

POKROVSKAYA, L.I.; PLYUSHCHEV, V. Ye.; KUZNETSOVA, G.P.

Study of the system lithium sulfate-cesium sulfate -water. Izv.  
vys. ucheb. zav., khim. i khim. tekhn. 7 no.5:705-710 '61  
(MIRA 18:1)

1. Kafedra khimii i tekhnologii redkikh i rasseyannykh ele-  
mentov Moskovskogo instituta tonkoy khimicheskoy tekhnologii  
imeni M.V. Lomonosova.

... that the properties of rare earth formates are ...

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Chemical Technology

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droxides of the  $m$  metals. Anhydrous ytterbium and lutetium formates were obtained by drying the dihydrates at 80-90°C. The data of the ultimate analysis were confirmed by the results of thermogravimetry and IR spectra. It was found by thermo-

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PLYUSHCHEV, V.Ye.; SHKLOVER, L.P.; SHKOL'NIKOVA, L.M.; KISENETSOVA, G.P.;  
TRUSHINA, T.A.

Yttrium and erbium formates and their properties. Zhur. ob.  
khim. 35 no.10:1783-1790 O '65. (MIRA 18:10)

KUZNETSOVA, G.P.; STEPIN, B.D.

System at RbBr - IBr - H<sub>2</sub>O at 25°C. Zhur. neorg. khim. 10  
no.2:472-475 F '65. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv. Submitted Aug. 24, 1963.

KUZNETSOVA, G.P.; SHVARTS, M.M.; STEPIN, B.D.

Preparation of highly pure sodium and potassium monochromates.  
Izv. AN SSSR, Neorg. mat. 1 no.11:1938-1944 N '65.

(MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobochistykh khimicheskikh veshchestv. Submitted May 14, 1965.

BALANDINA, V.A.; KLESHCHEVA, M.S.; KUZNETSOVA, G.S.; TURKOVA, L.D.

Quantitative evaluation of chromatograms with the aid of a  
detector of heat conductivity. Zhur.anal.khim. 18 no.7:808-  
810 JI '69. (MIRA 16:11)

1. Scientific-Research Institute of Polymerization Plastics  
and Experimental Plant, Leningrad.

KARYAKIN, R.N.; PUPYNIN, V.N., kand.tekhn.nauk; KUZNETSOVA, G.S., inzh.

Experimental investigation of the current drain circuit of a.c.  
traction substations. Vest.TSNII MPS 22 no.6:22-25 '63.

(MIRA 16:10)

KARYAKIN, R.N., kand.tekhn.nauk (Moskva); KUZNETSOVA, G.S., inzh. (Moskva);  
PUPYNIN, V.N., kand.tekhn.nauk (Moskva); SUMIN, A.R., inzh. (Moskva)

Selection of effective networks and optimal parameters of the  
power take-off circuits of a.c. traction substations. Elektrichestvo  
no.11:10-18 N '64. (MIRA 18:2)

KUZNETSOVA, G.S., inzh.

Experimental study of the thermal stability of grounding systems.  
Trudy MIIT no.199:165-177 '65.

(MIRA 18:8)

PUFYNIH, V.N., dotsont, kand.tekhn.nauk; KUZNETSOVA, G.S., inzh.

Approximate evaluation of the thermal stability of the grounding  
stages of a.c. traction substations. Trudy MIIT no.199:178-183  
'65. (MIRA 18:8)



NOVOKRESHCHENOVA, N.S.; KUZNETSOVA, G.S.

Characteristics of the flea ecology of greater gerbils in  
places with chronic plague epizooty. Zool. zhur. 43 no.11:  
1638-1648 '64. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy protivochnunnyy  
institut "Mikrob", Saratov.

BALANDINA, V.A.; KLESHCHEVA, M.S.; KUZNETSOVA, G.S.

Determination of the composition of a mixture of acetaldehyde, methanol, and vinyl acetate with the aid of gas-liquid partition chromatography. Plast.massy no. 2161-62 '63. (MIRA 16:8)  
(Acetaldehyde) (Vinyl acetate) (Gas chromatography)

TSIRLIN, Yu.A.; VASIL'YEVA, V.A.; KUZNETSOVA, G.S.

Chemical purification of sewage containing furfurole. *Gidroliz.*  
i *laochim. prom.* 14 no.7:15-16 '61. (MIRA 14:11)

1. Nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-  
spirtovoy promyshlennosti.

(Sewage--Purification)  
(Furaldehyde)

Kuznetsova, E.S.

2

Country: USSR  
Category: Virology - Bacterial Virus (Bacteriophage)

Doc. No.: Dokl. Akad. Nauk, No 25, 1978, 1038-1041.

Author: Kuznetsova, E.S.; Alayevskaya, I. D.; Korotkaya, A.V.; Zolotareva, E. B.; Gal'perin, L.S.; Kuznetsova, G.S.; Mikheyev, V. I.

Title: The Problem of Increasing the Therapeutic Effectiveness of Bacteriophage Preparations.

Orig. Publ. In: Mikrobiologiya, Zhurnal, Gromozhdits, 1977, 115-121.

Summary: Of 37 elementary cultures isolated in children who were sick with chronic dysentery only 50 percent proved to be sensitive to the same standard phages. The phages were adapted (to each culture individually).

Chart : 1/2

to cultures selected for their biochemical and serological properties but chiefly for their morphological ones. A mixture was made of these phages (polyphages) which was used for treatment. The treatment was given in three courses consisting of three cycles each. Of 26 children sick with chronic dysentery who were given phage treatment 35 (94.1%) were discharged healthy. Only persons (5.9%) remained chronic carriers. --  
Dr. I. Buzonina.

Chart : 2/2

16

PETROV, A.A.; BRAVO, Ye.S.; DAVIDOVICH, V.V.; DYATKOVA, O.S.; KUZNETSOVA, O.V.

Investigations in the field of conjugated systems. Part 49. Order of adding alkyl hypohalides to tertiary vinylacetylene alcohols. *Zhur.ob. khim.* 23 no.7:1120-1124 J1 '53. (MLBA 6:7)

1. Laboratoriya organicheskoy khimii Leningradskogo tekhnologicheskogo instituta imeni Lensoвета. (Halides) (Vinylacetylene alcohol)

PLENNIK, R. Ya.; KUZNETSOVA, G.V.

Formation and structure of the seed and fruit of *Hedysarum neglectum* Ldb. Trudy TSSBS no.7:56-64 '64.

(MIRA 17:11)

S/169/61/G00/011/058/065  
D228/D304

AUTHORS: Kuznetsova, G.V., and Soboleva, N.S.

TITLE: Observations of solar radio-emission by means of the Bol'shoy Pulkovskiy Radiotelescope in May 1960 on the 8.7 cm wavelength

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1961, 10, abstract 11G87 (Solnechnyye dannyye, no. 3, 1961, 70 - 72)

TEXT: The observational procedure is described. The end of the radio-emission splash was recorded during the observations (at 9 hr. 55 min.). The chromospheric flare connected with this radio-emission splash had a force of 3+ and lasted from 5 hr. 22 min. to 7 hr. 33 min. world time. The radio-emission splash was also detected by the Glavnaya astronomicheskaya observatoriya (Central Astronomic Observatory) radiotelescope (3 cm). An estimate is given for the flow, size, and temperature of the evolutionary brightness which was still preserved after the splash. [Abstractor's note: Complete translation].  
Card 1/1

37942

S/035/62/000/005/037/098  
A055/A101

3.1710  
3.1720

AUTHORS: Kuznetsova, G. V., Pariyskiy, Yu. N., Soboleva, N. S., Khanberdyev,  
A.

TITLE: Observations of solar radio emission during the eclipse of February 15, 1961, on the 9-cm wavelength

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 42, abstract 5A326 ("Solnechnyye dannyye", 1961, no. 4, 65-67)

TEXT: The results of observations of the solar eclipse of February 15, 1961, are described. The observations were carried out with the aid of a paraboloid (D = 4 m) with azimuthal mounting. The open end of a round waveguide, into which were inserted a quarter-wave plate and a ferrite modulator with 30 cps modulation frequency, was used as primary exciter. The half-power directional pattern was 1.5. As radiometer, was used a three-traveling-wave-tube straight amplification receiver with an equivalent input noise temperature of 4,500 K and with a passband of 300 Mc. The circularly polarized component of the radio emission and the nonpolarized radiation of the Sun were recorded. The recording was effected on an 3III -09 (EPP-09). The antenna temperature of the

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Observations of solar radio emission ...

S/035/62/000/005/037/098  
A055/A101.

Sun outside of the eclipse was  $5,500^{\circ}\text{K}$ . The Moon was used for the absolute calibration. The flux from the Sun on the day of the eclipse was  $125 \cdot 10^{-22}$  watt/m<sup>2</sup>cps. The opening of the coronal condensation from  $8^{\text{h}}17^{\text{min}}.5$  to  $8^{\text{h}}20^{\text{min}}$  (universal time) was ascertained from the examination of the eclipse curve. Under the assumption that the source has a round shape ( $D \sim 1.2$ ) and that the condensation has the shape of an ellipse with semiaxes  $0.5 \times 1.14$ , the brightness temperature was calculated and proved to be  $3.1 \cdot 10^6\text{K}$  and  $2.75 \cdot 10^6\text{K}$  respectively; i.e. it proved to be higher than the temperature of the undisturbed corona. No polarization of radiation from the condensation was detected, which is indicative of a sharp directivity of the polarized radiation, this directivity being related to the radial direction of the magnetic field over the spots. The residual flux during the maximum phase of the eclipse was 40 - 50%.

