

GORSHKOV, Georgiy Petrovich, prof; YAKUSHOVA, Aleksandra Fedorovna,
prof.; BELYAKOVA, Ye.V., red.; LAZAREVA, L.V., tekhn. red.

[General geology] Obshchaya geologiya. Izd.2. Moskva, Izd-vo
Mosk. univ., 1962. 563 p. (MIRA 15:4)

1. Kafedra dinamicheskoy geologii Moskovskogo gosudarstvennogo
universiteta (for Gorshkov, Yakushova).
(Geology)

CHEBOTAREV, Nikolay Petrovich. Primali uchastiye: BLIZNYAK, Ye.V.,
doktor tekhn. nauk, prof., retsenzent [deceased]; APOLLOV,
B.A., doktor tekhn. nauk, prof., retsenzent; BEFANI, A.N.,
doktor tekhn. nauk, prof., retsenzent; BYKOV, V.D., kard.
tekhn. nauk, retsenzent; KALININ, G.N., red.; BELYAKOVA, Ye.V.,
red.; GEORGIYEVA, G.I., tekhn. red.

[Study of runoff] Uchenie o stoke. Moskva, Izd-vo Mosk. univ.,
1962. 405 p. (MIRA 15;8)

(Runoff)

CHIZHAKOV, A.F.: BELYAKOVA, Ye.V., red.

[Surveying] Geodeziia. Petrozavodsk, Vysshaya shkola, 196r.
583 p. (MIRA 17:8)

YERMEKOVA, D.A.; BELYAKOVA, Ye.V.

Case of arsenic poisoning. Zdrav. Kazakh. 22 no.5:68-71 '62.
(MIRA 15:6)

1. Iz kafedry fakul'tetskoy terapii (zav. - dotsent Ye.A.
Mezenchuk) Kazakhskogo meditsinskogo instituta.
(ARSENIC POISONING)

KATSMAN, Mark Mikhaylovich; BELYAKOVA, Ye.V., red.; EGGERT, A.P.,
tekhn. red.

[Laboratory work on electric machines and transformers]
Laboratornye raboty po elektricheskim mashinam i trans-
formatoram. Moskva, Rosvuzizdat, 1963. 90 p.

(MIRA 16:4)

(Electric machinery) (Electric transformers)

PETROV, Viktor Semenovich; BELYAKOVA, Yp.V., red.; KOZLOVA, T.A.,
tekhn. red.

[Precious and semiprecious stones] Dragotsennye i tsvetnye
kamni. Moskva, Izd-vo Mosk. univ., 1963. 134 p.
(MIRA 16:3)

(Precious stones) (Stone)

CHERNYKH, A.V., prof.; BELYAKOVA, Ye.V., red.

[Oil and gas industry of the U.S.S.R.] Neftianala i gazovaia promyshlennost' SSSR. Moskva, Vysshaya shkola, 1964. 132 p. (MIRA 17:8)

VIKTOROV, A.M.; IVANOV, N.N., prof., retsenzent; POLOSIN-NIKITIN,
S.M., dots., retsenzent; BUYALOV, S.I., dots., retsenzent;
BELYAKOVA, Ye.V., red.

[Procedures in planning and working construction quarries]
Priemy proektirovaniia i razrabotki stroitel'nykh kar'erov.
Moskva, Vysshiaia shkola, 1964. 154 p. (MIRA 17:9)

BULAVIN, Ivan Anisimovich; BELYAKOVA, Ye.V., red.

[Equipment of ceramic and refractory materials plants]
Oborudovanie keramicheskikh i огнеупорных заводov. Mo-
skva, Vysshaya shkola, 1965. 426 p. (MIRA 18:12)

ARZHANIKOV, Nikolay Sergeevich; SADEKOVA, Galina Sadekovna;
KRASNOV, N.F., doktor tekhn. nauk prof., retsenzent;
KOSHEVOY, V.N., dots., retsenzent; DANILOV, A.N.,
dots., retsenzent; BELYAKOVA, Ye.V., red.

[High-velocity aerodynamics] Aerodinamika bol'shikh sk-
rostei. Moskva, Vysshaya shkola, 1965. 558 p.
(MIRA 19:1)

1. Zaveduyushchiy kafedroy aerodinamiki Moskovskogo vys-
shego tekhnicheskogo uchilishcha im. Baumana (for
Krasnov). 2. Kafedra aerodinamiki Moskovskogo vysshego
tekhnicheskogo uchilishcha im. Baumana (for Koshevoy,
Danilov).

