ANDRIANOV, K. A.

Synthesis and transformations of oxygen-containing silicoorganic compounds. Synthesis of methyl, ethyl, and isopropyl triethylsilano acetals. M. F. Shostakovskii, K. A. Andrianov, I. A. Shikhiev, and D. A. Kochkin. ~~Doklady Akad. Nauk~~ *S.S.S.R.* 93, 681–3(1953); cf. preceding abstr. —Heating 33 g. Et_3SiOH, 19 g. $MeOCH:CH_2$ and 0.02 ml. 30% HCl in sealed tube 6.5 hrs. at 65° gave 58.9% *$MeCH(OMe)OSiEt_3$*, b_{11} 74–5°, n_D^{20} 1.4225, d_{20} 0.8726. To 33 g. Et_3SiOH and 30 g. $EtOCH:CH_2$ was added 0.02 ml. 30% HCl and the mixt. was heated 1 hr. to 50° and left overnight; after drying it gave 45.1% *$MeCH(OEt)OSiEt_3$*, b_{10-11} 78–9°, n_D^{20} 1.4232, d_{20} 0.8682. Similarly iso-$PrOCH:CH_2$ and Et_3SiOH with 30% HCl catalyst gave after 8.5 hrs. in a sealed tube at 65° gave 42% *$MeCH(OCHMe_2)OSiEt_3$*, b_{11} 87–9°, d_{20} 0.8561, n_D^{20} 1.4238. G. M. Kosolapoff

ANDRIANOV, K. A.

2
62

Reactions of (chloromethyl)methyldiethoxysilane with sodioacetoacetic and sodiomalonic esters. K. A. Andrianov, N. S. Leznov, and Ya. I. Mindlin. *Doklady Akad. Nauk S.S.S.R.* 94, 237-9(1954).—$ClCH_2SiMeCl_2$ (490.5 g.) was added at 1-2°, initially, and at 40° near the end of addn., to 317 g. abs. EtOH; after 3.5 hrs. below 45°, the mixt. yielded 400 g. *$ClCH_2SiMe(OEt)_2$* (I), b_{760} 180-1°, d_{20} 0.997, n_D^{20} 1.414. To 18.3 g. Na in 260 ml. abs. EtOH was added 253 g. $CH_2(CO_2Et)_2$, then 145 g. I, the mixt. stirred 12 hrs. on a steam bath, and when the reaction was complete (neutral soln. attained) the ppt. was sepd., washed with Et_2O, and the washing combined with the org. layer, concd., filtered, and distd., yielding an unstated amt. of *$(EtO_2C)_2CHCH_2SiMe(OEt)_2$*, $b_{1.4}$ 131-2°, d_{20} 1.0292, n_D^{20} 1.4270, b. 270° (without decompn.). Similarly, addn. of 200 g. $AcCH_2CO_2Et$ to 46 g. Na in 1 l. abs. EtOH, followed by 400 g. I added at gentle reflux, and the mixt. boiled about 10 hrs. until the reaction was complete gave 280 g. *$AcCH(CO_2Et)CH_2SiMe(OEt)_2$*, b_1 105-7°, d_{20} 0.9744, n_D^{20} 1.4210. G. M. Kosolapoff

U S S R

Chlorination of [illegible] and hexamethyl-[illegible] dimethyl and [illegible]

ANDRIANOV K. A.

USSR

Synthesis of (chloromethyl)alkoxysilanes and the replacement of their halogen by ester groups. ~~K. A.~~ Andrianov, L. I. Makarova, L. M. Volkova, and ~~V. A. Ostrovs.~~ *Doklady Akad. Nauk S.S.S.R.* 95, 269-72(1954). —$ClCH_2SiCl_3$ (95 g.) treated over 1 hr. with 100 g. iso-PrOH, the mixt. heated 5 hrs. to 120°, and the product distd. yielded 86 g. (59%) $(iso\text{-}PrO)_3SiCH_2Cl$, b. 195-8°, n^{20}_D 1.4145, d_{20} 0.9836. Similarly were prepd. the following (% yield, b.p., n^{20}_D, and d_{20} given): $(iso\text{-}BuO)_3SiCH_2Cl$, 62, 234-7°, 1.4235, 0.9577; $(BuO)_3SiCH_2Cl$, 72, 243-4°, 1.4270, 0.9625; $(iso\text{-}AmO)_3SiCH_2Cl$, 64.7, 278-80°, 1.4285, 0.9565; $(iso\text{-}PrO)_3SiMeCH_2Cl$ 72, 177-8°, 1.4135, 0.9540; $(iso\text{-}BuO)_3SiMeCH_2Cl$, 72, 214-15°, 1.4220, 0.9472; $(BuO)_3SiMeCH_2Cl$, 77.5, 225-7°, 1.4260, 0.9567; $(iso\text{-}AmO)_3SiMeCH_2Cl$, 88, 243-4°, 1.4300, 0.9414. To 2.01 g. powd. Na under xylene was added 0.02 g. EtOH, the mixt. heated until the Na had reacted, and the suspended EtONa treated with 30 g. $(BuO)_3SiMeCH_2Cl$; after 5 hrs. at 100° the mixt. yielded 31% $(BuO)_3SiMeCH_2OEt$, b_{14} 120-4°, n^{20}_D 1.4168, d_{20} 0.8844; similarly was prepd. 45% $(BuO)_3SiCH_2OEt$, b_{20} 115-17°, n^{20}_D 1.4237, d_{20} 0.9079. G. M. Kosolapoff

62

3

ANDRIANOV, K.A.

USSR/Chemistry - Synthesis

Card 1/1 : Pub. 22 - 17/44

Authors : ~~Andrianov, K. A.~~ Memb. corresp. of the Acad. of Sc. USSR, and ~~Volkova, L. N.~~

Title : Synthesis of phenylaminomethylalkoxysilanes

Periodical : Dok. AN SSSR 98/1, 67-70, Sep 1, 1954

Abstract : The reaction of Cl substitution in alpha-chloromethylmethyldialkoxysilanes by the amino group during the reaction of aniline and ethylaniline with silane was investigated. The factors leading to the formation of phenylaminomethylalkoxysilanes during the reaction between chloromethylmethyldialkoxysilanes and aniline or ethyl aniline, are explained. The synthesis of ten hitherto unknown phenylaminomethylmethyldialkoxysilanes and their physico-chemical properties are described. Three references: 2-USA and 1-USSR (1945-1952). Table.

Institution : .....

Submitted : May 14, 1954

ANDRIANOV, K. A.

USSR/ Chemistry - Physical chemistry

Card 1/2 Pub. 40 - 12/27

Authors: Andrianov, K. A., and Zhdanov, A. A.

Title: The mechanism of the formation of trifunctional polyphenylsiloxanes

Periodical: Izv. AN SSSR, Otd. khim. nauk 6, 1033-1037, Nov-Dec 1954

Abstract: Experiments were conducted with phenyltrichlorosilane to determine the structure of three-functional polymers forming during hydrolysis in strong and weak acid media. It was established that the hydrolysis of trifunctional monopers in an aqueous medium in the presence of mineral acids results in the formation of complex cyclic polymeric products which, when heated slowly (with certain difficulties), convert into steric polymers.

Institution: .....

Submitted : February 23, 1954

Periodical : Izv. AN SSSR, Otd. khim. nauk 6, 1033-1037, Nov-Dec 1954

Card 2/2 Pub. 40 - 12/27

Abstract : Continuous condensation of the polymers is followed by two competitive reactions (intramolecular dehydrogenation and intermolecular condensation). The first reaction was predominant at greater dimensions of the organic radical and the second at smaller. Ten references: 6 USSR and 4 USA (1938-1954). Table

ANDRIANOV, Kuz'ma Andrianovich; SOBOLEVSKIY, M.V., redaktor; SHPAK, Ye.G. tekhnicheskiy redaktor.

[Silicon organic compounds. Kremniiorganicheskie soedineniia. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1955. 520 p. (Silicon organic compounds) (MLRA 9:1)

ANDRIYANOV, K. A., and KALITVYANSKIY, V. I.

"Applications of Polymers in the Electrical Industry," by K. A. Andriyanov and V. I. Kalitvyanskiy, Uspekhi Khimii i Tekhnologii Polimerov (Progress of the Chemistry and Technology of High Polymers), Vol 1, 1955, Goskhimizdat, Moscow, pp 3-23

The properties of dielectrics (particularly those used as insulating materials) are reviewed mainly on the basis of USSR publications (out of nine references listed in the bibliography, eight are USSR and 1 US). In the introduction to the article, the principal requirements with which high polymers used as dielectrics must comply are reviewed. The dielectric properties, heat stability, stability to the effects of sparks or of an electric arc discharge, sensitivity to moisture, mechanical properties, stability at low temperatures, heat conductivity, and chemical stability are considered from this standpoint. In connection with the discussion of heat stability, GOST standards pertaining to this characteristic are listed and the statement is made that small electrical machines of light weight and electrical equipment that operates at elevated temperatures require insulating materials which can stand heating to 180-200° and occasionally even up to 250°. As far as stability at low temperatures is concerned, the author points out that insulating materials may be subjected to temperatures reaching minus 60° during the operation of electrical equipment.