M. Gorelova

[Abstracter's note: Complete translation]

Card 2/2

30426  
S/109/61/006/012/001/020  
D266/D305

9,1911 (1127)

AUTHORS: Yesepkina, N.A., Kaydanovskiy, N.L., Kuznetsov, B.G., Kuznetsova, G.V., and Khaykin, S.E.

TITLE: Investigating the radiation pattern of highly directive antennas whose reflecting surface is adjustable

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 12, 1961, 1947 - 1960

TEXT: The purpose of the paper is to derive mathematical expressions for the radiation pattern and for the effective area of a certain class of antennas. The antenna investigated consists of a large number of elements (rectangular metal plates of height  $h$  and width  $a$ ) whose position and inclination are adjustable. The elements are in no mechanical contact with each other which facilitates greater accuracy of manufacturing. They can be adjusted in such a way that the main lobe of the vertical radiation pattern is in a specified direction ( $\theta_0$  in Fig. 1). This condition is satisfied if the radius vector of the center of the elements is given by the follow-

Card 1/4 3

30426

Investigating the radiation pattern ... S/109/61/006/012/001/020  
D266/D305

ing formula

$$\rho = \frac{p}{1 + \cos \theta_0 \cos \varphi} = \frac{R_0 - a_0 \cos \theta_0}{1 + \cos \theta_0 \cos \varphi} \quad (1)$$

where  $p$  - constant,  $\varphi$  - angle between the radius vector and the x axis (see Fig. 1). If  $0 < \theta_0 < \pi/2$  (1) represents an ellipse, for  $\theta_0 = 0$  a parabola, and for  $\theta_0 = \pi/2$  a circle. It follows from (1) that the distance between the primary source and the reflector depends also on  $\theta_0$ . The inclination of the metal plates is determined by the angles  $\beta$  and  $\chi$  (see Fig. 1) which are related to  $\theta_0$  and as follows

$$\sin \beta = \frac{\sin \theta_0}{\sqrt{2(1 + \cos \theta_0 \cos \varphi)}} \quad (3)$$

and

$$\tan \chi = \frac{\sin \varphi}{\cos \theta_0 + \cos \varphi} \quad (4)$$

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S/109/61/006/012/001/020

D266/D305

Investigating the radiation pattern ...

In a plane perpendicular to the direction of the main lobe, the waves are in phase (this must be always the case because the antenna was designed according to this criterion) and the shape of the illuminated area in this plane is an incomplete ring. The distribution of the electric field (both polarizations are present) in the aperture is calculated by geometrical optics and the far field is obtained with the aid of wave optics. The arising integrals are integrated out leading to an infinite series of Bessel functions of the first kind. The radiation pattern is calculated for the reflector current as well. No analytical solutions are found in this case, but some numerical calculations indicate similar results to those obtained by the aperture method. Aperture efficiency is also determined and monotonically decreasing function of  $\theta$  is found. In conclusion the authors express their gratitude to V.B. Braude for his assistance. There are 15 figures and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: S. Silver, Microwave Antenna Theory and Design, M.I.T. Rad. Lab. Series.

SUBMITTED: February 22, 1961

Card 3/4 3

KUZNETSOVA, G.V.; SOBOLEVA, N.S.

Polarization measurements with an antenna with a variable profile reflector. Izv. GAO 23 no.3:122-127 '64.

(MIRA 17:11)

PETRUN'KIN, V.Yu.; YESEPKINA, N.A.; KUZNETSOVA, G.V.; KUZNETSOV, B.G.

Effect of rotation of the principal cross sections of the  
directivity diagram of an antenna with a variable-profile  
reflector. Izv. GAO 23 no.3:160-161 '64.

(MIRA 17:11)

I 34617-66 EWT(1) RO

ACC NR: XFG026578

SOURCE CODE: UR/0366/65/001/012/2166/2169

AUTHOR: Mel'nikov, N. N.; Nuridzhanyan, K. A.; Kuznetsova, G. V.; Guseva, L. P. 35  
 ORG: All-Union Scientific Research Institute of Chemical Agents of Plant Protection,  
 Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zaщitny  
rasteniy) B

TITLE: Herbicides and plant growth regulators. XLIII. Synthesis of chloromethyl-  
 aryloxy-alpha-propionic and chloromethylaryloxy-gamma-butyric acids

SOURCE: Zhurnal organicheskoy khimii, v. 1, no. 12, 1965, 2166-2169

TOPIC TAGS: plant growth, herbicide, chemical synthesis, carboxylic acid, methylation,  
 chemical reduction, ester, amine

ABSTRACT: Study of the chloromethylation of aryloxyalkylcarboxylic acids  
 has shown that in all cases the corresponding chloromethylaryloxyalkyl-  
 carboxylic acids are produced in good yields and the reaction occurs under  
 relatively mild conditions. The chloromethyl group enters position 4, but  
 if position 4 is filled, it enters position 2. This course of the reaction  
 is demonstrated by the fact that in the reduction of chloromethyl derivatives  
 the corresponding methyl derivatives described in the literature are obtained.  
 For example, reduction of the product obtained by chloromethylation of 4-  
 chlorophenoxy-gamma-butyric acid, results in 4-chloro-2-methyl-phenoxy-gamma-  
 butyric acid. Study of the physiological activity of the compounds synthesized  
 shows that chloromethylaryloxyalkylcarboxylic acids are less toxic to plants  
 than the corresponding aryloxyalkylcarboxylic acids. To find new compounds  
 physiologically active for plants, several chloromethylaryloxyalkylcarboxylic  
 acids, their esters, and amines not described in the literature were synthesized.

Orig. art. has: 2 tables. [LPHS: 36,455]

SUB CODE: 07, 06 / SUBM DATE: 30Nov64 / ORIG REF: 004 / OTH REF: 001

Card 17 / UDC: 541.69:547.472:543.3

MEL'NIKOV, N.N.; MURUDZHANYAN, K.A.; KUZNETSOVA, G.V.; GUSEVA, L.P.

Herbicides and growth promoting substances. Part 43: Synthesis of chloromethylaryloxy- $\alpha$ -propionic and chloromethylaryloxy- $\gamma$ -butyric acids. Zhur. org. khim. 1 no. 12:2166-2169 D '65  
(MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy, Moskva. Submitted November 30, 1964.



KUZNETSOVA, Ida Aleksandrovna

Changeableness of Forms and Structures of the Femur and Applied  
Significance

Dissertation for candidate of a Medical Science degree, Chair of Normal  
Anatomy (head, Prof. V.I. Bik) Saratov Medical Institute, 1954

KUZNETSOVA, I.A.

Changes in adipose tissue in relation to the photoperiodic reaction  
and diapause of insects. Zool.zhur. 34 no.3:532-541 My-Je '55.  
(MLBA 8:8)

I. Kafedra entomologii Leningradakogo gosudarstvennogo universiteta  
im. A.A.Zhdanova.

(Insects--Physiology) (Adipose tissues);

KUZNETSOVA, I. A.

Kuznetsova, I. A. -- "The Biology of the Black Pine Beetle in the Forested Regions near the Steppe in Connection with the Development of Measures to Combat it." All-Union Order of Lenin Academy of Agricultural Sciences imeni V. I. Lenin. All-Union Sci Res Inst of Plant Conservation. Leningrad, 1956 (Dissertation for the Degree of Candidate in Biological Science)

So: Knizhnaya Letopis; No 12, 1956

KUZNETSOVA, I. A.

USSR/General and Systematic Zoology. Insects. Harmful  
Insects and Acarids. Forest Pests P

Abs Jour : Ref Zhur - Biol., No 3, 1959, No 11657

Author : Kyznetsova I.A.  
Inst : All-Union Institute for the Protection of Plants.  
Title : Biology of the Larvae of the Black Long-Horned  
Beetle.

Orig Pub : Tr. Vses. in-ta zashchity rast., 1957, vyp. 8,  
75-88

Abstract : Investigations were conducted in the Saval fores-  
try. The long-horned beetle *Monochamus gallo-*  
*provincialis* bears a one-year generation; however,  
in a portion of the population's larvae (L), the  
diapause (D) stretches out to 2 and 3 years. The  
characteristics of the 1-year-old and 2-year-old  
L are presented. The numbers of the diapausing

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USSR/General and Systematic Zoology. Insects. Harmful P  
Insects and Acarids. Forest Pests.