MAMINA, Serafima Yefimovna, dots.; TEREKHINA, Galina Mikhaylovna,
st. prepod.; PAUSHKIN, Gleb Aleksandrovich, dots.;
BELYAKOVA, Ye. Y., red; LARIONOV, A.K., prof., retsenzent

[Handbook for practical work in engineering geology] Ru-
kovodstvo k prakticheskim zaniatiyam po inzhenernoi geo-
logii. Moskva, Vysshaya shkola, 1965. 117 p.
(MIRA 18:12)

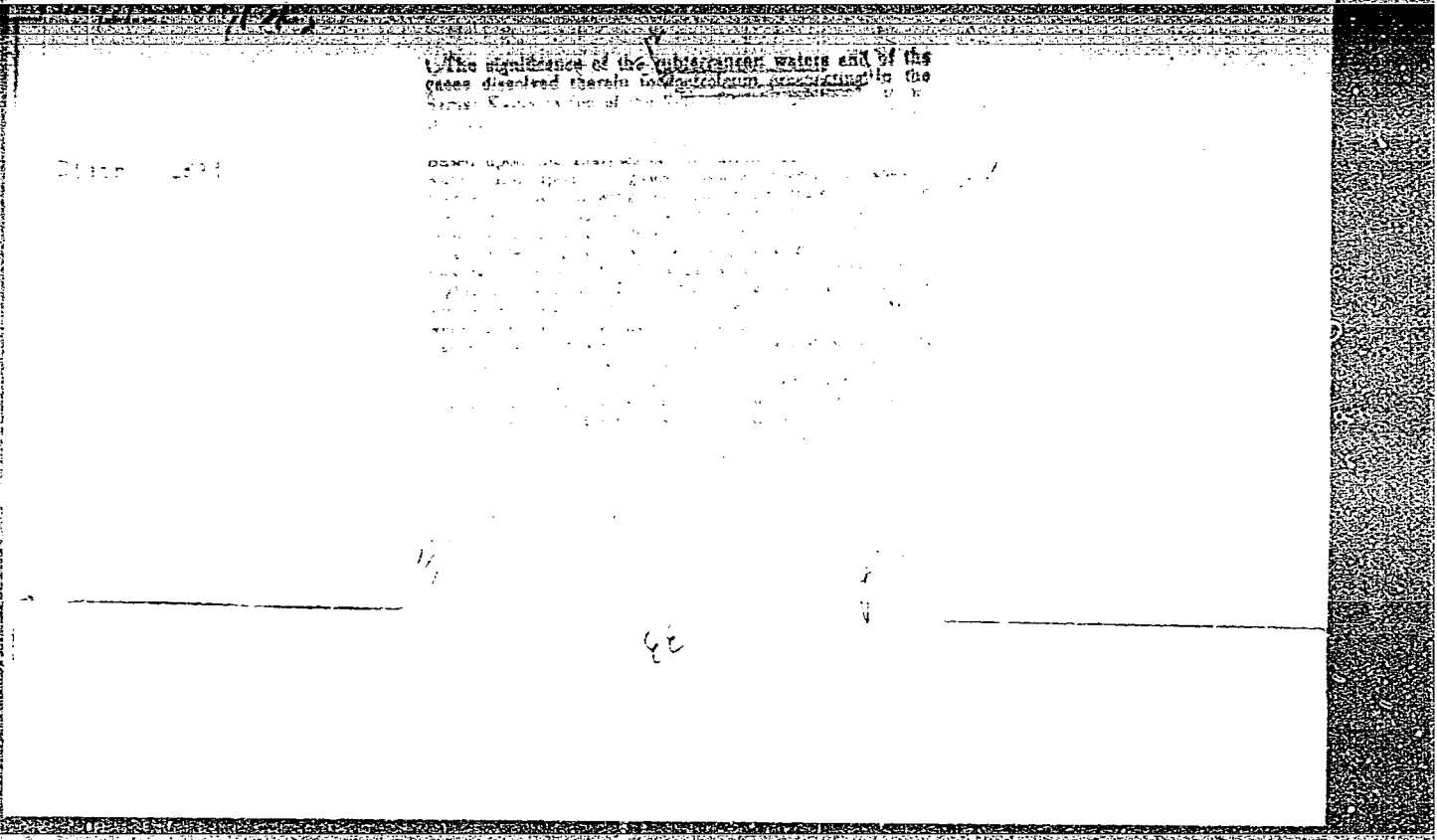
BELYAKOVA, Ye.Ye.

Consistencies in the change of elasticity of gases dissolved in water in relation to the condition of petroleum- and gas-water boundary. Inform.sbor. VSEGEI no.1:99-103 '55. (MLRA 9:12)

(Petroleum geology)

Балык көчү, Е | Е

Gaseous compounds in water as indicators of gas deposits. E. B. ...
The general composition of water, the content of specific components, and the content of microorganisms was investigated at a distance up to 10 km from formations bearing oil, coal, and natural gas. The partial pressures of heavy hydrocarbons and CH₄, together with the partial pressures of H₂, CO₂, biogenic N₂, and naphthenic hydrocarbons were related to the distance from the deposits. Consideration was given to geological and regional aspects.



ARKHANGEL'SKIY, B.N.; BELYAKOVA, Ye.Ye.; GURNEVICH, M.S.; ZAYTSEV, I.K., red.;
ZINOV'YEVA, T.V.; MITGARTS, B.B.; MOROZOV, V.M.; PETROVA, N.A.,
RESPOPOV, M.P.; TOLSTIKHIN, N.I.; TOLSTIKHIN, O.N.; POTAPOV, V.S.,
red.; GUROVA, O.A., tekhn. red.