Polyethylene, polystyrene, polytetrafluoroethylene (fluoroplast), and aniline-formaldehyde resins are listed as dielectrics suitable for use in high-frequency equipment; their properties are described. The high heat stability (up to 180-200°) of polytetrafluorethylene and its stability at low temperatures (down to minus 73°) are mentioned as particularly advantageous characteristics. As dielectrics suitable for use in low-frequency equipment polyvinylchloride, polyvinylacetals, polyamides (capron), glyptal polyesters, phenol-formaldehyde resins, urea-formaldehyde resins, melamine-formaldehyde resins, and cellulose esters and ethers are listed and discussed. Organosilicon resins are described in great detail from the standpoint of their characteristics as dielectrics. Their superior heat stability is emphasized. The article ends with the following passage:

"The increasing demands put to high polymers by the electrical industry impose continuation of work on the development of new, more effective plastics, as well as on the improvement of already available plastics and the reduction of their cost.

"The work which must be done should be aimed primarily at the synthesis of high polymers with the following properties:

"1. High effectiveness as dielectrics, which is not impaired at elevated temperatures (up to 250° and above that) and high frequencies or reduced as a result of exposure to high humidity or water.

"2. Very low shrinkage on hardening, a property which is essential for cast thermosetting compositions.

"3. High mechanical strength and superior heat stability, for application in the production of enamel-coated wires used as winding in electrical equipment the temperature of which rises up to 180-200° or higher.

"4. A capacity for rapid hardening at low pressures, to facilitate the production of laminated plastics.

"5. Heat stability and a capacity for rapid hardening for plastics to be used at temperatures of 200-250° and higher.

"It is also necessary to do work on the development of heat-resistant high polymers to be used in the production of fibrous electrical insulation materials (yarn, tapes, fabrics, etc.) and of heat-resistant, mechanically strong, and moisture-resistant electrical insulation films."

Sum 1258

Andrianov, K.A.

ANDRIANOV, K.A.; ZHDANOV, A.A.; GANINA, T.N.

New polymers--polyorganometallosiloxanes. Soob.o nauch.rab.chl. VKHO no.3:2-4 '55. (MIRA 10:10)

(Siloxanes)

ANDRIANOV, K.A.

USSR.

12289* Reaction of Epichlorhydrin and Glycidic Alcohol With Organochlorsilanes. O reaktsii epikhlorgidrina i glitsid-nogo spirta s organokhlorsilanami. (Russian.) K. A. Andrianov, N. N. Sokolov, E. N. Khrustaleva, and L. N. Tukina. *Izvestiia Akademii Nauk SSSR, Otdelenie Khimicheskikh Nauk*, 1955, no. 3, May-June, p. 531-538.
Synthesis and properties of 12 compounds. Tables. 8 ref.

3
62

ANDRIANOV, K.A.

AID P - 2010

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 14/31

Authors : Andrianov, K. A., Corr. member, Academy of Sciences, USSR, Kalitvyanskiy, V. I., Kand. of Tech. Sci., Moscow

Title : The application of Organic silicon compounds in insulating electric machines

Periodical : Elektrichestvo, 4, 62-68, Ap 1955

Abstract : The authors present results of their four years of testing silicone insulation in motors working under difficult operational conditions. They describe the types of motors tested and the details of test procedure. The conclusions reached concern thermal aging and moisture resistance of insulations and also give some data on the dielectric dissipation factor and other dielectric characteristics which remain almost unchanged up to 200°C. Thirteen diagrams, 11 references (1945-1954) (4 Russian).

FD-3002

USSR/Chemistry - Silicon-organic compounds

Card 1/1 Pub. 50 - 3/17

Authors : Andrianov, K. A., Corr Mem Ac Sci USSR; Sokolov, N. N.

Title : Thermooxidative decomposition of organopolysiloxanes

Periodical : Khim. prom. No 6, 329-335, Sep 1955

Abstract : On the basis of the experiments described, found that linear organopolysiloxanes are decomposed under scission of Si-C and Si-O bonds, whereas only Si-C bonds are broken in three-dimensional organopolysiloxanes. Propose a mechanism for the thermooxidative decomposition of compounds of this type. Determined the half-life of organopolysiloxanes at different temperatures and investigated the dependence between the stability of organopolysiloxanes, their structure, and the nature of the organic radicals entering into their composition. Ten graphs, 5 tables. Six references; one USSR, since 1940.

ANDRIANOV, K. A.

AID P - 3032

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 19/33

Author : Andrianov, K. A., Corr. Memb., Academy of Sci., USSR, Moscow

Title : Synthetic polymers in electric insulation

Periodical : Elektrichestvo, 7, 108-113, Jl 1955

Abstract : The author describes properties of the new synthetic insulating materials based on organic silicon polymers as compared with organic ones. He also describes dielectrics on the base of minute mica petals and organic silicon polymers. He then reports on a large group of organic synthetic products such as: polyvinyl-acetals, poly-ester and epoxid polymers, polystyrene, polyethylene, polytetraphtoethylene, and polytriphto-chlorethylene. Five tables of mechanical and electrical properties of polymers, 14 diagrams, 5 references (1951-1955) (2 Soviet).

Translation -
M-934, 9 Jan 56

ANDRIYANOV, K.A.

112-2-2730

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 2, p. 17 (USSR)

AUTHOR: Andriyanov, K.A., Kalitvyanskiy, V.I.

TITLE: New Insulating Materials for Electric Machines and Apparatus (Novyye materialy dlya izolyatsii elektricheskikh mashin i apparatov)

PERIODICAL: Inform.-tekh. sb. M-vo radiotekh. prom-sti SSSR, 1955, Nrs 9-10, pp. 30-46

ABSTRACT: Bibliographic entry.

Card 1/1

ANDRIANOV, K.A.

5

ANDRIANOV, K. A.

USSR/ Chemistry - Hydrolysis

Card 1/1 Pub. 22 - 21/51

Authors : Andrianov, K. A., Memb. Corresp. of Acad. of Sc., USSR.; and Sokolov, N. N.

Title : The hydrolysis of difunctional silicon organic monomers

Periodical : Dok. AN SSSR 101/1, 81-84, Mar 1, 1955

Abstract : Data are presented regarding the effect of hydrolysis media on the formation of organopolysiloxanes. The immediate product of aqueous hydrolysis of silicon organic monomers is described. After the hydrolysis, water shows no further condensing effect on the products obtained. The method of determining volatiles (cyclic) in hydrolysis products is described. Six references: 4 USA and 2 USSR (1945-1953). Tables; graphs.

Institution : The V. I. Lenin All-Union Electrical Engineering Institute

Presented by : July 9, 1954

ANDRIANOV, K. A.

USSR/Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 17/51

Authors : Andrianov, K. A., Memb. Corresp. of Acad. of Sc. USSR., and Gornets, L. V.

Title : Synthesis of alkyl(aryl)alkoxysilanes

Periodical : Dok. AN SSSR 101/2, 259-261, Mar 11, 1955

Abstract : Data are presented on the synthesis and properties of new alkyl(aryl) alkoxysilanes obtained through esterification of alkyl(aryl)silane halides with different alcohols. The effect of the number of organic radicals bound with the Si on the yield of alkoxysilanes was investigated. It was found that the yield of methylalkoxysilanes remained approximately constant for methyltrialkoxysilanes, dimethyldialkoxysilanes and trimethyltrialkoxysilanes. An increase in the molecular weight of the alcohol used for the esterification of alkyl(aryl)silanehalides produced no effect on the yield of methylalkoxysilanes and phenylalkoxysilanes. Nine references: 4 USSR, 4 USA and 1 English (1938-1952). Table.

Institution : .....

Submitted : July 21, 1954

ANDRIANOV, K. A.

USSR/Chemistry - Inorganic chemistry

Card 1/1 Pub. 22 - 21/49

Authors : Andrianov, K. A., Memb. Corr. Acad. of Sc., USSR; Zhdanov, A. A.; and Pavlov, S. A.

Title : Thermal conversion of allyl(aryl)acetoxysilanes and alkylhydroxysilanes into polyorgano-siloxanes and polyorganometallo-siloxanes

Periodical : Dok. AN SSSR 102/1, 85-88, May 1, 1955

Abstract : It was established experimentally that polyorganosiloxanes, having the hydroxy group in the Si atom will, when heated, lead to a condensation reaction resulting in the formation of siloxane bonds and will also react with metals or metal hydroxides forming a new class of polymers - polyorganometallo-siloxanes with the following structural polymeric chain:

$$-\overset{|}{\underset{|}{Si}} - O - \underset{|}{Al} - O - \overset{|}{\underset{|}{Si}} -$$

The chem. composition of the polymers, which are silicate analogues, is described. Three USSR references (1947-1954). Table; graphs.

Institution : .....

Submitted : December 10, 1954

Andrianov, K.A.