Abs Jour : Ref Zhur - Biol., No 3, 1959, No 11657

L increase sharply in old dying-out nidi; this  
is connected with drying of the trees as a result  
of their tops being defoliated by the beetles.  
Prior to pupation, the beetles feed during April  
on decayed bast fibers and sapwood, crawling out  
for this purpose from passages under the bark.  
L, remaining in the D state during the spring per-  
iod, are distinguished from the individuals feed-  
ing after hibernation by the intensity of breath-  
ing, the character of metabolism and the quantity  
of water and fat in the organism. A low-breathing  
coefficient and profound changes in the structure  
of the tissues, confirming the presence of D in L,  
are peculiar to them. The effect of deep D on the  
increase of the beetle reserve in separate years

Card : 2/3

KUZNETSOVA, I.A.

Possibilities for acclimatizing local ecologic races of Lepidoptera  
in other zones of the range of the species. Vop. ekol. 7:89-91  
'62. (MIRA 16:5)

1. Leningradskiy gosudarstvennyy universitet.  
(Leningrad Province--Lepidoptera) (Acclimatization)

KUZNETSOVA, I.A.

Factors causing the beginning of the diapause in the mallow  
moth *Pectinophora malvella* Hb. (Lepidoptera, Gelechiidae).  
Ent. obozr. 41 no.3:510-515 '62. (MIRA 15:10)

1. Biologicheskiy institut Leningradskogo gosudarstvennogo  
universiteta, Staryy Petergof.  
(Gelechiidae) (Diapause)

LEBEDEVA, N.N.; KUZNETSOVA, I.A.

Pharmacology of the preparation hexachloroparaxylene. Med.  
paraz. i paraz. bol. 32 no.6:691-696 N-D '63 (MIRA 18:1)

1. Iz laboratorii farmakologii (zav. V.F. Gladkikh) otdela  
gel'mintologii (zav. - prof. V.P. Pod'yapol'skaya) Instituta  
meditsinskoy parazitologii i tropicheskoy meditsiny imeni  
Ye.I.Martsinovskogo (direktor - prof. P.G. Sergiyev) Mini-  
sterstva zdravookhraneniya SSSR.

ZEVINA, G.B.; KUZNETSOVA, I.A.; STAROSTIN, I.V.

Composition of fouling in the Caspian Sea. Trudy Inst. okean.  
70:3-25 '63. (MIRA 17:7)



TATEVOS'YAN, Georgiy Ovanesovich; KUZNETSOVA, I.B., nauchnyy red.;  
BONDAROVSKAYA, G.V., red.; KOZLOVSKAYA, M.D., tekhn. red.;  
PERSON, M.N., tekhn. red.

[Presser of plastics] Pressovshchik plastmass. Moskva, Vses.  
uchebno-pedagog. izd-vo Proftekhizdat, 1961. 318 p.  
(MIRA 15:4)

(Plastics--Molding)

TATEVOS'YAN, G.O.; KUZNETSOVA, I.B.

Determining the photostability of colors of plastics. *Plast.massy*  
no.12:54-57 '61. (MIRA 14:12)

(Dyes and dying--Plastics)

POLYAKOVA, V.I.; KUZNETSOVA, I.B.; TATEVOS'YAN, G.O., nauchnyy red.;  
TISHCHENKO, N.I., red.; TRUSOV, N.S., tekhn. red.

[Manufacture of toys from plastics]Proizvodstvo igrushek iz  
plasticheskikh mass. Leningrad, Gosmestpromizdat, 1962. 318 p.  
(MIRA 16:2)

(Plastics) (Toys)

34948

S/191/62/000/003/007/010  
B101/2147

15.8500 (a.k.a. 2209)

AUTHORS: Tatevos'yan, G. O., Kuznetsova, I. B.

TITLE: Problem of weather resistant film materials

PERIODICAL: Plasticheskiye massy, no. 3, 1962, 44.- 51

TEXT: Films made of polyethylene (PE), polyvinyl chloride (PVC) plasticized with a BC $\Phi$  (VSP) plasticizer, or PVC type 230 were exposed to atmospheric influences or to the radiation of arc lamps or mercury-quartz lamps. Aging was tested by measuring the tensile strength  $\sigma$  (kg/cm<sup>2</sup>) and the relative elongation  $\epsilon$  (%) at the moment of breaking. For PE, graphs  $\sigma$  versus  $\tau$ , and  $\epsilon$  versus  $\tau$ , where  $\tau$  = time, were plotted, and aging was assumed to end when  $\epsilon$  reached 50% ( $\tau_{50}$ ). For PVC, aging was assumed to end with the occurrence of brittle fracture, when bent 180° at room temperature (ГОСТ 5960-51, GOST 5960-51). Results: (1) Under atmospheric influences, aging of PE was 70% faster in Fergana than it was in Moscow ( $\tau_{50}$  in Moscow 160 days). (2) In the laboratory, aging in arc light yielded comparable results. A conversion factor K = solar radiation

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Problem of weather resistant ...

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B101/B147

hours/laboratory light hours = approximately 3.0 was found. The ratio  $\tau_{\text{Moscow, days}}/\tau_{\text{light hrs}}$  was 0.737,  $\tau_{\text{Fergana, days}}/\tau_{\text{light hrs}}$  was 0.421. (3) No comparable results were obtained with Hg lamps which cannot be used for age tests since the processes are completely different. (4) A 1.5% addition of carbon black to PE increases its light resistance: without carbon black  $\epsilon$  dropped from 400 to 50% after 300 hrs, with carbon black it dropped from 533 to 385%. (5) Reinforcement of PE with cotton fabric (percale type A (A)) also increased its service life:  $\tau_{50} = 600$  hrs. (6) Stabilizer additions to PE showed the following: with 2-hydroxy-4-octyl benzophenone:  $\tau_{50} = 252$  in Moscow; with phenol - styrene combination:  $\tau_{50} = 338$  in Moscow. (7) In PVC stabilized with lead silicate, brittle fracture occurred after 367 hrs in arc light. (8) Service life was increased to 954 hrs by lead stearate + 3A-5 (ED-5) epoxy resin owing to synergism. (9) Effect of stabilizers: PVC 230 had  $\tau_{100} = 1727.5$  hrs without stabilizer. Addition of diphenylol propane or 1,1-bis-(4-hydroxy-phenyl)-cyclohexane gave  $\tau_{100} = 2162$ . 2,2'-4,4'-tetra-

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Problem of weather resistant ...

S/191/62/000/003/007/010  
B101/B147

hydroxy sebacephenone ( $\tau_{100} = 2350$  hrs), 2,2'-4,4'-tetrahydroxy  
adipophenone ( $\tau_{100} = 2459$  hrs), and 2,2-bis-(3-methyl-4-hydroxy-phenyl)  
propane ( $\tau_{100} = 2715$  hrs) had the best effects. Z. V. Popova, Ye. N.  
Matveyeva, and A. S. Danyushevskiy prepared the specimens. There are  
8 figures, 3 tables, and 5 Soviet references.

Card 3/3

40207

15.8530

S/191/62/000/009/011/012  
B101/B144

AUTHORS: Antropova, N. I., Kuznetsova, I. B., Tatevos'yan, G. O.,  
Sharova, A. V.

TITLE: Surface treatment of the PK-4 (PK-4) film with stabilizing  
substances

PERIODICAL: Plasticheskiye massy, no. 9, 1962, 61 - 64

TEXT: In order to stabilize the PK-4 polycapromide film used in agriculture it was treated with potassium iodide, manganese chloride, copper sulfate, potassium bichromate,  $\beta$ -naphthol, benzophenone, resorcinol disalicylate, resorcinol dibenzoate, formalin, or tannin. The changes in the tensile strength  $\sigma$  and breaking elongation  $\epsilon$  were tested after artificial aging by ultraviolet (Hg lamps) or arc light, or after natural aging under atmospheric conditions in Moscow or Fergana. Potassium iodide,  $\beta$ -naphthol, benzophenone, potassium bichromate, and tannin showed a slight stabilizing effect against ultraviolet irradiation. The data got by irradiation with arc lamps were better comparable with those obtained by aging under atmospheric conditions than the data from Card 1/2

Surface treatment of the...

S/191/62/000/009/011/012  
H101/B144

ultraviolet irradiation. For  $\sigma$ , measured along the nonstabilized film and along the film stabilized by tannin, the following data were obtained respectively: nonirradiated 371, 452 kg/cm<sup>2</sup>, after 50 hr irradiation 393, 677; after 120 hr 500, 630; after 140 hr 316, 366 kg/cm<sup>2</sup>. The durability of films exposed to atmospheric effects was 3 months in Moscow and 2 months in Fergana. Treatment with 1% tannin solution reduced the thermo-oxidative destruction of the film at 200°C to 1/7 as compared with untreated film. Untreated film contained 11.7% products soluble in water, that treated with tannin only 3.3%. Treatment with tannin changes the optical properties of the PK-4 film. The maximum of light absorption, which is 250-310 m $\mu$  for untreated film, shifts towards 280-400 m $\mu$ . The useful life of the film is slightly increased by treatment with tannin and this also renders the film more frost-resistant. There are 2 figures and 4 tables. f

Card 2/2



KUZNETSOVA, I. I.

15.8200  
15.8530

Pa

140908

8/191/62/000/010/001/010  
B101/B106

15

AUTHORS:

Neiman, M. B., Kovarekaya, B. M., Levantovskaya, I. I., Dral-  
yuk, G. V., Kazikova, M. P., Sidorov, V. A., Kochetkov, V. N.  
Trossman, G. M., Tatevos'yan, G. O., Kuznetsova, I. B.