[Explanatory notes to a hydrochemical map of the U.S.S.R. on a
scale of 1:5,000,000] Ob'iasnitel'naya zapiska k gidrokhimicheskoi
karte SSSR v mashtabe 1: 5,000,000. Red. I.K. Zaitsev. Moskva,
Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane neдр. 1958.
138 p. (MIRA 11:7)

1. Leningrad. Vsesoiuznyy geologicheskii institut.
(Water, Underground--Maps)

CHOCHIA, N.G.; BELYAKOVA, Ye.Ye.; BOROVSAYA, I.S.; VOLKOV, A.M.; GRAYZER, M.I.;
IL'INA, Ye.V.; KAZAKOV, I.N.; KIRKINSKAYA, V.N.; KISLYAKOV, V.N.;
KRASIL'NIKOV, B.N.; MAYMINA, L.G.; OSIPOVA, N.A.; RADIYKEVICH, L.V.;
ROMANOV, F.I.; KULIKOV, M.V.,red.; DOLMATOV, P.S.,vedushchiy red.;
YASHCHURZHINSKAYA, A.B.,tekh.red.:

[Geology, and oil and gas potentials of the Minusinsk Lowland]
Geologicheskoe stroenie Minusinskikh meshgornykh vpadin i
perspektivy ikh nefte-gazonosnosti. Leningrad, Gos.nauchn.
tekh.izd-vo nef. i gorno-toplivnoi lit-ry Leningr. otd-nie,
1958, 288 p. (Leningrad, Vsesoiuznyi neftianoi nauchno-issledo-
vatel'skii geologorazvedochnyi institut. Trudy, no.120)

(MIRA 12:5)

(Minusinsk Lowland---Petroleum geology)
(Minusinsk Lowland--Gas, Natural--Geology)

BELYAKOVA, Ye.Ye.

Migration of metals in underground and surface waters of the Upper Karakty region in central Kazakhstan [with summary in English]. *Geokhimiia* no.2:134-143 '58. (MIRA 12:4)

1. All-Union Geological Institute for Scientific Research, Leningrad.

(Upper Karakty--Water--Composition)
(Ore deposits)

BELYAKOVA, Ye. Ye.

Characteristics of the water migration of copper, lead, and zinc
and their prospecting importance. Sov. geol. 4 no.1:98-108 Ja
'61. (MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut.
(Kazakhstan--Mine water)

MAROCHKIN, N.I., glavnyy red.; MARKOVSKIY, A.P., zamestitel' glavnogo red.;
TATARINOV, P.M., zamestitel' glavnogo red.; BELIYAKOVA, Ye.Ye.,
nauchnyy red.; GANESHIN, G.S., red.; ZAYTSEV, I.K., red.; KULIKOV,
M.V., red.; KUREK, N.N., red.; KNIPOVICH, Yu.N., red.; LUR'YE, M.L.,
red.; SIMONENKO, T.N., red.; SPIZHARSKIY, T.N., red.; STERLIN, D.Ya.,
red.

[Results of the research carried out by the All-Union Geological
Institute in 1959] Ezhegodnik po rezul'tatam rabot VSEGEI za 1959
g. Leningrad, Otdel nauchno-tekhn.informatsii VSEGEI, 1961. 195 p.
(Informatsionnyi sbornik, no.44). (MIRA 15:4)
(Geology)

BELYAKOVA, Ye.Ye.; REZNIKOV, A.A.; KRAMARENKO, L.Ye.; NECHAYEVA,
A.A.; KRONIDOVA, T.F.; ZAYTSEV, I.K., red.; ENTIN, M.L.,
red. izd-va; BYKOVA, V.V., tekhn. red.

[Geochemical method of searching for ore deposits in arid
and semiarid regions]Gidrokhimicheskii metod poiskov rud-
nykh mestorozhdenii v aridnykh i poluaridnykh oblastiakh.
[By] E.E.Beliakova i dr. Moskva, Gosgeoltekhizdat, 1962.
266 p. (MIRA 15:9)

(Geochemical prospecting)

BELYAKOVA, Ye.Ye.

Principles and methods of compiling prognostic hydrochemical maps of ore deposits. Sov.geol. 5 no.1:104-130 Ja '62. (MIRA 15:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut.
(Ore deposits--Maps)

BELEAKOVA, E.E. [Belyakova, Ye. Ye.]

Principles and methods of preparing hydrochemical prognosticating maps regarding metalliferous mineral resources. Analele geol geogr 16 no.3:23-49 JI-Ag '62.

MAROCHKIN, N.I., glav. red.; MARKOVSKIY, A.P., zam. glav. red.;
UL'YANOV, N.K., zam. glav. red.; GANESHIN, G.S., red.;
ZAYTSEV, I.K., red.; KNIPOVICH, Yu.N., red.; KULIKOV, M.V., red.;
LABAZIN, G.S., red.; LUR'YE, M.L., red.; SIMONENKO, T.N., red.;
SPIZHARSKIY, T.N., red.; STERLIN, D.Ya., red.; TATARINOV, P.M., red.;
BELYAKOVA, Ye.Ye., nauchnyy red.; MAKRUSHIN, V.A., tekhn. red.