4

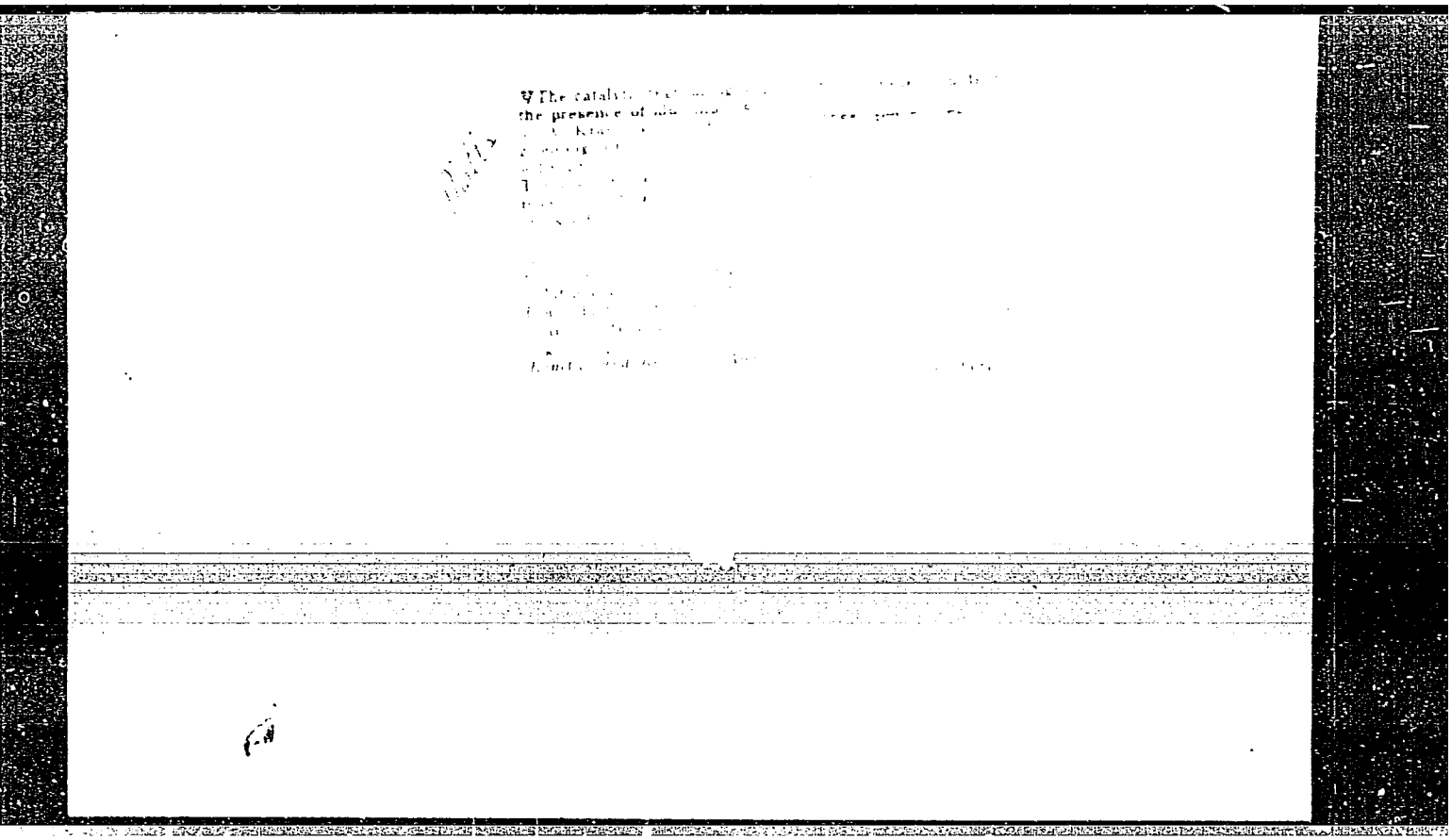
Substitution reactions of the α-halogen of chloromethyldimethylchlorosilane and bis(chloromethyl)tetramethyldisiloxane. K. A. Andrianov and M. A. Golubenko. *Doklady Akad. Nauk S.S.S.R.* 104, 725-8(1955).—The vapors of refluxing Me_2SiCl were passed into a flask (with reflux condenser) half-filled with activated C or Cu gauze into which Cl was simultaneously introduced. When the temp. of the refluxing liquid reached 100°, the reaction was stopped, yielding from 217 g. Me_2SiCl about 139 g. *$ClCH_2SiMe_2Cl$* (I), b_{10} 113.5-14.2°. This (124 g.) and 120 g. Ac_2O heated slowly with distn. of the resulting AcCl gave 42.7 g. *$ClCH_2SiMe_2OAc$*, b_7 42-5°, n^{20}_D 1.4345, d_{20} 1.0612, and 30 g. *$AcOCH_2SiMe_2OAc$*, b_7 60-0°, n^{20}_D 1.4388, d_{20} 1.0420. H_2O (1.2 l.) slowly added to 420 g. I, after 0.5 hr. the mixt. treated with 0.5 l. satd. aq. NaCl, and the org. layer sepd. after 12 hrs. and washed with H_2O yielded 327 g. *$O(SiMe_2CH_2Cl)_2$* (II), b_{10} 204°, n^{20}_D 1.4398, d_{20} 1.0381. This (110 g.) and 102 g. AcONa heated with 204 g. AcOH 8 hrs. at 130-40° yielded 97 g. *$O(SiMe_2CH_2OAc)_2$*, b_{10} 249.5°, n^{20}_D 1.4228, d_{20} 0.9981. From 260 g. I at 60-80° and 142 g. abs. EtOH after heating to 80-90° eliminate HCl was obtained 221 g. *$ClCH_2SiMe_2OEt$*, b_{10} 131-2°, n^{20}_D 1.4185, d_{20} 0.9512. This (85 g.) heated with 160 g. $PhNH_2$ 4 hrs. at 90-120° gave, after cooling and filtration, 56.2 g. *$PhNHCH_2SiMe_2OEt$*, b_5 117-20°, n^{20}_D 1.5100, d_{20} 0.9650. Similarly II and $PhNH_2$ gave a moderate yield of *$O(SiMe_2CH_2NHPh)_2$*, b_5 188-92°, n^{20}_D 1.5304, d_{20} 1.0199.

G. M. Kosolapoff

ANDRIANOV, Kuz'ma Andrianovich; KIPNIS, S.Ye., redaktor; ISLENT'YEVA, P.G., tekhnicheskiy redaktor

[Silicon organic compounds in technology] Kremniiorganicheskie soedineniia v tekhnike. Moskva, Izd-vo "Znanie," 1956. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii, Ser.4, no.4) (MIRA 9:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Andrianov)
(Silicon organic compounds)



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

by strong H_2SO_4. The products are generally

USSR/ Chemistry

Card 1/1 Pub. 40 - 14/25

Authors : Andrianov, K. A., and Ganina, T. N.

Title : Polyorganoalumosiloxanes

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 74-82, Jan 1956

Abstract : The synthesis of polyalumooxytetra (dimethylphenyldisiloxane) is described. The cleavage of the Si - O - Al bond in this compound as well as in nonaethylalumoxytrisiloxane and kaolin under the effect of aqueous hydrochloric acid solutions was investigated. The cleavage reaction mechanism is explained and it is shown that the bond in question splits much easier in nonaethylalumoxytrisiloxane and kaolin than in polyalumoxytetra (dimethylphenyldisiloxane) because of the development of a second competing condensation reaction which forms stable Si - O - Si bonds limiting the decomposition of the polyalumoxytetra (dimethylphenyldisiloxane). Six references: 5 USSR and 1 USA (1931-1955). Tables; graphs.

Institution : Power Engineering Institute im. V. I. Lenin

Submitted : March 3, 1955

ANDRIANOV, K.A.; ROMANOV, V.M., kandidat khimicheskikh nauk; GOLUBTSOV, S.A., kandidat tekhnicheskikh nauk.

Hydrophobing fluid and some other silicon organic fluids. Khim. prom. no.3:142-143 Ap-My '56. (MLRA 9:10)

1. Chlen-korrespondent AN SSSR (for Andrianov).
(Silicon--Organic compounds)

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 950

Abstract: 70-80° over 10-15 hours. The following I have been prepared (the value of n, the position of Cl in the nucleus, bp in ° C/mm, and d_{20}^{20} are given in that order): 1, 3 (IV), 90-95/10, 1.4102; 2, 1, 3, 105-110/10, 1.4801; 3, 1, 3, 5, 123-125/10, 1.5530; 4, 1, 2, 3, 5, 135-137/10, 1.6210; 5, 1, 2, 3, 4, 5, 147-150/10, --. To one gram-atom of Mg turnings, heated to 36-38°, add dropwise 20 gms C_2H_5Br at 38-40°; after initiation of the reaction, add one mole of C_2H_5Br, and 100 gms toluene. Heat 2 hours at 70-80°, filter and distill; III is obtained. A similar method can be used in the preparation of the remaining compounds of the type II.

Card 2/2

ANDRIANOV, K.A.; MAKAROVA, L.I.

Synthesis of alkylalkoxysilanes and alkylacetoxysilanes with ether groups in the radical. Izv.AN SSSR Otd.khim.nauk no.6:702-706 Je '56. (MIRA 9:9)

1.Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR. (Silane)

ANDRIANOV, K. A.

ANDRIANOV, K. A

Synthesis of trialkylsily[illegible]
Andrianov, K. A., Russian [illegible]
285-6(1956)(Engl. translation [illegible]
204.2 g. KH_2PO_4 and 103 g. [illegible]
sepn. of KCl and evapn. [illegible]
(from C_6H_6); in xylene the yield is [illegible]
prepd. $Et_3Si(OPO_3H_2)$, unsyntheized [illegible]
10-20 min. in H_2O the [illegible]
and $(Me_3Si)_2O$ and $(Et_3Si)_2O$ resp. [illegible]

SOKOLOV, N.N.; ANDRIANOV, K.A.; AKIMOVA, S.M.

Research in the field of organocyclosiloxanes. Part 1. Methylchlorocyclosiloxanes. Zhur.ob.khim. 26 no.3:933-936 Mr '56. (MLRA 9:8)

1. Vsesoyuznyy elektrotekhnicheskiy institut.
(Cyclosiloxanes)

USSR/Chemistry of High Molecular Substances. F

Abs Jour : Referat. Zhurnal Khimiya, No 7, 1957, 19425.

Author : K.A. Andrianov, G.Ye. Golubkov.
Inst : -
Title : Electrical Properties and Structure of Cilicium-Organic Polymers.

Orig Pub : Zh. Tekhn. Fiziki, 1956, 26, No 8, 1689-1695.