TITLE:

Stabilization of polyamide films for agriculture

PERIODICAL:

Plasticheskiye massy, no. 10, 1962, 6 - 8

TEXT:

Protection of polyamide films, type 54, as used in hothouses and  
alloy from effects of photo- and thermo-oxidation was tested by trying  
various additives under various test conditions. The following were added  
as ultraviolet light absorbers: 2-hydroxy-4-methoxy-benzophenone OMBP  
(OMBP) (I), 2-hydroxy-4-alkoxy-benzophenone (a mixture of benzophenones  
with various alkoxy groups of the type  $OC_7H_{15}$ ,  $OC_8H_{17}$ , or  $OC_9H_{19}$ ) (II), and  
2-hydroxy-5'-methyl-benzotriazole (Tinuvin) (III). As antioxidants, KI  
and copper naphthenate and organic stabilizers of the following type were  
used: 1) derivatives of aromatic amines; 2) phenol derivatives; 3) aromatic  
oxamines; 4) 2,6-ditert-butyl-4-methyl-phenyl-pyrocatechin phosphite (Ionol).  
Card 1/2

5  
S/191/62/000/010/001/010  
B101/B186

Stabilization of ...

Polyamide film blanks produced by condensation, namely hexamethylene adipate and  $\epsilon$ -caprolactam at 260°C in an N-atmosphere, were subjected to thermo- and photooxidative action. Light sources were carbon-arc and mercury-quartz lamps, type ПРК-2 (PRK-2). Temperature in the test chamber was  $70 \pm 2^\circ\text{C}$ . Thermooxidation measured by the drop in oxygen-pressure was eliminated most efficiently by the pyrocatechin esters and phenyl- $\beta$ -naphthyl-amine. It was found that stabilizers of the OMBF and Tuvin types act as antioxidants. Photooxidation experiments showed the following results: in most cases the elongation at rupture dropped even on initial exposure. After 200 hrs of exposure time, breaking tenacity of both stabilized and nonstabilized films fell by approximately 20 - 25%. Ageing time until embrittlement was determined. Without an inhibitor it began after 190 hrs of exposure to the light of an arc lamp. Optimum results were obtained with pyrocatechin esters (250 hrs), KI + copper naphthenate (260 hrs) and (Santovar) O ((2,6-di-tert-butyl-hydroquinone)) (240 hrs). Different action of the light from the arc lamps and the mercury lamps was explained by spectrum differences. Further field tests are recommended. There are 3 figures and 1 table.

Card 2/2

L1918

5830

S/191/62/000/011/014/019  
B101/B186

AUTHORS: Tatevos'yan, G. O., Losev, I. P., Kuznetsova, I. B.

TITLE: Chemical analysis of polyvinyl chloride plastics subjected to photoaging

PERIODICAL: Plasticheskiye massy, no. 11, 1962, 59-62

TEXT: Polyvinyl chloride plastics of the types 230, 239, 251, and 489 with a composition of 56-70% polyvinyl chloride, 21-33% liquid plasticizer, and about 10% stabilizer were irradiated at 70°C by carbon arc lamps (680-1000 hrs) or mercury vapor lamps (24-180 hrs). The changes in composition, tensile strength, and resistivity were studied. The composition was arrived at successive extractions with ether, acetone, benzene, and chloro benzene, by determining how much plasticizer remained in the plastic after irradiation, and by determining the chlorine content. Results: (1) The loss of plasticizer as referred to the total weight of plastic was 6-10% after irradiation by arc lamps, and 11-15% after irradiation by Hg vapor lamps. It is noted that determination of the weight loss alone leads to deviating data. (2) The chlorine content decreased, but on irradiating with Hg lamp this was masked by the intense loss of

Card 1/2

✓

Chemical analysis of polyvinyl ...

S/191/62/000/011/014/019  
B101/B186

plasticizer. (3) The resistivity of non-irradiated specimens was in the order of  $10^{12}$  ohm·cm, that of specimens irradiated by arc lamps in the order of  $10^{13}$ , and that of specimens irradiated with Hg light was

$10^{14}$  ohm·cm. (4) The tensile strength of non-irradiated specimens was 217-280 kg/cm<sup>2</sup>. Under arc lamp irradiation it dropped to 105-176 kg/cm<sup>2</sup>; under Hg light irradiation, it dropped at first, but then increased to 238-328 kg/cm<sup>2</sup>. Conclusions: Destruction processes prevail in arc lamp irradiation, and structuration processes in Hg light irradiation. Structuration processes increase the tensile strength and the resistivity, and accelerate the volatilization of the plasticizer since structurized PVC is no longer soluble in it. There are 5 tables. J

Card 2/2

8/191/63/000/002/013/019  
B101/B186

**AUTHORS:** Tatevos'yan, G. O., Kuznetsova, I. B.

**TITLE:** Long-time and alternating effects of water and moist air on plastics

**PERIODICAL:** Plasticheskiye massy, no. 2, 1963, 52-58

**TEXT:** With a view to uses of plastics in building and agriculture the following materials were tested for changes in physicomechanical and dielectric properties due to the effect of water and moisture: press-molded homogeneous thermoplastics such as styrene copolymers CHH (SNP), MC (MS), and MCH (MSN), polystyrene, polypropylene, polyamide 68, Butvar, ethyl cellulose etrol; molded powder-filled inhomogeneous thermosetting plastics based on phenol formaldehyde resins including such modified with rubber, PVC, or polyamide resin; monolithic phenol aldehyde plastics based on novolac resins with organic curing agent; thermosetting laminated plastics based on phenol furfural or polyester resins with glass fiber reinforcement. The tests covered the water adsorption at 20 or 40°C and the adsorption of moisture at 40°C during 1-56 days by weighing the moistened and dried

Card 1/2

Long-time and alternating ...

S/191/63/000/002/013/019  
B101/B186

specimens. The change in weight after five 24-hr. dippings into 20°C water and drying at 40°C was determined. Conclusions drawn from the tabulated data: (1) Permanent action of water or moisture produces the greatest changes of physicochemical and dielectric properties in thermosetting plastics, and the least in thermoplastics. The great changes in thermosetting plastics are due to capillary formations. (2) Among thermosetting plastics the highest water adsorption is reached by materials based on novolac phenol formaldehyde resins, the lowest by materials based on resol or novolac and resol resins modified by thermoplastics. (3) 20°C water changes the properties in the same way as 40°C air moisture, so the simpler 20°C water test is to be preferred. (4) Long-time action of water changes the properties more than alternate moistening and drying. (5) The tests can be used to estimate the utility of plastics under atmospheric influences and to help in their proper selection. There are 3 tables.

Card 2/2

S/191/63/000/003/016/022  
B101/B186

AUTHORS: Kuznetsova, I. B., Tatevos'yan, G. O.

TITLE: Standard method for testing the weather- and lightproofness of plastics

PERIODICAL: Plasticheskiye massy, no. 3, 1963, 54-59

TEXT: In 1963, the ГОСТ no. 10226-62 (OOST no. 10226-62) standard published in Standartizatsiya, no. 3, 1962, was introduced in the USSR to standardize the testing of weatherproofness and lightproofness plastics. Some explanations and recommendations for applying this standard are given. Weatherproofness is tested in various climatic regions. The specimens are mounted on frames fixed at an angle of 45° facing the south. Two of these frame constructions are described. Equipment such as heliograph, Yanishovski pyranometer, ombrometer, thermometer, psychrometer, and anemometer is recommended for special meteorological stations in cases where no regular reports are obtainable from a state meteorological station. Calibration of the pyranometer according to the actinometer data from a State meteorological station is briefly described. The laboratory conditions, the Card 1/2

Standard method for testing ...

S/191/63/000/003/016/022  
B101/B186

АНТСТ-2-4-2 (AIPST-2-4-2) apparatus is used. It consists of a case mounted on a rotating holder, for testing the samples in horizontal or vertical position, two carbon-arc lamps, four mercury-vapor lamps, two fans to maintain a temperature of 20-90°C, a moistening apparatus, and signaling system which indicates irregularities or when the rotating cases stop or a lamp fails, etc. Measurement of the light intensity with the Yanishevskiy pyranometer is described. There are 3 figures and 3 tables. ✓

Card 2/2



TATEVOS'YAN, G.O.; KUZNETSOVA, I.B.; LAMINA, R.A.

Aging of polystyrene under the effect of ultraviolet light.

Plast. massy no.8:66-67 '63.

(MIRA 16:8)

(Styrene polymers)

(Ultraviolet rays)

L 18953-63  
RM/WW/MAY

EPR/EWP(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD Pa-L/Po-L/Pr-L

ACCESSION NR: AP3006531 S/0191/63/000/009/0010/0012

AUTHORS: Tatevos'yan, G. O.; Losev, I. P. (Deceased); 13  
Kuznetsova, I. B.

TITLE: The effect of plasticizer<sup>15</sup> upon light aging of vinyl blend.

SOURCE: Plasticheskiye massy\*, no. 9, 1963, 10-12.

TOPIC TAGS: polyvinylchloride, vinyl blend, light aging, plastics, plasticizer.