[Yearbook of the results of studies by the All-Union Geological
Institut] Ezhegodnik po rezul'tatam rabot VSEGEI. Leningrad,
Otdel nauchn.-tekhn. informatsii, 1961. 203 p. (Leningrad.
Vsesoiyuznyi geologicheskii institut. Informatsionnyi sbornik,
no.49.) (MIRA 15:6)

(Geology)

BELYAKOVA, Ye.Ye.

Answer to P.A. Udodov and others on their critical remarks concerning the article "Principles and methods of compiling hydrochemical forecasting maps for ore minerals." Sov. geol. 7 no.3:154-158 Mr '64. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut.

ZHUKOV, Viktor Markovich; BELYAKOVA, Z.I., red.

[Radio engineering; lectures on the section "Semiconductor electronics" for students of the IV and V courses specializing in : automatic control, remote control, and communications in railroad transportation] Radiotekhnika; lektsii po razdelu "Poluprovodnikovaia elektronika" dlia studentov IV i V kursov spetsial'nosti: avtomatika, telemekhanika i sviaz' na zheleznodorozhnom transporte (ET). Moskva, Vses. zaachnyi in-t inzhenerov zheleznodorozhnogo transporta, 1964. 59 p. (MIRA 18:3)

ACCESSION NR: AR4023352

S/0299/64/000/004/G004/G004

SOURCE: RZh. Biologiya, Abs. 4027

AUTHOR: Belyakova, Z. P.

TITLE: Daily variations in the chlorophyll content in tobacco leaves

CITED SOURCE: Sb. Nauchno-issled. rabot. Vses. n.-i. in-t tabaka i makhorki, vy*p. 153, 1963, 193-196

TOPIC TAGS: chlorophyll, plant chlorophyll, tobacco plant, tobacco Ostrolist 2747, tobacco Trapezond 93, tobacco Maryland 2703, tobacco leaf chlorophyll content

TRANSLATION: Plants of three varieties of tobacco (Ostrolist 2747 - light green leaf; Trapezond 93 - green leaf; Maryland 2703 - dark green leaf) were grown on test plots in the Krasnodar area. Leaves from intermediate levels (16th to 17th leaves) were taken for analysis 6 times daily for 4 - 5 days prior to the onset of maturation. Chlorophyll was determined in alcohol extracts by means of an electric concentration colorimeter. Contents were calcu-

Card 1/2

ACCESSION NR: AR4023352

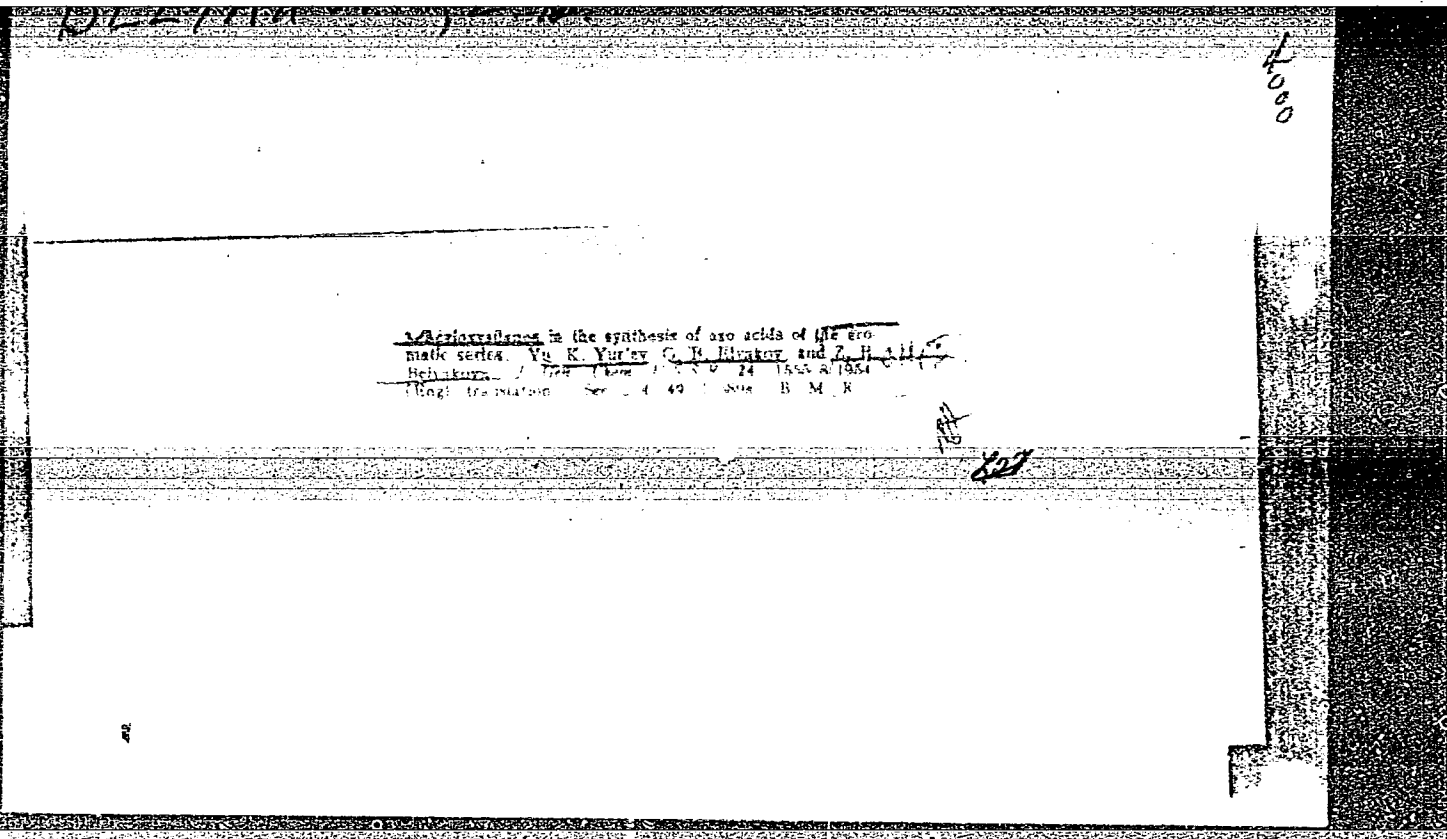
lated per 1000 cm² of leaf area. Clearly pronounced daily fluctuations in the chlorophyll content of the leaves were noted. The pattern of fluctuation was similar for all the varieties named above, but the intensity of fluctuation varied and was minimal for the Trapezond variety. Two peaks, 8 AM to 9 AM and 5 PM to 8 PM, were found to occur during the daylight hours. The chlorophyll content of the leaves drops at night. Comparison with data obtained in other studies disclosed a direct relationship between the content of chlorophyll and the accumulation of starch and sugars. L. Polischuk