Abstract : The study of dielectric penetrability and the tangent of the angle of dielectric losses tg δ was carried out at frequencies of 2×10^2, 1×10^3, 5×10^4 and 1.5×10^6 cycles per sec. and in the temperature interval from -140 to +200° for polydimethylsiloxane prepared by catalytic condensation (I), polydimethylsiloxane prepared by thermal condensation (II), vulcanized 4% benzoil peroxyde (Ia) and polydiethylsiloxane (III). It was shown that at -110, -90°, ε and tg δ for I and II passed through the maximum, depending on the frequency, which corresponded to the region of relaxation

Card 1/3 -15-

USSR/Chemistry of High Molecular Substances. F

Abs Jour : Referat. Zhurnal Khimiya, No 7, 1957, 19425.

polarization, and that the introduction of cross bounds in case of Ia did not increase the absolute values of ε and tg δ, but only shifted this region to the side of high temperatures. In case of III, the region of the relaxation polarization was at -125, -100°. It was discovered that a sharp drop of ε and tg δ was observed at the temperature rise of I and Ia in the region of from -37 to -35° (a rise at cooling, but at -49°), which was connected with partial crystallization. This phenomenon was not discovered in case of III, and in case of II a similar region was 5 - 7° lower. This is explained by the fact that unlike I consisting basically of cyclic molecules, II consists of longer macromolecules requiring a greater temperature drop for crystallization, although the approximate equality of activation energy for I, II and Ia indicates the monotypicalness of particles moving under the action of the electric field. The lesser value of the

Card 2/3 -16-

ANDRIANOV, K.A.; ROKITSKAYA, M.S., kandidat khimicheskikh nauk; PRELKOVA, A.G., inzhener.

Insulating compounds with a polyester tar base. Vest.elektroprom.27 no.2:11-16 F '56. (MIRA 9:7)

1.Chlen-korrespondent AN SSSR (for Andrianov).2.Vsesoyuznyy elektrotekhnicheskiy institut imeni Lenina.
(Electric insulators and insulation)

ANDRIANOV, K.A.

USSR/Organic Chemistry - Synthetic Organic Chemistry E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4465

Author : Andrianov, K.A., Dubrovina, V.G.
Inst : Academy of Sciences USSR
Title : Synthesis of Alkylacetoxy-Eposysilanes

Orig Pub : Dokl. AN SSSR, 1956, 108, No 1, 83-86

Abstract : By stirring together equimolecular amounts of alkylacetoxy-silanes and glycide alcohol (50°, 3 hours), with subsequent fractionation in vacuum, there were prepared alkylacetoxy-epoxysilanes R'R''R'''SiOCH CH CH O, in the form of hydrolytically and thermally unstable liquids, for which are listed R', R'', R''', yield in %, BP in °C/mm, $n^{20}D$, d_4^{20}: CH_3, $(OCOCH_3)_2$, 85.2, 84-90/2, 1.4268, 1.1840; $(CH_3)_2$, $OCOCH_3$, 55.9, 70-75/3, 1.4228, 1.1854; CH_3, H, $OCOCH_3$, 50.8, 59-67/3, 1.4230, 1.0985; CH_2=CH,

Card 1/2 - 103 -

Andrianov, K.A.

Electric insulating material. K. A. Andrianov and L. A. Epshteyn. U.S.S.R. 108,340, Oct. 25, 1957. Elec. insulating material is made from a finely dispersed [illegible]

[illegible] electric insulating [illegible]

[illegible] and polyester resins. Compos. contg. castor oil and maleic acid or its anhydride are used as the [illegible]

M. Hosch

[illegible] The [illegible] passed through the satg. bath at 200°

M. Hosch

ANDRIANOV, Kuz'ma Andrianovich; EPSHTEYN, Lev Abramovich; KHVAL'KOVSKIY, A.V., redaktor; VORONIN, K.G., tekhnicheskiy redaktor

[Electric insulation materials with a mica foundation] Elektroizoliatsionnye materialy na osnove sliudinita. Moskva, Gos. energ. izd-vo, 1957. 92 p. (MLRA 10:5)

(Electric insulators and insulation) (Mica)

Andrianov, Kuz'ma Andrianovich

PHASE I BOOK EXPLOITATION

Andrianov, Kuz'ma Andrianovich

Teplostoykiye kremniyorganicheskiye dielektriki (Heat-resistant Silicone Dielectrics) Moscow, Gosenergoizdat, 1957. 295 p. 8,500 copies printed.

Ed.: Koritskiy, Yu. V.; Tech. Ed.: Voronin, K. P.

PURPOSE: The monograph is intended for technological personnel of plants, for staffs of laboratories and specialized institutes, and for a wide circle of specialists in the field of electric insulation technique.

COVERAGE: The book examines the principal properties of silicone polymers and of various insulating materials based on them; the general principles of polyorganosiloxane formation and the characteristics of silicone resins, varnishes, rubbers and other materials are set forth; a review is given of the application of materials of this type produced by Soviet industry. No personalities are mentioned. There are 201 references, 24 of which are Soviet, 175 English, 1 Danish, and 1 a translation into Russian.

Card ~~1/5~~

Advances in the Chemistry and Technology of Polymers (Cont.)

COVERAGE: The book is a collection of survey articles on the development of the chemistry of polymers. The articles cover new methods of modifying the properties of synthetic polymers and cotton fibers and the use of electron microscopes for studying polymer structure.

TABLE OF CONTENTS:

Card 2/~~4~~ 3

ANDRIANOV, K. A., ZHDANOV, A. A. , and VOLKOVA, A. M.

"New calsses of polymerization products, poly-organo-methyl-siloxane," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Organic Chemistry Research Inst.

B-3,084,395

ANDRIANOV, K. A., and DAPACOVA, A. K.

"Silicones with electrolytic groups," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Organic Chemistry Research Inst.

B-3,084,395

ANDRIANOV, K. A., and ZHDANOV, A. A., Institute of Organic Chemistry, Academy of Sciences USSR

"Synthesis of New Polymers Having Inorganic Chain Molecules," a paper submitted at the International Symposium on Macromolecular Chemistry, Prague, 9-12 Sep 1957.

ANDRIANOV K A

Distr: 4E2c(j)/4E4j/

15

Temperature-resistant mechanically strong polyorganosilicon rubbers. K. A. Andrianov and A. I. Chukhova. *Khim. Prom.* 1957, 337-8. Block polymers with mixed chains $-Me_2Si-O-C(RR_1)-$ and $-Me_2Si-C(RR_1)-$ were obtained by milling, which were mechanically strong and had high-temp. resistance. Their tensile strength (with 5-83% fillers) reached 200 kg/sq. cm., elongation 220%, brittleness temp. −74°. W. M. Sternberg.

4

2 Mar

1/1

[illegible] EtOH gave 50.1% MeSi-
Cl, (149.5 g.) with 125 ml. [illegible] added to a mixt. of

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

Distr: 4E3d/4E4j/4E3c(1)

Synthesis of liquid (n — Dihexamethylpolychlorophenylethylsiloxanes. K. A. Andrianov and V. A. Odinets. Inst. Heterorg. Compds., Moscow. Izvest. Akad. Nauk [illegible] Ser. Khim. 1957, 864-9. It was shown that liquid polysiloxanes bearing Et and chlorophenyl groups on the Si atoms have higher dielec. properties than their Ph analogs and that an increase of Cl content in the Ph radicals and an increase of the number of Si atoms in the polymer serve to improve the dielectric permeability. In the temp. range 0–120° the activation energy of the viscous flow in the present group of polysiloxanes is much higher than in corresponding Me_2 analogs, the activation energy increases with the no. of Cl atoms in the Ph radicals and with the no. of Si atoms in the polymer, as estd. from the [illegible] of viscosity. To 400 g. H_2O and 100 g. MePh was added 100 g. m-$ClC_6H_4SiEtCl_2$, 108.5 g. Me_3SiCl and 150 g. MePh at reflux over 2-3 hrs., after washing, the org. layer was fractionated, yielding $Me_3SiO(SiEt(C_6H_4Cl\text{-}m)O)_nSiMe_3$, b. 120–30°, n_D^{20} 1.4854, d_{20} 1.0541, η_{20}/η_{20} 7.0, ε 3.46. A similar reaction but with 55 g. Me_3SiCl gave a product which was undistillable, it was purified by contact with activated clay at 170° and gave [illegible] $Me_3SiO(SiEt(C_6H_4Cl\text{-}m)SiO)_nSiMe_3$, n_D^{20} 1.5002, d_{20} 1.0654, η_{20}/η_{20} 9.73, ε 3.61; use of 36 g. Me_3SiCl gave $Me_3SiO(SiEt(C_6H_4Cl\text{-}m)O)_nSiMe_3$ 70%, n_D^{20} 1.5030, d_{20} 1.1206, 11.6, 3.80; 30 g. Me_3SiCl gave $Me_3SiO(SiEt(C_6H_4Cl\text{-}m)O)_nSiMe_3$ 70%, 1.5098, 1.1537, 28.89, 3.96.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

Andrianov, K. A.