ABSTRACT: Authors showed that the aging<sup>15</sup> process of a plasticizer does not increase its specific gravity, but increases its acidity, which indicates a decrease of the specific volume of electrical resistance. The resistance of polyvinylchloride plasticizer to the effects of light energy is primarily determined by aging which takes place in the polyvinylchloride resin.<sup>15</sup> As a result of this aging, the mutual solubility in the resin and plasticizer changes.

Card 1/2

L 18953-63

ACCESSION NR: AP3006531

The observed continuous change of plasticizer quantity in the aging process of vinyl blend by light did not show a decisive effect upon the stability. Orig. art. has: 3 tables. 0

ASSOCIATION: none.

SUBMITTED: 00

DATE ACQ: 30Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 002

OTHER: 001

Card 2/2

ACCESSION NR: AP4045022

S/0191/64/000/009/0032/0037

AUTHOR: Kuznetsova, I. B., Tatevos'yan, G. O.

TITLE: Change in the properties of polyamide film under the influence of light

SOURCE: *Plasticheskiye massy\**, no. 9, 1964, 32-37

TOPIC TAGS: polyamide, light, aging, spectroscopy, tensile strength, elongation, light absorption, polyamide film, film PK-4

ABSTRACT: The changes in the properties of polyamide film PK-4 during aging under atmospheric and laboratory conditions were studied by spectroscopy under the separate or combined influence of artificial changes in climate. A colorless unstabilized PK-4 film was used as the test sample, with an elongation at break  $\epsilon_0 = 292\%$  and maximum tensile strength  $\sigma_0 = 388 \text{ kgs/cm}^2$ . The test sample was subjected to atmospheric aging on a laboratory apparatus, to atmospheric aging in suspension, excluding direct solar radiation, to artificial aging at 70C under artificial light (500W incandescent lamp, arc and mercury lamps), and finally to aging under the influence of moisture with arc and mercury lamps. The following characteristics were determined: yellowing factor, % maximum tensile strength ( $\sigma$ ); relative elongation at break ( $\epsilon$ , %) for 80-mm-long and

Card 1/3

ACCESSION NR: AP4045022

8-mm-wide strips; the monomer content, by extraction with boiling water for 15 hours; the molecular weight, from the viscosity of a 0.1% solution in 40%  $H_2SO_4$  at room temperature; and the ultraviolet and infrared absorption spectra. The experimental data are plotted.  $\xi$ -t and  $\zeta$ -t curves show that variations in relative humidity and atmospheric drying greatly affect the properties. The process of thermal aging proceeds relatively slowly, however. At a temperature of 45-48C in visible light, the change in properties can be attributed to light aging. Yellowing of the film appeared after 145 and 75 hours of irradiation at intensities of 0.442 and 0.866 cal/cm<sup>2</sup> min., respectively. The mol. weight dropped from 23,500 to 19330-19062. Visible light together with atmospheric oxygen affect the polyamide film markedly causing its destruction. In samples kept in distilled water until the weight changed,  $\xi$  increased to 365%, and  $\zeta$  decreased to 267 kgs/cm<sup>2</sup>; in dried samples the opposite occurred. In addition to moisture, the monomer content also affects the film properties. The effect of heat under light from incandescent and mercury-quartz lamps was also studied. The combined effect of heat, moisture and light was investigated, and analytical data for monomer content and oxygen content are tabulated. The absorption of light by the film before and after aging under different conditions was investigated and the changes in light transmission in the ultraviolet and infrared regions of the spectrum during aging are discussed in detail. Under the influence

2/3

Card

ACCESSION NR: AP4045022

of heat and visible light, the absorption in the region 250-290  $\mu$  increased rapidly; later it increased less rapidly in the range 290-680  $\mu$ . During aging under atmospheric conditions, the general light absorption decreased in all regions of the spectrum. It is important that the light absorption is smaller after aging in all cases, especially marked changes being found in the regions 800-900, 1800-2800, and 3600-4000  $\text{cm}^{-1}$ . Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, *PP*

NO REF SOV: 021

OTHER: 015

Card

3/3

**"APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000928220005-3**

**APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000928220005-3"**





KUZNETSOVA, I.D.

ROSENTHRAUKH, L.S., kand.med.nauk; KUZNETSOVA, I.D., kand.med.nauk;  
MALINOVSKAYA, T.N.

Controlled bronchography with sufoiodol [with summary in English].  
Vest.oto-rin. 19 no.3:100-103 My-Je '57. (MIRA 10:10)

1. Iz kafedry rentgenologii (zav. - prof. Yu.N.Skolov) Tsentral'-  
nogo instituta usovershenstvovaniya vrachev.

(BRONCHI, radiography

contrast medium, iodized poppy seed oil)

(CONTRAST MEDIA

iodized poppy seed oil in bronchography)

KUZNETSOVA, I.F.; FALKINA, D.A.; ANOKHINA, K.P., red.; KREMENETSKAYA,  
A.V., red.; EL'BERT, O.A., red.

[Scientific and technological information in the U.S.S.R.  
and abroad; a bibliographic index to the literature  
published in 1960 and 1961] Nauchno-tekhnicheskaya informa-  
tsiia za 1960-1961 gg. Moskva, 1962. 215 p. (MIRA 16:10)

1. Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy in-  
formatsii.

(Bibliography--Science) (Bibliography--Technology)

KUZNETSOVA, I.I.

Thiodiphenylamine is not toxic to fishes of the Volga delta. Med. paras. i  
paras. bol. no. 6:563 H-D '53. (MLRA 6:12)

1. Iz Kaspiyskogo basseynovogo filiala Vsesoyuznogo nauchno-issledovatel'-  
skogo instituta morskogo rybnogo khozyaystva i okeanografii.  
(Thiodiphenylamine) (Volga--Fishes) (Fishes--Volga)

KUZNETSOVA, I.I.; KHLATINA, Ye.S., red.; GOTLIB, E.M., tekhn.red.

[Breeding pike perch on spawning and rearing farms in the  
Volga Delta] Razvedenie sudaka v nerestovo-vyrastnykh  
khoziaistvakh del'ty Volgi. Moskva, Pishchepromizdat, 1955.  
16 p.

(MIRA 12:3)

(Volga Delta--Perch)

*КУЗНЕЦОВА, И.И.*  
KUZNETSOVA, I.I.; kand.biologicheskikh nauk.

Elements of gas exchange in young bream on fish spawning and rearing farms of the Volga Delta. Trudy VNIRO 32:76-91 '56.

(Volga Delta--Bream)  
(Respiration)

(MIRA 10:10)

KUZNETSOVA, I.I., kand.biol.nauk

Elements of gas exchange during early developmental stages of bream,  
wild carp and pike perch. Trudy sov.Ikht.kom.no.8:346-358 '58.

(MIRA 11:11)

1. Kaspiyskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta  
morskogo rybnogo khozyaystva i okeanografii.  
(Respiration) (Carp) (Perch)

~~SECRET~~ ~~TOP SECRET~~ ~~VII~~ ~~II~~

AUTHOR: Kuznetsova, I.I., Candidate of Biological Sciences 26-58-6-30/56

TITLE: A "Chemical Theory" of Fish Migration ("Khimicheskaya teoriya" migratsii ryb)

PERIODICAL: Priroda, 1958, <sup>47</sup>Nr 6, p 102-104 (USSR)

ABSTRACT: The author reports on the spawning habits of two Volga fish varieties: the sazan (carp) and the vobla (roach). They invariably choose recently inundated plots for spawning, but avoid places that have been covered by water over longer periods, to protect the spawn from enemies and to furnish the young fish with sufficient food. Hydrochemical observations have proved that the chemical composition of inundated plot water standing longer than five days, differs considerably from water of recent inundation, which shows an important increase especially of chlorine in the first few days of inundation. Hence it must be assumed that the above-mentioned fish are being guided by a "chemical scent". There is 1 diagram, 1 table and 1 Soviet reference.

Card 1/2

A "Chemical Theory" of Fish Migration

26-58-6-30/56

ASSOCIATION: Kaspiyskiy nauchno-issledovatel'skiy institut rybnogo  
khozyaystva i okeanografii (Astrakhan')  
(Caspian Scientific Research Institute of Fishery and Oceano-  
graphy - Astrakhan')

Card 2/2

1. Fishes-Migration-Chemical theory



KUZNETSOVA, I.I.

Survival increase in the progeny of carp (*Cyprinus carpio* L.).  
Zoci. zhur. 41 no.9:1367-1373 S '62. (MIRA 15:11)

1. Volgograd Branch of the State Research Institute of Lake and  
River Fishery Management.

(Fish culture)

KUZNETSOVA, I.I.

Increasing the productivity of fishponds by regulating the water regime and timing the reproduction of fishes. Vop. ekol. 5:112 '62.  
(MIRA 16:6)

1. Volgogradskogo otdeleniye Gosudarstvennogo nauchno-issledovatel'skogo instituta ozer'nogo i rechnogo rybnogo khozyaystva.  
(Tsimlyansk Reservoir region--Fish culture)

ACC NR: AP7002603

(A, N)

SOURCE CODE: UR/0413/66/000/023/0110/0110

INVENTORS: Agayev, A. I.; Kol'chenko, A. V.; Malkin, B. D.; Kuznetsova, I. I.;  
Nikitin, G. M.; Gusman, M. T.