DATE ACQ: 16Mar64

SUB CODE: .AM

ENCL: 00

Card 2/2



BELYANOVA, A. V.

" S. S. R.

Advances in the synthesis of keto acids of aromatic series. Yu. K. Vor'ev, G. B. Ryzakov and Z. V. Belyanova (Moscow State Univ.). *Zhur. Obshch. Khim.* 28, 1563-71 (1954); cf. C.A. 49, 8725b. — Aromatic keto acids are prepd. by acylation of C_6H_6 by *in situ* formed silicoanhydrides of dibasic acids. A mixt. of 0.03–0.1 mole dibasic acid, 600 ml. C_6H_6 , and 0.09 mole $SiCl_4$ is heated at first to 60–70°, then to reflux with stirring until HCl evolution ceases; the cooled mixt. is treated with 0.15 mole $AlCl_3$, heated to 60–70°, then on a steam bath 2–3 hrs. and treated with ice. The acids are isolated conventionally. Thus were prepd. the following $HO_2C(CH_2)_nCO_2Ph$ (n, % yield, m.p. given): 2, 61, 110°; 3, 57.4, 128–7°; 4, 68, 77°; 8, 90, 33°. Also prepd. were 86% *o*- $PhCO_2CH_2CO_2H$; 33% $EtO_2CCH_2CO_2Ph$, b_p 148–50°, n_D^{20} 1.5145, d_4^{20} 1.114 (some *EtPh* also formed); 44% *AcPh* (from malonic acid itself).
G. M. Kosolapoff

БЕЛЯКОВА, З. В.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 22 - 28/49

Authors : Yuryev, Yu. K.; Yelyakov, G. B.; and Belyakova, Z. V.

Title : Acyloxysilanes in the synthesis of ketonic acids of the thiophene series

Periodical : Dok. AN SSSR 102/1, 113-115, May 1, 1955

Abstract : It is shown that by employing acyloxysilanes from dibasic acids for the acylation of thiophene and by conducting the reaction in nitrobenzene in the presence of anhydrous aluminum chloride one can easily obtain good yields of ketonic acid of the thiophene series. The names of the products and yields obtained by the method described above are listed. The reaction in the very same medium but in the presence of stannic chloride was found to be totally fruitless. Eleven references: 1 USSR, 2 Ger., 2 Fr., and 6 USA (1915-1954).