7

Synthesis of alkylchlorosiloxanes by the method of heterofunctional condensation. N. N. Sokolov and K. A. Andrianov (V. I. Lenin All-Union Electrotechn. Inst., Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1957, 806-11.—Condensation between silanes contg. EtO and Cl groups proceeds stepwise and is a convenient route to low mol. wt. polysiloxanes. To 360 g. Me_2SiCl_2 was added 128 g. EtOH and after heating at 80° to complete the reaction, there was obtained 65.5% $Me_2Si(OEt)Cl$, b_{760} 94-5°. This was allowed to react with various chlorosilanes in the presence of 0.5% $FeCl_3$ at 48-60° and the filtered mixts. fractionated. An equimolar mixt. of Me_2SiCl_2 and $Me_2Si(OEt)Cl$ gave 28% $(Me_2SiCl)_2O$, b_{760} 135.5°, 16% $Me_2SiClOSiMe_2OSiMe_2Cl$, b_{760} 173°, and 10% $Me_2SiClOSiMe_2OSiMe_2OSiMe_2Cl$, b_{760} 216°. $Me_2Si(OEt)Cl$ 1:1 with Et_2SiCl_2 results in reaction of but 1/3 of the amt. of the 2nd substance yielding mainly products with 4-5 Si atoms/mol.; Et_2SiCl_2 2:1 with $Me_2Si(OEt)Cl$ gave 14% $Et_2SiClOSiMe_2Cl$, b_{10} 77°, m. −107°, d_{20}^{20} 1.0299, 13.7% $Et_2SiClOSiMe_2OSiMe_2Cl$, b_{10} 106°, m. −103°, d_{20}^{20} 1.0197, and 5% $Et_2SiClOSiMe_2OSiMe_2OSiMe_2Cl$, b_{10} 130-3°, m. −95°, d_{20}^{20} 1.0158. $MeSiHCl_2$ (2 moles) and 1 mole $Me_2Si(OEt)Cl$ gave 18.3% $MeSiHClOSiMeHCl$, b_{760} 103°, m. −128°, d_{20}^{20} 1.0835, 10% $MeSiClOSiMeHCl$, b_{760} 120°, m. −120°, d_{20}^{20} 1.0609, 6.4% $MeSiHClOSiMeHSiMeHCl$, b_{10} 148°, m. −112°, d_{20}^{20} 1.0585, and 2.2% $Me_2SiClOSiMeHOSiMeHCl$, b_{10} 159°, m. −111°.

Distr: 4E4j/4E2c(j)/4E3d

4
2 rnd
3
1/2

N. N. Sokolov, V. V. Korshak, A. Anorpichov

d_{20}^{20} 1.0616. $FeCl_3$ catalyzes the disproportionation of siloxanes which contain an Si-H link. Thus, $EtSiHCl_2$ and $Me_2Si(OEt)Cl$ gave among other products 7.7% $Me_2SiClOSiEtHCl$, b_{20} 74°, m. −110°, d_{20}^{20} 1.0519, 8.1% $EtSiHClOSiEtHCl$, b_{20} 81–2°, m. −128°, d_{20}^{20} 1.0609, 8.8% $Me_2SiClOSiEtHOSiEtHCl$, b_{20} 81.5–2°, m. −108°, d_{20}^{20} 1.0355, and 3.3% $EtSiHClOSiEtHOSiEtHCl$, b_{20} 89–90°, m. −111°, d_{20}^{20} 1.0453. Chlorination of the siloxanes at 11–38° (cf. *C.A.* 50, 14782c) gave: 88% $MeSiCl_2OSiMeCl_2$, b_{760} 141°, m. −22°, d_{20}^{20} 1.3021; 82% $Me_2SiClOSiMeCl_2$, b_{760} 151°, m. −29°, d_{20}^{20} 1.1803; 73% $Me_2SiClOSiEtCl_2$, b_7 58°, m. −85°, d_{20}^{20} 1.2233; 66% $EtSiCl_2OSiEtCl_2$, b_7 94°, m. −60°, d_{20}^{20} 1.4009; 75% $Me_2SiClOSiEtClOSiEtCl_2$, b_7 110°, m. −58°, d_{20}^{20} 1.3290, and 80% $EtSiCl_2OSiEtClOSiEtCl_2$, b_7 110°, m. −36°, d_{20}^{20} 1.4626.

G. M. Kosolapoff

2 Mg
3

2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

7

5

4E4j
4E 3c (j)
2 May
4E 3d

Strength of silicon-carbon bond in chlorophenylchlorosilanes and chlorophenylethyldichlorosilanes. K. A. Andrianov and V. A. Odinets (Inst. Heterorg. Compds., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 962–7.—Hydrolysis of $ArSiCl_3$, $ArEtSiCl_2$, in which Ar is *m*-chloro-, dichloro-, trichloro-, tetrachloro-, and pentachlorophenyl radical, in acidic or basic media merely gave the polysiloxanes expected of the hydrolysis of the Si-Cl bonds; the Cl substituents in the ring were unaffected. G. M. Kosolapoff

I.

CHINA/Chemistry of High-Molecular Substances.

Abs Jour: Ref Zhur-Khim., No 13, 1958, 45524.

Author : Andrianov K. A.
Inst :
Title : The Mechanism of Formation and Conversion of Organo-silicon Compounds.

Orig Pub: Gaofen½taza tunsyun', 1957, 1 , No 2, 72-79.

Abstract: See RZhKhim, 1956, 32706.

Card : 1/1

END

ANDRIYANOV, K.A.; LEZNOV, N.S.; DABAGOVA, A.K.

Synthesis and polymerization of methacrylic organosilicon compounds. Izv.AN SSSR Otd.khim.nauk no.4:459-465 Ap '57. (MIRA 10:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Polymerization) (Silicon organic compounds)

1159 Heat resistant, mech. [illegible] strong [illegible]
[illegible]

The capacity of polydimethylsiloxane [illegible] radiation, chain scission, and the formation of [illegible] radicals under mechanical influence [illegible] with a close [illegible] high mechanical strength [illegible] figures are quoted [illegible]

Distr: 4E2c(j)

2 Mar

Andrianov, K. A.

ANDRIANOV, K.A.; ODINETS, V.A.

Synthesis of liquid (1-n)-hexamethylpolychlorophenylethylsiloxanes. Izv. AN SSSR Otd. khim. nauk no.6:684-691 Je '57. (MIRA 10:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Siloxanes)

ANDRIYANOV, K. A. (Mbr. Corr. of USSR Acad. Sci. , Moscow)

"On the Elaboration of a new Class of Thermostable Polymers,"

Inter-Vuz Scientific Conference (Mezhvuzovskiye nauchnyye Konferentsii)

Vestnik Vysshey Shkoly, 1957, # 9, pp 73 - 76 (USSR)

Abst: In January 1957, the Second All-Union Conference on Photosynthesis took place, organized by the institute of Plant Physiology of the Academy of Sciences, USSR, and by the Facultys of Soil-Biology of the Moskva University. About 700 representatives of 130 Scientific-Research institutes, vuzes and ministries were present. The introductory report was made by Academician A. L. Kursanov woh described the development of photosynthesis during the last ten years and invited the scientists to concentrate their work on the application of radioactive and stable isotopes. Nearly 100 reports were read: 13 on photochemistry, 9 on the investigation of chloroplast structure, 19 on the investigation of pigments, 9 on the photosynthesis of water platns, bacteria, etc.

"Organosilicon Compounds Which Possess Increased Heat Resistance," by K. Andrianov, Corresponding Member, Academy of Sciences USSR, Promyshlenno-Ekonomicheskaya Gazeta, No 18, 10 Feb 57

"Organosilicon polymers which possess superior properties as dielectrics and which are suitable for use at high and very low temperatures are being applied to an increased extent in various technical fields.

"At the Institute of Organoelemental Compounds, Academy of Sciences USSR, work is being conducted on the synthesis of new high-polymer substances of the organosilicon type, i.e., polyorganometalsiloxanes. These substances differ from ordinary organosilicon compounds in that their molecules contain in addition to atoms of silicon and oxygen, also atoms of aluminum, boron, cobalt, nickel, tin, and other metals.

"As far as their structure is concerned, the molecular chains of these compounds exhibit characteristics which are close to those of silicates and glasses. Because of this, they have a considerably higher heat stability than organic polymers and all known organosilicon polymers. At the same time, they have elastic properties which silicate materials lack.

SUM. 1305

ANDRIANOV, K.

"We succeeded in synthesizing several polymers of this type, i.e., polyorganoaluminosiloxane, polyorganoborosiloxane, polyorganotitanosiloxane, etc. These polymers are solid resins which dissolve readily in organic solvents. Depending on the structure of the individual molecular species, they are capable of assuming an infusible state.

"The polyorganometalsiloxanes possess inherent possibilities as far as the development of materials with a high temperature resistance is concerned. To give an example, a heat-resistant enamel for the protection of metal coatings from corrosion which was prepared from one of the compounds mentioned, is capable of withstanding a temperature of up to 500-550°.

"The new high-polymer compounds will be extensively applied for increasing the heat resistance of plastics, for electrical insulation purposes, and for the production of glass-filled and asbestos-filled plastic materials (textolites)."

Sum 1305

ANDRIANOV, K. A.

9

Advances in the area of synthesis of hetero chain hetero organic polymers. Review with [illegible]

ANDRIANOV, K.A.

468

AUTHORS: Andianov, K. A.; Zhdanov, A. A.; Morgunova, Ye. F.

TITLE: Synthesis of Dichlorophenyltriacetoxysilane and its Hydroxy Derivatives (Sintez dikhlorfeniltriatsetoksisilana i yego oksiproizvodnykh)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp. 156-159 (U.S.S.R.)