ORG: none

TITLE: A stepped rolling axle support. Class 47, No. 189254

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 110

TOPIC TAGS: antifriction bearing, ball bearing, bearing race

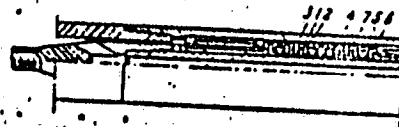
ABSTRACT: This Author Certificate presents a stepped rolling axle support containing thrust roller bearings, spacing collars, and an annular elastic element (see Fig. 1). To eliminate loose axle holes and to increase the efficiency under dynamic loads, the ball bearings of the support are placed in two rows, with the balls running between the outside flanges and the internal flange. The annular elastic element is mounted on each side of each ball bearing at a small distance from a spacing ring. A split bushing is placed between the inner flanges of the corresponding ball bearings.

Card 1/2

UDC: 621.822.3

ACC NR: AP7002603

Fig. 1. 1 - balls; 2 - outside flange;  
3 - inner flange; 4 - annular  
elastic element; 5 - space;  
6 - spacing ring; 7 - split  
bushing



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 05Mar66

Card 2/2

NIKITINA, Ye.I.; BERZINA, A.P.; KUZNETSOVA, I.K.; SOTNIKOV, V.I.

Svanbergite in the Gornyy Altai. Dokl. AN SSSR 149 no.4:942-944  
Ap '63. (MIRA 16:3)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR.  
Predstavleno akademikom V.S.Sobolevym.  
(Altai Mountains--Svanbergite)

АВТОРЕ/СОВА, И.К.

**AUTHOR:** Sheynker, Yu.N., Kuznetsova, I.K. 76-12-8/27

**TITLE:** On the Tautomerism of Some Derivates of Heterocyclic Compounds  
(O tautomerii nekotorykh proizvodnykh geterotsiklicheskikh soyedineniy). V. Spectra and Structure of Some Sulfanylamides  
(V. Spektry i stroeniye nekotorykh sul'fanilamidov)

**PERIODICAL:** Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 12, pp.2656-2662 (USSR)

**ABSTRACT:** Reference is made to the preceding paper [Ref. 1] , and by means of infrared, and, in individual cases, also of ultraviolet spectra, the structure of 2-sulfanylamides of pyridine and of pyrimidine, as well as of some sulfanylamides of the alicyclic series (which are used as medical preparations) is investigated. The measuring method has already been described in previous works. From the data obtained it follows that in the pyridine and pyrimidine series, which have 2-sulfanylamides in the crystalline state, have an imido structure (I), (II), and are derivatives of 2-pyridomine and 2-pyrimidonine. As in cases investigated previously, this is due to the strong acidifying influence exercised by the SO<sub>2</sub> group on the amide group NH. Consequently, the ratio of the basic properties of the nitrogen atom outside the ring, and that of the nitrogen atom within the ring, changes in favor of the latter. It is shown that in the aqueous

Card 1/3

On the Tautomerism of Some Derivates of Heterocyclic  
Compounds. V. Spectra and Structure of Some Sulfanylamides

76-12-8/27

solutions the 2-sulfanylamidopyridin shows essentially an imido structure, whereas in alcohol solutions, besides the imido-form, also the amido-form is contained in substantial quantities. The latter form prevails in dioxan solutions and the content of the amido-form can be evaluated by 99%. In the case of the sulfanylamides of the pyridin, a tautomeric system is concerned, which is very close to the state of equilibrium. Further it is shown that the sulfanylamides of the alicyclic series (sulfanyliacetamid, sulfanylurea (urosulfan)), both in crystalline state, as well as in solutions, have an amido-structure. The latter because they keep the same strip-systems in infrared spectra of such solutions (alcohol, dioxan), and especially the carbonyl-strips ( $1700\text{ cm}^{-1}$ ) under the conditions prevailing here. Consequently, the acid-properties of the NH-group, in spite of the strong acidifying effect of the sulfanyl-group do not increase to such an extent that the amid forms (V) and (VI) become more acidiferous than the imido-forms (VII) and (VIII). The obtained data correspond to the conceptions of the acid-basic character of the amido-imido tautomeric equilibrium. It is finally shown

Card 2/3

On the Tautomerism of Some Derivates of Heterocyclic  
Compounds. V. Spectra and Structure of Some Sulfanylamides

76-12-8/27

that the bacteriostatic activity of the sulfanylamid-preparations cannot be correlated with the imido-structure of their molecules. There are 5 figures, and 8 references, 3 of which are Slavic.

ASSOCIATION: All-Union Scientific Chemical-Pharmaceutical Research  
Institute imeni S. Ordzhonikidze, Moscow (Vsesoyuznyy nauchno-  
issledovatel'skiy Khimiko-farmatsevticheskiy institut im.  
S. Ordzhonikidze, Moskva).

SUBMITTED: July 21, 1956

AVAILABLE: Library of Congress

Card 3/3



26401  
S/062/61/000/008/005/010  
B117/B206

53700

AUTHORS: Andrianov, K. A., and Kuznetsova, I. K.  
TITLE: The reactions of chloromethyl methylalkoxysilanes with sodium salts of diethyl phosphoric and dimethyl phosphinic acids  
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 8, 1961, 1454-1456

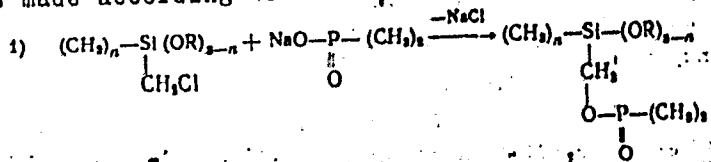
TEXT: The authors investigated the substitution of chlorine in  $\alpha$ -chloro-methyl-alkoxy-silanes by dialkyl phosphoric- and phosphinic acid rests. The sodium salt of diethyl phosphate was prepared according to the method described in Ref. 3 (Canad. J. Chem. 34, 1819 (1956)) and carefully dried in a vacuum exsicator over phosphorus pentoxide. The sodium salt of phosphinic acid was produced in the usual way by neutralization of dimethyl phosphinic acid in absolute alcohol, dried in a drying chamber for several hours at 120° to 130°C and stored in the vacuum exsicator over P<sub>2</sub>O<sub>5</sub>. The experiments were made in a three-necked flask with mixer and

Card 1/4

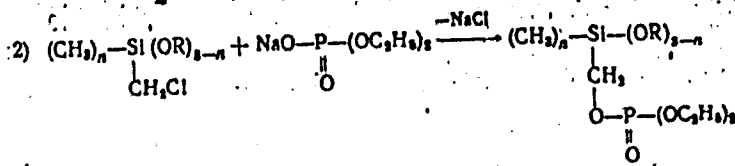
26401  
S/062/61/000/008/005/010  
B117/B206

The reactions of chloromethyl...

sealing, recoler with calcium chloride tube and thermometer. The experiments showed that chlorine in  $\alpha$ -chloromethyl alkoxysilanes easily reacts with the sodium salts mentioned. Organic compounds containing Si and P with an Si-C-O-P bond are formed thereby, containing simultaneously functional groups at the silicon atom. The synthesis of the compounds mentioned was made according to



and



where  $R=C_2H_5$ ;  $Si \cdot (CH_3)_2$ ,  $n=1,2$ . The yield of the products showed that the

Card 2/4

The reactions of chloromethyl...

26101  
S/062/61/000/008/005/010  
B117/B206

salt of dimethyl phosphinic acid reacts more easily. New organic compounds containing Si and P were obtained as results of the reactions carried out: methyldiethoxysilyl methylester of dimethyl phosphinic acid (I); dimethyl ethoxysilyl methylester of dimethyl phosphinic acid (II); methyldiethoxysilyl methylester of diethyl phosphinic acid (III); dimethyl ethoxysilyl methylester of diethyl phosphoric acid (IV); tetramethylsiloxy-1,2-disilyl methylester of dimethyl phosphinic acid (V). The properties of these compounds are comprised in the Table. There are 1 table and 3 non-Soviet references. The three references to English-language publications read as follows: A. Canavan, C. Eatorn, J. Chem. Soc. 1959, 3751; W. Garden, N. Thompson, Angl. pat. 815231; 24, 06, 1959; R. McIvor, C. McCarthy, C. Grant, Canad. J. Chem. 34, 1819 (1959).