Institution : The Moscow State University im. M. V. Lomonosov

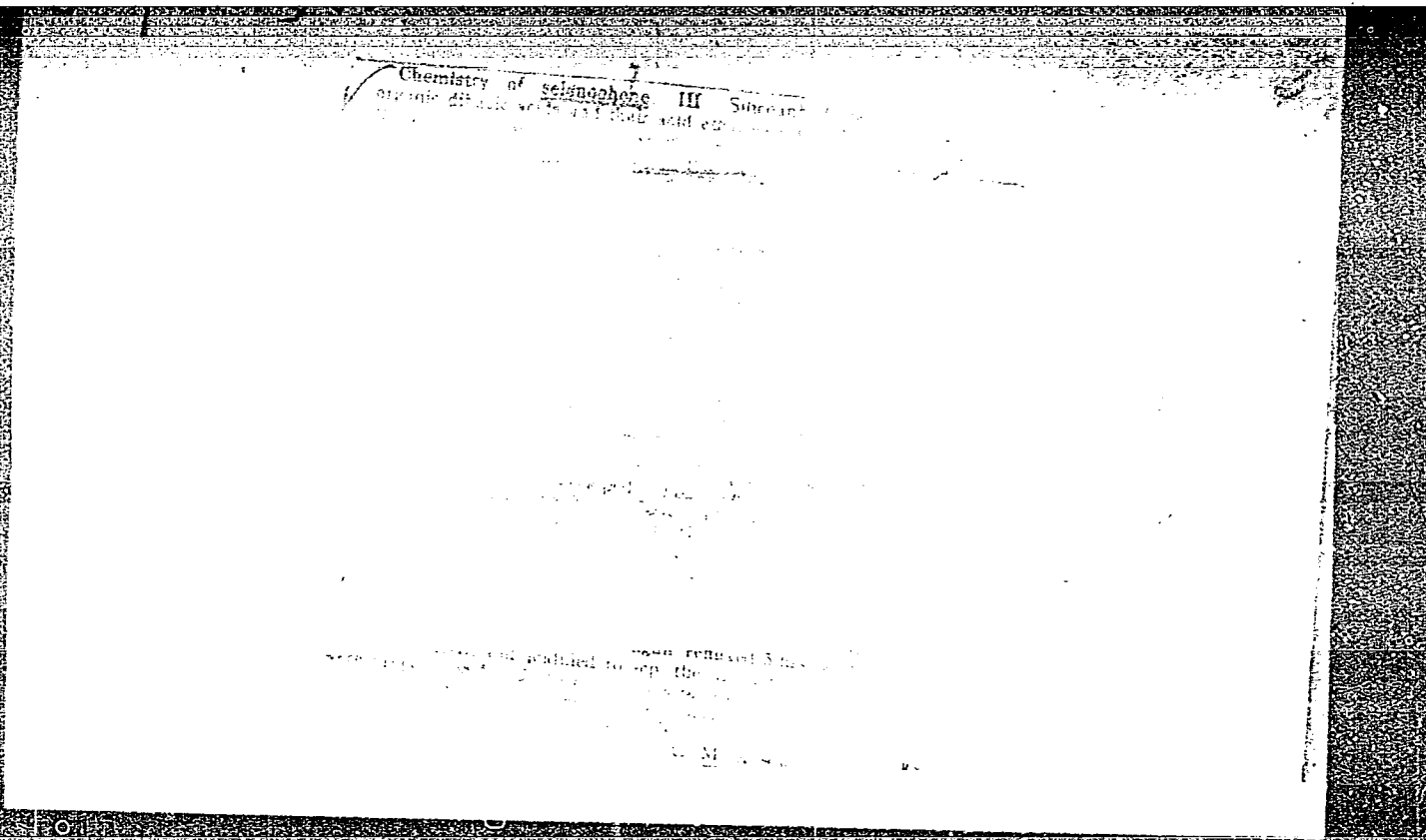
Presented by : Academician A. N. Nesmeyanov, December 24, 1954

BELYAKOVA, Z. V.

YUR'YEV, Yu.K.; YEL'YAKOV, G.B.; ~~BELYAKOVA, Z.V.~~

Cyanoethylation of isopropyl-2-thienyl ketone. Vest.Mosk.un.
Ser.mat.,mekh.,astron.,fiz.,khim.11 no.1:201-203 '56. (MIRA 10:12)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Thienyl ketone) (Ethylation)



Bel'yakova, Z. V.

7 7 5

Chemistry of selenophene. III. Silicoanhydrides of
 organic dibasic acids and their acid ethyl esters of the
 oro acids of the selenophene series. Yu. K. Yur'ev,
 G. B. Elyakov, and Z. V. Bel'yakova. *J. Gen. Chem.*
 U.S.S.R. 26, 2031 (1955) (English translation). See
 C.A. 51, 5037d. B. M. R.

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... (20.9)
11 20008
45380

AUTHORS: Yur'yev, Yu. K., Belyakova, Z. V., Zefirov, N. S. 79-12-19/43

TITLE: Tetraacyloxysilanes in Organic Synthesis
(Tetraatsiloksisilany v organicheskom sinteze).
X. Comparative Effect of Catalysts on the Occasion of Acylation
Reaction of Benzene and Thiophene With Tetraacyloxysilanes
(Sravnitel'noye deystviye katalizatorov v reaktsii atsiliro-
vaniya benzola i tiofena tetraatsiloksisilanami).