ABSTRACT: During the synthesis of high molecular silico-organic compounds, it is of great importance to know the hydrolysis reaction of alkylchlorosilanes or compounds similar to these silanes. Monomeric silico-organic compounds having more than one hydroxyl group in the Si-atom cannot be handled properly because of their low stability. The ability to form polymers by hydroxyl-containing silico-organic compounds decreases with the increase in molecular weight of the organic radical connected with the Si-atom and it is therefore anticipated that alkyltrioxysilanes having an organic radical of greater molecular weight will be sufficiently stable for separation. In order to prove this point, the authors investigated the hydrolysis reaction of dichlorophenyltriacetoxysilane and found that the hydrolysis with a water surplus in the presence of ether leads to the formation of homologous

Card 1/2

SUBMITTED: August 6, 1955

AVAILABLE:

Card 2/2

ANDRIANOV, K. A.

79-2-47/58

AUTHORS: Andrianov, K. A.; Zubkov, I. A.; Krasovskaya, T. A.; Kleynovskaya, M. A.

TITLE: Derivation of Polyethylsiloxanes of Linear Structure (Polucheniye polietilsiloksanov lineynoy struktury)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 491-494 (U.S.S.R.)

ABSTRACT: Report describes the method employed in the synthesis and separation of ethylsiloxane polymers of linear structure with 3 to 5 Si atoms in the molecule. The catalytic regrouping method in the presence of aluminum silicate was used in the derivation of ethylpolysiloxanes of linear structure. Hexaethylcyclotrisiloxane, octaethylcyclotetrasiloxane and hexaethyldisiloxane, were used as the basic substances for the synthesis. The separation of the individual polymers from the hydrolysis products was accomplished by fractionation in a rectification tower with an effectiveness of 20 theoretical plates. During the fractionation of hexaethyldisiloxane, the rate of flow of the liquid was 200-250 ml/hr and the reflux number was 10-15. Rectification of the cyclic polymers was conducted at the same rate of flow of the liquid but the reflux numbers were

Card 1/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

Synthesis of methylethylethoxychlorosilanes and determination of thermal stability K. A. Andrianov

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

Synthesis of polymethyldimethylsiloxanes

[illegible] the hexahydrate gave [illegible] of the [illegible] The mol. wt. distribution varied with the detailed [illegible] of the polymerization. For formation of the [illegible] discussed in light of probable intermediate formation of appropriate silanols produced by hydrolytic action of H_2O from the hydrated catalyst

G. M. Kuznetsov

ANDRIANOV, K.A.

AUTHORS: Andrianov, K.A. (Corresponding Member of the Acad. of Sci. of the USSR), Novikov, N.G. (Engineer), and Larkin, Ye.P. (Engineer). 110-7-11/30

TITLE: Heat resisting electrically insulating cylinders and tubes for dry transformers. (Teplostoykiye elektroizolyatsionnye tsilindrye i trubki dlya sukhikh transformatorov).

PERIODICAL: "Vestnik Elektropromyshlennosti" (Journal of the Electrical Industry), Vol.28, No.7,1957, pp.38-42 (USSR).

ABSTRACT: It is important to produce heat resisting explosion proof dry transformers for the coal industry because they can be installed much nearer the coal face than can flame-proof oil-filled transformers. For the manufacture of such transformers it is important to have insulating cylinders and tubes capable of operating at high temperatures and voltages. This article describes briefly experimental data on the production and study of heat-stable glass-fabric cylinders and tubes based on silicone resins. Polyphenyl-methyl-siloxane resin of high thermal and water resistance and satisfactory binding properties for glass cloth was manufactured on a semi-industrial scale. This resin was introduced into production at the Kuskovsk Chemical works under the brand Varnish K-41, which was later

Card 1/3

ANDRIANOV, K. A.

Direct synthesis of ethylchlorosilanes. K. A. Andrianov, S. A. Golubtsov, I. [illegible] Trofimova and A. [illegible] Demisova. Zhur. Prikl. Khim. 30 [illegible] 2

The reaction [illegible] and Cu 21.2% at 270–330° was [illegible] Et_2SiHCl in 200–300 lized bed. A product contg. up to 40% g. of the mixed silanes/kg. contact mass hr. was obtained.

I. Bencowitz

5

#54
#F3Q
#E2C 4)
2 May

Andrianov, K.A.

AUTHORS: Andrianov, K.A., Golubkov, G.Ye. 76-11-17/35

Title: The Electrical Properties and the Structure of 1,n-Hexamethylpolychlorophenylethylsiloxanes (Elektricheskiye svoystva i stroyeniye 1,n-geksametilpolikhlorfeniletilsiloksanov)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol.31, Nr 11, pp.2488-2494 (USSR)

ABSTRACT: On the strength of the investigations carried out the following may be said: 1.) The introduction of the chlorine atom into silicon-organic polymers of the 1.n-hexamethylpolychlorophenylethylsiloxanes series and an increase of the number of terms with chlorophenyl groups in the molecule increases the temperature of glass formation, the dielectricity constant, the activation energy of the viscous flow, and the conductometrically determined activation energy. 2.) The introduction into the 1.n-hexamethylpolychlorophenylethylsiloxane molecule of dimethylsiloxane terms instead of the chlorophenyl groups leads to a decrease of the intermolecular forces of interaction in comparison with molecules of the same silicon atom number, but with chlorophenyl radicals. 3.) Dipole moments of 1.n-hexamethylpolychlorophenylethylsiloxanes increase with molecule-chain grwoth. The introduction of 2 chlorine atoms into the phenyl group leads to a certain decrease of the dipole moments in

Card 1/2

76-11-17/35

The Electrical Properties and the Structure of 1,n-Hexamethylpolychlorophenylethylsiloxanes

comparison to those 1.n-hexamethylpolychlorophenylethylsiloxanes, which contain one and three chlorine atoms in the phenyl group. 4.) The 1.n-hexamethylpolychlorophenylethylsiloxanes have a relaxation character for the dependence of tgδ and ε on temperature and frequency. There are 4 figures, 3 tables, and 6 references, 5 of which are Slavic.

ASSOCIATION: Institute for Electric Engineering imeni V.I.Lenin, Moscow (Elektrotekhnicheskiy institut im.V.I.Lenina, Moskva)

SUBMITTED: July 16, 1956

AVAILABLE: Library of Congress

Card 2/2

ANDRIANOV, K.A.; GOLUBENKO, M.A.

Reaction of chlorine substitution by [redacted]-groups in dichloromethylchlorosilane and bis(chloromethyl) methylchlorosilane. Dokl. AN SSSR 112 no.2:257-260 Ja '57. (MIRA 10:4)

1. Chlen-korrespondent AN SSSR (for Andrianov) 2. Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina.
(Silane) (Chlorine compounds)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000101410017-6"

ANDRIANOV, K.A

PA - 3149

AUTHOR ASTAKHIN, V.V., LOSEV, I.P. and ANDRIANOV, K.A. Corresponding Member of the Academy

TITLE On Reaction Between Organic Hydroxysilanes And Isocyanates. The Synthesis of Organosilicic Urethanes.
(O reaktsii organogidroksisilanov s izotsianatami. Sintez kremniyorganicheskikh uretanov -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 3, pp 581-584 (U.S.S.R.)
Reviewed 7/1957
Received 6/1957

ABSTRACT The following initial products were selected: triethylhydroxysilane, diethylpropylhydroxysilane, diethylbutylhydroxysilane, and metatoluylendiisocyanate. In the course of investigations it was found that the interaction between the isocyanates and trialkylhydroxisilanes develops in analogy to the corresponding reaction with organic alcohols and can be represented in the following form:

$$R\begin{matrix}\diagup NCO \\ \diagdown NCO\end{matrix} + 2HOSiR_3 \rightarrow R\begin{matrix}\diagup NHCOOSiR_3 \\ \diagdown NHCOOSiR_3\end{matrix}$$

According to this reaction scheme the following organosilicon urethanes were obtained and characterized: toluylene-2,4 -bis-carboamintriethylsilian, toluylen-2,4 -bis-carboamiddiethylpropylsilian, toluylen-2,4-bis-carboamindiethylbutylsilian. All organosilicon urethanes obtained were white crystalline substances, soluble in benzole, toluol, ether, and very sensitive to hydrolysis.

Card 1/2

Andrianov, K. A.

ANDRIANOV, K. A., ZHDANOV, A. A.,

"The Synthesis of Polyorganometalosiloxanes and the Investigation of their Properties," paper submitted at the Symposium on Organic and Nonsilicate Silicon Chemistry on 12th-14th May 1958, Dresden.

1. The reaction of metals- sodium, magnesium and aluminum- with organosilanols- diethylsilanediol, 1,3-dihydroxytetraethyl- disiloxane and polyphenylsiloxane resins, is under investigation. It will be shown that the above compounds react with the metals under anhydrous conditions with the formation of metal-siloxane (metal-oxygen-silicon) linkages.
2. The reactivity of the silanols is dependent on the stability of their hydroxyl groups. Compounds which easily undergo condensation do not react with metals. Compounds which have stable hydroxyl groups react easily with metals.
3. It will be shown that by the action of aluminumchloride on the sodium salts of phenyl- and ethylsilanetriols and of 1,3,5-trimethyl-1,3,5-triphenyltrisiloxane, polymers are formed- the polyorganoaluminosiloxanes.

Abstract: B-3,108,944 (Encl.)

ANDRIANOV, K. A. (Correspondent-member AS USSR)

"Silicoorganic Compounds."

Lecture to be delivered by Soviet Scientists at the Brussels Exhibition, August 1958. The delivered lectures will be available in English, French, Flemish and German as individual brochures.
(Priroda, 1958, N . 8, p. 116)

ANDRIANOV, K.A.

KARGIN, V.A.

5(3) PH PHASE I BOOK EXPLOITATION SOV/1589

Akademiya nauk SSSR.