ASSOCIATION: Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds, AS USSR)

SUBMITTED: October 12, 1960

Card 3/4

28272 S/062/61/000/010/007/018  
B117/B101

53700  
 AUTHORS: Andrianov, K. A., and Kuznetsova, I. K.  
 TITLE: Reaction of trialkyl(aryl)hydroxy silanes with methyl ethoxy silyl methyl esters of dimethyl phosphinic acid  
 PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1961, 1792 - 1794

TEXT: The authors investigated the substitution of the alkoxy group by dimethyl phosphinic acid radicals as the end groups on various organo-silicon compounds. It was found that by heating dimethyl ethoxy silyl methyl ester of dimethyl phosphinic acid with triethyl hydroxy silane at a ratio of 1:1, ethyl alcohol was separated at 140° - 150°C and 1-triethyl-3-dimethyl disiloxane methyl ester of dimethyl phosphinic acid was formed in 60% yield. From the reaction of dimethyl ethoxy silyl methyl ester of dimethyl phosphinic acid with dimethyl phenyl hydroxy silane or with methyl diphenyl hydroxy silane, 1-dimethyl phenyl-3-dimethyl disiloxane methyl ester of dimethyl phosphinic acid and 1-methyl diphenyl-3-dimethyl disiloxane methyl ester of dimethyl phosphinic acid, respectively, were obtained.

Card 1/4

28272 S/062/61/000/010/007/018  
B117/B101

Reaction of trialkyl...

Not only one but two ethoxy groups are substituted on the silicon atom. Thus, from the reaction of dimethyl phenyl hydroxy silane with methyl diethoxy silyl methyl ester of dimethyl phosphinic acid at a ratio of 2:1, 1,5-dimethyl phenyl-3-methyl trisiloxane methyl ester of dimethyl phosphinic acid was obtained. Similar reactions were conducted with triethyl- and dimethyl diphenyl hydroxy silanes. All reactions were conducted without a catalyst. The dimethyl phenyl hydroxy silane and methyl diphenyl hydroxy silane used were produced by the method of K. A. Andrianov and N. Delazari (Ref. 3; Dokl. AN SSSR 122, 3, 393 (1958)), and dimethyl ethoxy silyl methyl ester and methyl diethoxy silyl methyl ester of dimethyl phosphinic acid by the authors' method described in Ref. 4 (Izv. AN SSSR, Otd. khim. n. 1961, 1454). Ethyl alcohol produced during the reaction was distilled off and identified on the basis of boiling temperature and refractive index. Reactions conducted yielded compounds not yet described with 2 or 3 silicon atoms containing a dimethyl phosphinic group. The compounds obtained are colorless liquids readily soluble in organic solvents and may be distilled in vacuum. Their properties are listed in the table. There are 1 table and 4 references: 2 Soviet and 2 non-Soviet.

Card 2/4

Reaction of trialkyl...

28272 S/062/61/000/010/007/018  
B117/B101

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk  
SSSR (Institute of Elemental Organic Compounds of the  
Academy of Sciences USSR)

SUBMITTED: April 6, 1961

Legend to the Table: (1) number; (2) structural formula; (3) boiling  
point, °C (p mm Hg); (4) found; (5) calculated.

X

Card 3/4

15.8170

28670  
S/020/61/140/002/015/023  
B103/B101

AUTHORS: Andrianov, K. A., Corresponding Member AS USSR, Kurasheva, N. A., Kuznetsova, I. K., and Gerkhardt, E. I.

TITLE: Synthesis of polymers of regular structure of the polydimethylsiloxane series

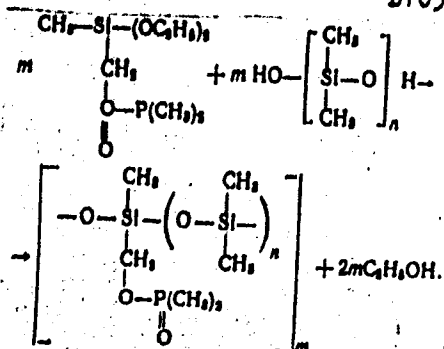
PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 2, 1961, 365-367

TEXT: The polycondensation of the methyl-diethoxy silyl-methyl ester of dimethyl phosphinic acid (I) with various  $\alpha,\omega$ -dihydroxy-dimethyl siloxanes (II) was studied. The distance between the dimethyl phosphine groups (DMP) could be varied by using II with different numbers of dimethylsiloxane links between the OH groups. The DMP groups were evenly distributed along the molecule chain. II was synthesized by the reaction applied for diphenyl silanediol (Ref. 3, see below). Its data are presented in Table 1. II react with I at 170°C without a catalyst in the following way:

Card 1/3

Synthesis of polymers of regular ...

28670  
 8/020/61/140/002/015/023  
 B103/B101



The end point of the reaction was determined from the quantity of liberated ethanol. It was 76.5% of the theoretical amount at a degree of polymerization  $n = 9$ , and 73% at  $n = 13$ . At  $n = 53$ , the reaction was considered to be completed when a constant viscosity was attained. The molecular weights of the polymers obtained, determined by the viscosimetric method, were 2190, 7250, and 31,620. The vitrification temperatures of all these polymers was low:  $-110^\circ\text{C}$ ;  $-130^\circ\text{C}$ . A slight increase of the vitrification

Card 2/4

28670

S/020/61/140/002/015/023  
B103/B101

Synthesis of polymers of regular ...

temperature was obtained by reducing the distance between the DMP groups. The low vitrification temperatures of polymers with polar DMP groups in their chains are explained by the fact that the DMP groups which are large as compared with the  $\text{CH}_2$  groups, reduce the packing density of the molecule chain. There are 1 table and 3 references: 2 Soviet and 1 non-Soviet. The reference to English-language publication reads as follows: Ref. 3: Foshio Takiguchi, Bull. Chem. Soc. Japan, 32, no. 6, 665 (1959).

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: May 17, 1961

Table 1.

Legend: (1) substance; (2) yield; (3) molecular weight; (4) calculated; (5) found.

Card 3/4



35593  
S/062/62/000/003/009/014  
B117/B14415.8170  
AUTHORS:Andrianov, K. A., and Kuznetsova, I. K.

TITLE:

Substitution of chlorine in  $\alpha$ -chloromethyl-methylalkoxy silanes by residues of diethyl-, dibutyl-dithiophosphoric- and diphenyl-dithiophosphinic acids

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1962, 456-460

TEXT: The substitution of chlorine in  $\alpha$ -chloromethyl-methylethoxy silanes by residues of dialkyl-dithiophosphoric- and diphenyl-dithiophosphinic acids was studied. Heating of  $\alpha$ -chloromethyl-dimethylethoxysilane with potassium salt of diethyl-dithiophosphoric acid for 8-10 hrs at 130-135°C produced only a 30 % yield of diethyl-dithiophosphoric dimethylethoxysilyl-methyl ester (I). It was possible to increase its yield to 94 % after 3-4 hrs by adding catalytic amounts of diethyl aniline. Compound (II) was obtained in a similar way with a yield of 80 %. Reactions of potassium salts of dibutyl-dithiophosphoric- and diphenyl-dithiophosphinic acids with  $\alpha$ -chloromethyl-dimethylethoxy silane and  $\alpha$ -chloromethyl-

Card 1/3

S/062/62/000/003/009/014  
B117/B144

Substitution of chlorine in...

methyldiethoxy silane in the presence of diethyl aniline also produced almost quantitative yields (90 %) of dimethylethoxysilyl- and methyl-dithioxysilylmethyl esters of the corresponding acids (III), (IV), (V) and (VI). Tetramethylsiloxy-1,3-disilylmethyl ester of diethyl-dithiophosphoric acid (VII), of dibutyl-dithiophosphoric acid (VIII) (yield 65 %) and of diphenyl-dithiophosphinic acid (IX) (yield 85 %) were obtained from reactions with 1,3-bis-chloromethyltetramethyl disiloxane in the presence of catalytic diethyl aniline amounts. The catalytic effect of diethyl aniline is probably connected with its participating in the formation of a transition complex with  $\alpha$ -chloromethyl-methylethoxy silanes. Owing to ionization of the C - Cl bond, this favors the mobility of chlorine in the chloromethyl group. The properties of the products obtained are listed in a table. There are 1 table and 1 Soviet reference.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: October 16, 1961

Card 2/3

Substitution of chlorine in...

S/062/62/000/003/009/014  
B117/B144

Legend to the Table:

- (1) Number of the compound;
- (2) Formula;
- (3) Boiling point °C (p mm Hg);
- (4) Molecular refraction; (5) found; (6) calculated;
- \*) Temperatures of the bath.