PERIODICAL: Zhurnal Obshchey Khimii 1957, Vol. 27, Nr 12, pp. 3264-3270
(USSR)

ABSTRACT: In the present work the comparative effect of a series of catalysts in the acylation reaction of thiophene with tetraacetoxysilane with the mixed anhydride of the orthosilicic acid and acetic acid is investigated. The capability of reacting of the two anhydrides to be expected was examined in order to know whether the actual acylation of thiophene, selenophene and benzene is due to the silico-anhydrides of the organic acids only or whether also chloroanhydrides participate, since they also occur on the occasion of the reaction of silicium-tetrachloride on the siliciumanhydride which has already formed (see formulae!). The acylation of thiophene with the above anhydride does not only occur under the presence of

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79-12-19/43

Tetraacyloxysilanes in Organic Synthesis.
X. Comparative Effect of Catalysts on the Occasion of Acylation
Reaction of Benzene and Thiophene With Tetraacyloxysilanes.

anhydrous zinc beryllium chloride and boron fluoride, with yields of 25,5-46,5 % but also under the presence of tetra- titanium chloride with a yield of 93,5 %. The acylation of benzene with anhydride occurs under the presence of anhydrous aluminium chloride, as well as of anhydrous iron chloride. No acylation of benzene takes place under the presence of anhydrous zinc chloride, beryllium chloride, boron fluoride and titanium tetrachloride. The acylation of benzene and thiophen leads to the same results in the solvent with pure mixed anhydride of silicic and acetic acid, gained from siliciumtetra- chloride and acetic acid anhydride, also from silicium tetra- chloride and acetic acid with the same results, which is a convincing prove that the acylating agent is in fact the anhydride. On this basis the acylation process of the thiophen nucleus could be proved by means of the mentioned anhydrides. There are 2 tables and 33 references, 9 of which are Slavic.

Card 2/3

Tetraacyloxysilanes in Organic Synthesis.
X. Comparative Effect of Catalysts on the Occasion of Acylation
Reaction of Benzene and Thiophene with Tetraacyloxysilanes.

79-12-19/43

ASSOCIATION: Moscow State University
(Moskovskiy gosudarstvennyy universitet).

SUBMITTED: November 22, 1956

AVAILABLE: Library of Congress

1. Tetraacyloxysilanes - Synthesis
2. Benzene - Chemical reactions
3. Thiophene - Chemical reactions
4. Cyclic compounds - Chemical reactions

Card 3/3

BELYAKOVA, Z.V., Cand Chem Sci--(diss) "Tetraacyloxysilanes and
acyloxytrichlorsilanes in organic synthesis." Mos, 1958. 15 pp
(Mos Order of Lenin and Order of Labor Red Banner State U in M.V.
Lomonosov), 120 copies (ML,48-58,101)

-10-

BELYAKOVA, Z. V.

AUTHORS:

Yur'yev, Yu. K., Belyakova, Z. V.

79-1-1/63

TITLE:

Tetraacyloxysilanes in Organic Synthesis (Tetraatsiloksi-silany v organicheskom sinteze)
XIII. Synthesis of N,N-Diethylamid- and N-Arylamid Acids With the Aid of the Silicon Anhydrides of Saturated Monobasic Organic Acids (XIII Sintez N,N-dietilamidov i N-arilamidov kislots pomoshch'yu kremneangidridov predel'nykh osnovnykh organicheskikh kislots)

PERIODICAL:

Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 1, pp. 3-6, (USSR)

ABSTRACT:

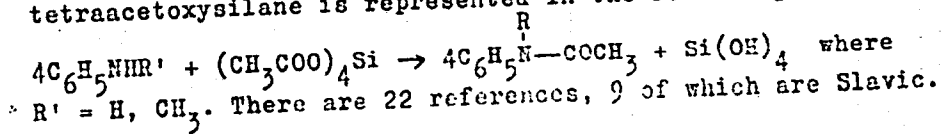
In connection with earlier foreign works the authors in the present work for the synthesis of N,N-diethylamides and N-arylamides used tetraacyloxysilanes - mixed anhydrides of orthosilicic acid and organic acids. These latter had been successfully utilized by K. D. Petrov in the acylation of aromatic compounds (of benzene and toluene) instead of anhydrides and chloro-anhydrides of acids. The authors adopted the same course in the acylation of heterocyclic compounds - thiophene, selenophene, pyrrole and indole, as well as in the synthesis of aromatic α , β - unsaturated

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79-1-1/63

Tetraacyloxysilanes in Organic Synthesis
 XIII. Synthesis of N, N-Diethylamid- and N-Arylamid Acids With the Aid of
 the Silicon Anhydrides of Saturated Monobasic Organic Acids

acids. The reaction of the silicon anhydrides of monobasic organic acids with secondary aliphatic amines may serve as a convenient method of synthesis of N,N-dialkylamid acids. According to this method the authors obtained the N,N-diethylamides of acetic, propionic, n-butyric, n-valerianic, isovalerianic and caproic acids with good yields (60-90%). By the acylation of aniline and methylaniline with the aid of the anhydride of silicic and acetic acid it was shown that the N-arylamides can be synthesized in this manner. In the synthesis of N-substituted acid amides the use of tetraoxysilanes has preference over the chloro-anhydride or the anhydrides of acids. The process of reaction of aniline with tetraacetoxysilane is represented in the following manner:



ASSOCIATION: Moscow State University (Moskovskiy Gosudarstvennyy universitet)

Card 2/3

Tetraacyloxysilanes in Organic Synthesis
XIII. Synthesis of N,N-Diethylamid- and N-Arylamid Acids With the Aid
of the Silicon Anhydrides of Saturated Monobasic Organic Acids

79-1-1/63

SUBMITTED: December 26, 1956

AVAILABLE: Library of Congress

Card 3/3

1. Cyclic compounds
2. Anhydrides
3. Silicons
4. Indoles
5. Chemistry

AUTHORS:

Yur'yev, Yu. K., Belyakova, Z. V.