Khimiya bol'shikh molekul; sbornik statey (Chemistry of Large Molecules; Collection of Articles) Moscow, Izd-vo AN SSSR, 1958. 299 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 30,000 copies printed.

Compiler: G.V. Sklovskiy; Resp. Ed.: A.V. Topchiyev, Academician; Ed. of Publishing House: V.A. Boyarskiy; Tech. Ed.: I.N. Guseva.

PURPOSE: This book is intended for a wide circle of readers including those who have had no training in chemistry. It can also serve as a manual for propagandists, teachers, and journalists.

Card 1/8

Chemistry of Large Molecules (Cont.) SOV/1589

COVERAGE: This collection of articles reflects the trend for the future development of the Soviet chemical industry as indicated by the May plenary session of the Central Committee of the Communist Party within the framework of the new Seven Year Plan. These articles were published in newspapers and journals. The authors, scientists and industry workers, developed the theme of accelerated development of the chemical industries, and sciences, with stress on the manufacture of synthetic fibers, plastics, and other materials. Some of the articles were abridged, revised, or enlarged. The articles were selected so as to give an adequate survey of the chemistry and technology of high-molecular-weight compounds and their use in industry, agriculture, and in the manufacture of consumers' goods. Mentioned are raw materials for the production of polymers. This book belongs to the popular-science series of the Academy of Sciences. Similar volumes are intended for future publication. No references are given.

TABLE OF CONTENTS:

Chemistry of Large Molecules (Cont.) SOV/1589

PART II

SYNTHETIC MATERIALS: PLASTICS, FIBERS, RUBBER AND THEIR APPLICATION

Card 4/8

KORITSKIY, Yu.V., dotsent, kand.tekhn.nauk, laureat Stalinskoy premii, red.; TAREYEV, B.M., prof., doktor tekhn.nauk, laureat Stalinskoy premii, red.; ANDRIANOV, K.A., prof., laureat Stalinskoy premii; red.; BOGORODITSKIY, N.P., prof., doktor tekhn.nauk, laureat Stalinskoy premii, red.; ANTIK, I.V., red.; FRIDKIN, A.M., tekhn.red.

[Manual on materials used in electric engineering; in two volumes] Spravochnik po elektrotekhnicheskim materialam; v dvukh tomakh. Vol.1. [Electric insulation materials] Elektroizoliatsionnye materialy. Pt.1. [Characteristics of materials] Svoistva materialov. Pod obshchei red. IU.V.Koritskogo i B.M.Tareeva. 1958. 460 p. (MIRA 12:4)

1. Chlen-korrespondent AN SSSR (for Andrianov).
(Electric insulators and insulation)

64-1-3/19

AUTHORS: Andrianov, K. A., Corresponding Member of the AS USSR, Fromberg, M. B.

TITLE: The Influence of Pigments and Catalysts on the Thermal Aging Process of Polymethylphenylsiloxane Coatings (O vliyanii pigmentov i katalizatorov na protsessy teplovogo stareniya polimetilfenilsiloksanovykh pokrytiy)

PERIODICAL: Kimicheskaya Promyshlennost', 1958, Nr 1, pp. 12 - 17 (USSR)

ABSTRACT: The destruction of the above-mentioned polymers by thermo-oxidation is investigated by the application of hydrolysis products from di- and trifunctional compounds, i.e. no linear ones which as it is known are more liable to a destruction by a heat influence. 2 investigation methods were used, i. e. the determination of the temperature influence on the elasticity of varnished samples and the loss of weight during the aging process. The investigations showed that e.g. the thermal resistance of the above-mentioned insulating paint is to a great extent reduced by an addition of siccatives, that is to say, proportionally to the activity of the catalyst.

Card 1/3

64-1-3/19

The Influence of Pigments and Catalysts on the Thermal Aging Process of Polymethylphenylsiloxane Coatings

This phenomenon is based on structure changes during the drying process. The influence of a zinc- or lead naphthenate resp. on the reduction of the thermal resistance which was not considerable at 250°C increased to a great extent the loss of weight of the investigation samples at 400°C, lead naphthenate being the more effective. By means of chemical analyses of the investigation samples it was found that the destruction took place in the Si-C binding as well as in the Si-O binding, whereon, however, a dependence on the type of the catalyst was observed. Salts of metals with stable valence (e. g. Zn-naphthenate) support the destruction of the Si-O binding, whereas alternating valence - metal salts (e. g. Pb-naphthenate) destroy the siloxane binding and catalyse an oxidation of the radicals. Investigations at a polymethylphenylsiloxane varnish showed that an addition of pigment reduces its thermal resistance, that is to say, considerably up to 10 %, then less, the chemical composition of the pigment playing an important part. Hence it is concluded that a maximum of 20 - 30 % of pigment is to be added, whereon for instance titanium oxide is better suited since it is

Card 2/3

64-1-3/19

The Influence of Pigments and Catalysts on the Thermal Aging Process of Polymethylphenylsiloxane Coatings

more abundant than lithopone. Experiments were carried out at 250 and 400°C in order to explain the mechanism of temperature aging of pigmented samples. Here was found that chrome yellow had at 400°C the greatest destructive effect. Comprisingly it is said that the pigments and fillers reduce the thermoplasticity of polymethylphenylsiloxane, whereas the thermostability of the polyester-modified polymethylphenylsiloxanes increase by the pigmentation, whereby a greater portion of pigments reduces the destruction by thermooxidation and increases the thermal resistance at higher temperatures. There are 6 figures, 4 tables, and 5 references, 2 of which are Slavic.

AVAILABLE: Library of Congress

1. Coatings-Aging-Effects of pigment 2. Coatings-Aging-Effects of catalysts 3. Polymethylphenylsiloxane coatings-Aging analysis 4. Polymers-Deterioration-Analysis

Card 3/3

AUTHORS: Andrianov, K. A., Golubtsov, S. A., Semenova, Ye.A. 62-1-8/29

TITLE: On Some Reactions of the Amino-Group in Triethylaminosilane (O nekotorykh reaktsiyakh aminogruppy v trietilaminosilane)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp 47-53 (USSR)

ABSTRACT: In recent time the aminosilanes gained an constantly increasing practical importance as active hydrophobizing products. However, only few is mentioned in literature about the chemical properties of these compounds. In the present paper some reactions (with the silicon atom of the amino group) were investigated by means of the example of triethylsilane and its methyl- and ethyl-derivatives. Triethylaminosilane easily reacts with hydrochloric- and hydrobromic acid. The authors obtained derivatives of the triethylaminosilane as well as derivatives of methyl which have not yet been described in literature by the interaction of triethylchlorosilane with ammonia (or the corresponding amine). Table 1 shows the physical properties of the synthetic compounds. In the investigation of these properties it turned out that the have sufficient thermal stability. Triethylaminosilane reacts only with difficulty with

Card 1/2

triethylchlorosilane (at room temperature). The reaction can be a little accelerated at boiling temperature. Table 2 shows the properties of the (by triethylethoxysilane) obtained compounds. Furthermore the authors found properties of new compounds, e.g. of triethyl-n-propoxysilane, triethylisopropoxysilane, triethyl-n-butoxysilane, triethylisobutoxysilane, triethylisoamiloxysilane as well as of triethyl-n--octiloxysilane. Ethyl- and methyl- derivatives of triethylaminosilane react with alcohols in a similar manner, Here the number and the size of the radicals in the nitrogen atom exercise their influence on the reaction process. Triethyldiethylaminosilane enters reaction with alcohols, however, with a considerably lower activity than triethylaminosilane, its methyl-derivatives or triethylaminosilane. There are 3 tables and 7 references, 1 of which is Slavic.

SUBMITTED: August 22, 1956

AVAILABLE: Library of Congress

1. Triethylaminosilane-Chemical reactions 2. Amines-Chemical reactions 3. Triethylaminosilane-Derivatives 4. Methyl-Derivatives

Card 2/2

62-2-5/28

AUTHORS: Andrianov, K. A., Golubtsov, S. A., Trofimova, I. V., Turetskaya, R. A., Krylov, V. D.

TITLE: On the Modifications of the Catalytic Activity of Silicon-Copper Alloys in the Process of Direct Synthesis of Ethylchlorosilanes (Ob izmeneniyakh kataliticheskoy aktivnosti kremnemednykh splavov v protsesse pryamogo sinteza etilkhlorsilanov).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 2, pp. 157-165 (USSR).

ABSTRACT: The direct synthesis of alkyl- and arylchlorosilanes by the influence of the haloid derivative upon elementary silicon in the presence of a copper catalyst was already described in several papers. But only scarce and insufficient data exist on the fact that the activity of the contact silicon-copper mass slowly decreases in the process of synthesis. Concrete reports on the reason for the modification of activity have hitherto not been published. In the present paper the following is said on the result of the experiment: It was found that in the interaction of the silicon-copper alloys with ethylene chloride their activity is highly re-

Card 1/2

On the Modifications of the Catalytic Activity of Silicon--Copper Alloys in the Process of Direct Synthesis of Ethylchlorosilanes. 62-2-5/28

duced, i.e. to the extent to which silicon enters into reaction (formation of ethylchlorosilanes). It was found that for alloys with a low content of copper (5-9%) the lines of the general activity in the reaction of the formation of diethylchlorosilane run over 2 maxima. In alloys with a high copper-content (~25%) the presence of only one selective maximum and one maximum of the general activity was determined. It is assumed that the interaction of ethyl chloride with silicon-copper alloys is composed of two parallel processes: a) the reaction with silicon of the intermetallic compound Cu_3Si with simultaneous separation of active copper; b) reaction with free silicon in the presence of the separated copper as catalyst. On the basis of this hypothesis the variability for alloys with a diverse content of copper can be explained. During the reaction carbon is to a considerable extent deposited at the surface of copper which may also contribute to a decrease in the activity of the mass. There are 2 figures, 7 tables, and 5 Slavic references.