Номер соединения	Формула (2)	Т. кип. °C (р. мм рт. ст.) (3)	20 n <sub>D</sub> <sup>20</sup>	20 d <sub>4</sub> <sup>20</sup>	Молекулярная рефракция (4)	
					найденная	вычисленная
I	(CH <sub>3</sub> ) <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O)Si-CH <sub>2</sub> SP(S)(OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	126 (1)	1,4863	1,0715	81,1	81,36
II	CH <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O) <sub>2</sub> SiCH <sub>2</sub> SP(S)(OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	150-160 (6)	1,4815	1,0919	86,76	86,75
III	(CH <sub>3</sub> ) <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O)-SiCH <sub>2</sub> SP(S)(OC <sub>2</sub> H <sub>5</sub> -n) <sub>2</sub>	166-168 (2-3)	1,4821	1,0267	90,82	90,81
IV	CH <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O) <sub>2</sub> SiCH <sub>2</sub> SP(S)(OC <sub>2</sub> H <sub>5</sub> -n) <sub>2</sub>	170-171 (2)	1,4770	0,0514	104,0	105,3
V	(CH <sub>3</sub> ) <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O)SiCH <sub>2</sub> -S-P(S)(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	210-220 (1-10 <sup>3</sup> )*	1,6056	1,1481	110,1	109,4
VI	CH <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O) <sub>2</sub> SiCH <sub>2</sub> SP(S)(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	230-235 (1-10 <sup>3</sup> )*	1,5848	1,1545	115,1	114,82
VII	(CH <sub>3</sub> ) <sub>2</sub> -Si-O-Si-(CH <sub>3</sub> ) <sub>2</sub>   CH <sub>2</sub>   CH <sub>2</sub>     CH <sub>2</sub>   CH <sub>2</sub>   (C <sub>2</sub> H <sub>5</sub> O)P(S)-S   S-P(S)(OC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	100 (1-10 <sup>3</sup> )*	1,4915	1,1134	138,4	139,2
VIII	(CH <sub>3</sub> ) <sub>2</sub> -Si-O-Si(CH <sub>3</sub> ) <sub>2</sub>   CH <sub>2</sub>   CH <sub>2</sub>     S   S     S   S   2(n-C <sub>4</sub> H <sub>9</sub> O)P(S)   P(S)(OC <sub>2</sub> H <sub>5</sub> -n) <sub>2</sub>	200-204 (1-10 <sup>3</sup> )*	1,4906	1,0753	176,1	176,42
IX	(CH <sub>3</sub> ) <sub>2</sub> -Si-O-Si-(CH <sub>3</sub> ) <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> (S)PSCH <sub>2</sub>   CH <sub>2</sub> -S-P(S)(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	Т. пл. 126-127	-	-	-	-

Card 3/3

ANDRIANOV, K.A.; DABAGOVA, A.K.; KUZNETSOVA, I.K.

Synthesis of unsaturated phosphoroorganosilicon compounds of the  
siloxane series. Izv. AN SSSR. Otd. khim. nauk no. 9:1664-1666 S '62.  
(MIRA 15:10)

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

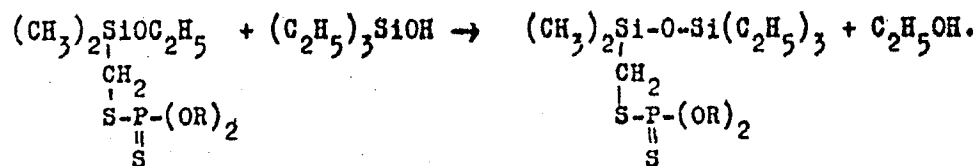
S/062/63/000/003/008/018  
B101/B186

AUTHORS: Andrianov, K. A., Kuznetsova, I. K., and Pakhomova, I.

TITLE: Reaction of methyl-ethoxy-silyl-methyl esters of dialkyl-dithio-phosphoric acids with triethyl-hydroxy-silane

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1963, 500 - 502

TEXT: The authors studied the reaction



In the case of R = C<sub>2</sub>H<sub>5</sub>, after heating at 140 - 150°C the dimethyl-ethoxy-silyl-methyl ester of the diethyl-dithio-phosphoric acid was obtained, yield 50 %, b.p. 153°C/2 mm Hg, n<sub>D</sub><sup>20</sup> = 1.4818, d<sub>4</sub><sup>20</sup> = 1.029. With Card 1/2

Reaction of methyl-ethoxy- ...

S/062/63/000/003/008/018  
B101/B186

R = C<sub>4</sub>H<sub>9</sub> the corresponding ester of the dibutyl-dithio-phosphoric acid was obtained in 40 % yield, b.p. 150°C/1.10 mm Hg, n<sub>D</sub><sup>20</sup> = 1.4769, d<sub>4</sub><sup>20</sup> = 0.9947. The structure of these compounds was identified by their synthesis from 1-triethyl-3-chloro-methyl-dimethyl-disiloxane and potassium diethyl-dithio-phosphate.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: May 29, 1962

Card 2/2

MASTRYUKOVA, T.A.; SHEYNKER, Yu.N.; KUZNETSOVA I.K.; PERESLENI, Ye.M.;  
SAKHAROVA, T.B.; KABACHNIK, M.I.

Hammett equation in the theory of tautomeric equilibrium. Part  
2: Tautomerism of  $\alpha$ -arylsulfaminopyridines. Potentiometric study.  
~~Zhuravskii~~. 33 no.10:3328-3335 0 '63.

Hammett equation in the theory of tautomeric equilibrium.  
Part 2: Tautomerism of  $\alpha$ -arylsulfaminopyridines. Spectro-  
photometric study. 3336-3342 (MIRA 16:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i In-  
stitut khimii prirodnikh soyedineniy AN SSSR.

ACCESSION NR: AP4025009

S/0062/64/000/003/0454/0457

AUTHOR: Andrianov, K. A.; Kuznetsova, I. K.; Yermakova, M. N.

TITLE: Polydimethylsiloxanes containing tris(trimethylsiloxy) and dimethylphosphinoxy terminal groups

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 454-457

TOPIC TAGS: liquid polydimethylsiloxane, terminal polymer group, tris(trimethylsiloxy) group, dimethylphosphinoxy group, viscous flow activation energy, polymer viscosity, polydimethylsiloxane viscosity, condensation synthesis, polymer synthesis, polymer molecule number

ABSTRACT: New liquid polydimethylsiloxanes containing the above terminal groups were synthesized by condensation of  $\alpha, \omega$ -dihydroxydimethylsiloxanes with the dimethylethoxysilylmethyl ester of dimethylphosphinic acid or tris(trimethylsiloxy) ethoxysilane, and some of their properties (molecular weight, glass-forming temperature, activation energy) studied. The reaction formula is

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ACCESSION NR: AP4025009

presented and properties tabulated. In the end products,  $n$ , denoting the number of polymer molecules, was equal to 9, 13, 42, 45, 75 and 120. Viscosity in the 20-120C range was higher in polymers with terminal tris (trimethylsiloxy) groups than in those with the dimethylphosphinoxy group for the same degree of polymerization. The logarithm of viscosity, inversely dependent upon temperature, is also figured. The activation energy of viscous flow, calculated according to experimental data in the range studied, decreased upon increasing the distance between the terminal groups, which may point towards a comparatively great influence of these groups, as against that of the dimethylsiloxane groups of the backbone. The synthesis is described. Orig. art. has: 2 formulas, 2 tables and 4 figures.

ASSOCIATION: Institut elementoorganicheskikh soedinennyi Akademii nauk SSSR  
(Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

SUBMITTED: 10Oct62

DATE ACQ: 17Apr64

ENCL: 01

SUB CODE: CH

NO REF SOV: 005

OTHER: 001

Card 2/3





ACCESSION NR. AP4033386

8/0062/64/000/004/0651/0656

AUTHOR: Andrianov, K. A.; Kuznetsova, I. K.

TITLE: Synthesis of certain phosphorus-containing organotitanium compounds

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 4, 1964, 651-656

TOPIC TAGS: polymers, heat-resistant polymers, organotitanium polymers, phosphorus containing organotitanium polymers, dimethylphosphinobutyrxytitanium, polymers with Ti-O-T backbone, polymer with Ti-O-P backbone .

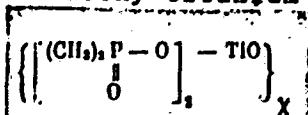
ABSTRACT: Polymers with Ti-O-Ti backbones and pendant dimethylphosphonate groups and polymers with Ti-O-P backbones with pendant alkoxy and methyl groups have been synthesized for the first time. Monomers with Ti-O-P backbones and functional groups linked with the titanium atom—dimethylphosphinobutoxytitaniums—of the type

Card 1/4

ACCESSION NR. AP4033386

$$\left[ \begin{array}{c} (\text{CH}_3)_2\text{P}-\text{O}- \\ || \\ \text{O} \end{array} \right]_n - \text{Ti}-(\text{OC}_4\text{H}_9)_{4-n}, \text{ where } n=2, 3, \text{ or } 4, \text{ were synthesized}$$

by condensation at 140-150C of dimethylphosphinic acid with tetrabutoxytitanium, taken in the ratios 2:1, 3:1, 4:1. Hydrolysis of bis(dimethylphosphinato) dibutoxy-titanium yielded a powderlike polymer



(polymer I) which is insoluble in water and the usual organic solvents and has a melting point of 455-460C (thermomechanical curves 1 and 2 in Fig. 1 of the enclosure). Reactions of bis(dimethylphosphinato) dibutoxytitanium with triethyl- or methylphenylsilanol, or of bis(triethylsiloxy)dibutoxytitanium with dimethylphosphinic acid yielded solid products with a melting point (thermomechanical curves 3 and 4 in Fig. 1) and other properties similar to those of polymer I. Hetero-functional condensation of tetrabutoxytitanium with methylphosphinic

Card 2/4

ACCESSION NR. AP4033386 1

chloride yielded a resinlike polymer with Ti-O-P backbone and pendant butoxy- and methyl groups. Orig. art. has: 2 figures.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR  
(Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 27Sep62

DATE ACQ: 15May64

ENCL: 01

SUB CODE: CH

NO. REF. SOV: 002

OTHER: 002

Card 3/4

- (3/2) -