kand.tekhn.nauk; VORONKOV, N.A., kand.tekhn.nauk

Change in the size of ore in systems with large-scale  
blasting. Vzryv. delo no.50/7:157-161 '62. (MIRA 15:9)

1. Kol'skiy filial AN SSSR imeni S.M. Kirova.  
(Blasting)  
(Mining engineering)

ALEKHICHEV, S.P., kand.tekhn.nauk; VORONKOV, N.A., kand.tekhn.nauk;  
TURCHANINOV, I.A., kand.tekhn.nauk

"Mining and mine timbering" by G.D.Chuprunov. Reviewed by S.P.  
Alekhichev, N.A.Voronkov, and I.A.Turchaninov. Ger. zhur.  
no.12:67-68 D '61. (MIRA 15:2)

1. Gorno-metallurgicheskiy institut Kol'skogo filiala AN SSSR,  
g. Kirovsk, Murmanskoy obl.  
(Mining engineering)  
(Mine timbering)  
(Chuprunov, G.D.)

VORONKOV, N.A., Cand Tech Sci -- (diss) "Study of ~~new~~ means  
of conveying ore on the ~~floor of mine~~ <sup>discharge level</sup> ~~in mining~~ <sup>--- ch. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 908. 909. 910. 911. 912. 913. 914. 915. 916. 917. 918. 919. 920. 921. 922. 923. 924. 925. 926. 927. 928. 929. 930. 931. 932. 933. 934. 935. 936. 937. 938. 939. 940. 941. 942. 943. 944. 945. 946. 947. 948. 949. 950. 951. 952. 953. 954. 955. 956. 957. 958. 959. 960. 961. 962. 963. 964. 965. 966. 967. 968. 969. 970. 971. 972. 973. 974. 975. 976. 977. 978. 979. 980. 981. 982. 983. 984. 985. 986. 987. 988. 989. 990. 991. 992. 993. 994. 995. 996. 997. 998. 999. 1000.</sup> in mining  
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AUTHORS:

Voronkov, N.A. and Guliy, V.M., Mining Engineers

TITLE:

A Comparison of the Scraper and Sifter Methods for Delivery at the Tekeli Mine (Sravneniye skrepernoy i grokhotnoy skhem dostavki na rudnike Tekeli)

PERIODICAL:

Gornyy zhurnal, 1958, Nr 10, pp 11-13 (USSR)

ABSTRACT:

Research conducted by the authors showed that, under the conditions of the Tekeli Mine, where the mining is done by the level caving-in system, the sifter scheme of ore delivery must be preferred to the scraper method. Even though the cost of installation of the sifter method is 80% higher than that of scraper method, it is more advantageous because its productivity is 45% higher. The sifter method also has a lower safety factor than the scraper method. There are 3 tables.

Card 1/2

SOV-127-58-10-3/29  
A Comparison of the Scraper and Sifter Methods for Delivery at the Tekeli Mine

ASSOCIATION: Moskovskiy institut tsvetnykh metallov i zolota (The Moscow Institute of Nonferrous Metals and Gold)  
Tekeliyskiy svintsovo-tsinkovyy kombinat (The Tekeli Lead and Zinc Combine)

1. Mining industry--USSR 2. Ores--Handling

Card 2/2

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Shell molding in the medical industry. Med.prom. 10 no.2:19-21  
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(SHELL MOLDING (FOUNDING))  
(MEDICAL INSTRUMENTS AND APPARATUS)

VORONIKOV, N.A.

BABENKO, L.V.; DAVYDOVA, M.S.; ZAKORKINA, T.N.; BLOKHIN, V.G.; VORONIKOV, N.A.;  
NAUMOV, R.L.; KHIZHINSKIY, P.G.

Characteristics of an area of endemic tick-borne encephalitis in the construction zone of the Krasnoyarsk Hydroelectric Power Station and development of measures for the protection of workers against ticks; preliminary report. Med.paraz.i paraz.hol. 27 no.1:6-14 Ja-F '58. (MIRA 11:4)

1. Iz sektora entomologii Instituta malyarii, meditsinskoy parazitologii i gel'mintologii Ministerstva zdравookhraneniya SSSR (dir. instituta - prof. P.G.Sergiyov, zav. sektorom - prof. V.N.Beklemishev) i Omskogo Instituta epidemiologii, mikrobiologii i gigiyeny. (ENCEPHALITIS, epidemiology tick-borne encephalitis in construction zone, protection of workers (Rus))

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1. Nauchno-issledovatel'skiy institut avtomobil'noy promyshlennosti  
i Michurinskiy zavod imeni Lenina.