SUBMITTED: August 22, 1956
AVAILABLE: Library of Congress
Card 2/2

1. Silicon-copper alloy catalysts 2. Ethylchlorosilanes-Synthesis

ANDRIANOV, KA

105-58-4-1/37

AUTHOR: Andrianov, K. A., Corresponding Member, AS USSR

TITLE: High-Molecular Synthetic Compounds as Dielectrics (Sinteticheskiye vysokomolekulyarnyye soyedineniya kak dielektriki)

PERIODICAL: Elektrichestvo, 1958, Nr 4, pp. 1 - 10 (USSR)

ABSTRACT: In this paper a survey is given of the high-molecular synthetic compounds used as dialectrics in the USSR. Of the isotactic polymers isotactic polyethylene, polypropylene, polybutene, and polystyrene are produced synthetically at present. In contrast to the polymers of the same class which, however, were produced by the normal way, they have a much higher melting point and do not dissolve in most of the solvents. The isotactic polymers make possible to extend considerably the range of application of the polymeric hydrocarbons for electric insulation purposes. Because of their higher melting point they can be applied as plastics, as cable covers, and as fibers at working temperatures up to 105°C and higher. Polypropylene or polystyrene fibers

Card 1/4

105-58-4-1/37

High-Molecular Synthetic Compounds as Dielectrics

do not adsorb humidity at all. Of the heat resistant polymers polytetrafluorethylene is the most interesting. It permits working temperatures up to 250° and 280°C. Of the polyester resins the types KΓMC-1 and KΓMC-2 are produced as dielectrics. It can be seen from the table of the VEI given here, that these polymers have high electric resistance and a high volume resistance. Their dielectric characteristics hardly change in moist atmosphere. The polyester on the basis of terephtalic acid and ethylene glycol known as Lavsan, Maylar, Terylene are very important for electric insulation purposes. This polymer produced at the INEOS of the AS USSR has a rather straight chain; it crystallizes and forms a solid fiber and mechanically solid films. At the VEI the polyester 124 and a varnish modified by admixtures (connecting the linear molecules) was developed. From this varnish enameled lines for a permanent working temperature of 130°C were produced for machines of the insulation class B.

Card 2/4

105-58-4-1/37

High-Molecular Synthetic Compounds as Dielectrics

Of the epoxy resins those on the basis of diphenol propane are used in industry. They are produced under the trade marks Э-40, Э-37 and ЭД-6. The epoxy polyester compound Э-37 was developed for the filling up of current transformers and is also used at present. Epoxy polyester compounds K-168 and 2-293 were developed for the protection of semiconductor devices are used at present. At the VNII MEP the following were developed and used in industry: the compounds МБК-1, МБК-2 and МБК-3 on the basis of acryl and methacrylic esters. They are used for the insulation of underwater electromotors and in radio engineering. Polyethyl carbamate resins are widely used in different fields of engineering especially as adhesive. Of the organo-silicon polymers various polyorganosiloxane resins and varnishes on the basis of normal organic solvents as well as of the polydimethylsiloxane rubber are produced in industry. Of the new polyorganosiloxanes K-55 and K-43 are already practically used. It is concluded that in spite of high electric properties even at 250-300°

Card 3/4

105-58-4-1/37

High- Molecular Synthetic Compounds as Dielectrics

the synthetic polymers do not meet the requirements of modern electrical engineering. There are 12 figures, 11 tables, and 12 references, 4 of which are Soviet.

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut im. Lenina (All-Union Institute for Electrical Engineering imeni Lenin)

SUBMITTED: November 28, 1957

AVAILABLE: Library of Congress

1. Dielectrics-Production 2. Synthetic compounds-Application

Card 4/4

AUTHORS: Andrianov, K. A., Dulova, V. G. 62-58-5-23/27

TITLE: Synthesis of Some Derivatives of Trimethyl-Siloxytitanium (Sintez nekotorykh proizvodnykh trimetilsiloksititana)

PERIODICAL: Izvestiya Akdemii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 5, pp. 644-646 (USSR)

ABSTRACT: The authors achieved the synthetization of some new compounds containing the -Si-O-Ti- grouping. The sole compound of this type was described by Inglish and Sommer (Ref 1). As already described by the authors in previous reports, this compound may be obtained by means of interaction of $TiCl_4$ with trimethylsilane. In the present report, the synthesis of tetra-(trimethyl-siloxy)titanium and the previously unknown chlorine-substituents of trimethyl-siloxytitanium is described. Di-(trimethyl-siloxy)dichlorotitanium was obtained by the action of $TiCl_4$ on tetra(trimethylsiloxy)titanium. The mixed ether of tri(trimethylsiloxy)butoxytitanium was synthetized by means of the reaction of tri(trimethyl-siloxy)chlorotitanium with n-butyl-alcohol. There are 1 table and 4 references, 2 of which are Soviet.

~~Card 1/2~~

Inst. Elements-Organic Compounds AS USSR

PETROV, A.D.; ANDRIANOV, K.A.; GOLUBTSOV, S.A.; PONOMARENKO, V.A.; CHERKAYEV, V.G.; TARASOVA, A.S.; VAVILOV, V.V.; ZADOROZHNYY, N.A.; POPELEVA, G.S.

Continuous method of catalytic addition of hydrosilanes to unsaturated compounds. Khim.nauk i prom. 3 no.5:679-681 '58.

1. Institut organicheskoy khimii im. V.D. Zelinskogo.
(Silane) (Unsaturated compounds)

SOV/64-58-6-6/15

AUTHORS: Andrianov, K. A., Corresponding Member, Academy of Sciences, USSR, Golubtsov, S. A., Candidate of Technical Sciences, Petryakova, A. A.

TITLE: The Composition and Distribution of the Reaction Products of Ethylene Chloride and Silicon (Sostav i raspdeleniye produktov reaktsii khloristogo etila s kremniyem)

PERIODICAL: Khimicheskaya promyshlennost', 1958, Nr 6, pp 342-346 (USSR)

ABSTRACT: The article quotes the results of the experiments mentioned by the title. The synthesis was carried out by reaction of ethylene chloride with a copper-silicon alloy at boiling temperature according to a method that has already been described (Refs 4, 5). The composition of the mixture was determined in cooperation with M. A. Kleynovskaya. A table states the basic conditions in three experiments. Furthermore, a sketch of the laboratory column used for isolating individual ethylchlorosilanes and a description of the apparatus is given. A distillation curve shows that a column with 24 theoretical plates permits a sufficiently accurate isolation of the mixture. A table of the physico-chemical

Card 1/2

SOV/64-58-6-6/15

The Composition and Distribution of the Reaction Products of Ethylene Chloride and Silicon

constants and analytical data of isolated distillation products is given. An analysis of fraction 5 was carried out. It was assumed that besides ethylchlorosilane there were also 5 to 18 per cent of diethylchlorosilane present. In order to determine the optimum ratio of ethyl-trichlorosilane and isobutanol in partial esterification according to a method previously described, a number of tests were carried out. On the basis of the data obtained, a pilot plant with a column for rectification of the ethylchlorosilane mixture was built. The results of the tests were as they had been calculated. M. A. Kleynovskaya has developed a method for separating the mixture from trimethyl-chlorosilane and silicon tetrachloride by means of partial esterification. There are 4 figures, 8 tables, and 11 references, 6 of which are Soviet.

Card 2/2

SOV/62-58-6-24/37

AUTHORS: Andrianov, K. A., Zhdanov, A.A.

TITLE: The Synthesis of Tetrakis-(Triethyl-Siloxy) Titanium and Tetrakis-(Triethylsiloxy)-Tin (Sintez tetrakis-(trietilsiloksi) titana i tetrakis (trietilsiloksi) olova)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 779-780 (USSR)

ABSTRACT: The synthesis of silicon-organic titanium derivatives are dealt with by several scientific papers. In the course of the present report the authors describe the synthesis of triethylsiloxy titanium and tetratriethylsiloxy tin brought about by the exchange reaction of sodium-triethylsilanolate with tetrachlorotitanium and zinc chloride:

$$4(C_2H_5)_3\ SiONa + SnCl_4 \longrightarrow [(C_2H_5)_3\ SiO]_4\ Sn + 4NaCl.$$

Further data relating to the investigation of the reaction as well as to the interaction between sodium triethylsilanolate and other halides are intended to be discussed by the authors in a paper to follow. There are 5 references, 3 of which are Soviet.

~~Card 1/2~~

Inst. Elements-Organic Compounds AS USSR

SOV/30-58-7-3/49

AUTHOR: Andrianov, K. A., Corresponding Member, Academy of Sciences, USSR

TITLE: State and Tasks of the Chemistry of **Plastic Materials** (Sostoyaniye i zadachi khimii plasticheskikh mass)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 7, pp. 19 - 25 (USSR)

ABSTRACT: The Plenum of the TsK KPSS decided to increase the production of **plastic materials** within the years from 1959 to 1965 by eight times. This requires the concentration of the efforts made by the scientists, engineers and workers in different fields. The development of the production and the quality of synthetic substances depends on the speed of increasing production, and of the quality of high-molecular compounds. The further development of the chemistry of **plastic** materials is closely connected with the progress achieved in the field of the synthesis of monomers. The use of organo-metal initiators of polymerization makes it possible to obtain polymers of regular structure with a high molecular weight and better physical and chemical properties than by the radical process.

Card 1/3