SOV/79-28-7-9/64

TITLE:

Tetraacyloxy-Silanes in Organic Synthesis (Tetraatsiloksisilany v organicheskom sinteze) XVI. Benzoyloxy-Trichlorosilane and the Reactivity of the Benzoyl Group (XVI. Benzoiloksitrikhlorsilan i reaktionnosposobnost' benzoiloksigruppy)

PERIODICAL:

Zhurnal obshchey khimii, 1958, Vol. 28, Nr 7, pp. 1755 - 1760 (USSR)

ABSTRACT:

In the investigation of the reaction of silicon tetrachloride with benzoic acid the authors found that in the case of an excess of the former (molar ratios 1,7:1 and 2:1) without a solvent, and on a heating within 12 hours with subsequent vacuum distillation the benzoyloxy-trichlorosilane (Formula 1) is obtained almost quantitatively. According to references 2 and 3 organic acids form on the action of excess silicon tetrachloride at 150°-160° in closed vessels the corresponding chlorine anhydrides and the silicagel (II): $\text{SiCl}_4 + 4\text{RCOOH} \rightarrow 2\text{RCOCl} + [\text{Si}(\text{OH})_4] \text{ (II)}$. The industrial production of benzoyl

Card 1/3

Tetraacyloxy-Silanes in Organic Synthesis. XVI.

SOV/79-28-7-9/64

Benzoyloxy-Trichlorosilane and the Reactivity of the Benzoyl Group

chloride from benzoic acid and silicon tetrachloride is based on this fact. Contrary to earlier assumptions concerning this reaction process (Schemes III and IV) the data of the present experiments furnish a much more complicated picture. The formation of benzoyl chloride is the result of the conversion of the tetrabenzoyl oxysilane and benzoyloxy-trichlorosilane forming in the reaction mixture, as well as of the subsequent decomposition of the latter at higher temperature. The benzoyloxy group in benzoyloxy-trichlorosilane is more reactive than the chlorine atoms and it is more easily substituted by the ethoxy group on the action of ethylalcohol. There are 1 table and 20 references, 11 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 8, 1957

Card 2/3

Tetraacyloxy-Silanes in Organic Synthesis. XVI. SOV/79-28-7-9/64
Benzoyloxy-Trichlorosilane and the Reactivity of the Benzoyl Group

1. Chlorosilicanes--Chemical reactions 2. Benzoyl radicals--Chemical reactions

Card 3/3

YUR'YEV, Yu.K.; BELYAKOVA, Z.V.; VOLKOV, V.P.

Tetraacyloxy silanes in organic synthesis. Part 17: Acylation of benzene by silicon anhydrides of acetic acid, mono, di and tri-chloroacetic and β -bromopropionic acids. Zhur.ob.khim. 28 no.9: 2372-2376 S '58. (MIRA 11:11)

1. Moskovskiy gosudarstvennyy universitet.
(Benzene) (Acylation)

AUTHORS: Yur'yev, Yu. K., Belyakova, Z. V., SOV/79-28-10-27/60
Yelyakov, G. B.

TITLE: Tetra-Acyloxy Silanes in Organic Synthesis (Tetraatsiloksi-
silany v organicheskom sinteze) XVIII. On the Structure
of the Silicic Anhydrides of the Bivalent Saturated
Organic Acids (XVIII. O stroyeni kremneangidridov dvukhes-
novnykh predel'nykh organicheskikh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10,
pp 2766 - 2770 (USSR)

ABSTRACT: In connection with earlier papers concerning the syn-
thesis of silicic anhydrides of bivalent organic acids
from silicon tetrachloride and saturated bivalent acids
in benzene (Refs 1,2) under the formation of hydrogen
chloride the problem concerning the structure remained
unsolved. Based on general considerations the structure
of a silicic anhydride of the bivalent acid could be
given by the schemes (I),(II) and (III). With respect
to the experimental results obtained in the acylation
of benzene and thiophene with the above mentioned an-
hydrides it must be mentioned that only ketonic acids and

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Tetra-Acyloxy Silanes in Organic Synthesis. XVIII. SOV/79-28-10-27/60
On the Structure of the Silicic Anhydrides of the Bivalent Saturated
Organic Acids

On account ketones, i.e. the symmetrical dibenzoyl and di(phenyl-2)-alkanes, were obtained as reaction products, as it is the case in the acylation of the benzene nucleus with these anhydrides. The absence of the diketones in the acylation products of benzene and thiophene with the silicic anhydrides of the bivalent acids was regarded as important, however, not completely sufficient, proof of the structure (III). The further experiment supplied ample proof of the structure (III) since the twice smaller, theoretically necessary amount of hydrogen chloride formed in the reaction of silicon tetrachloride with succinic acid in benzene medium corresponded to the formation of this structure. The data of the analyses of the formed silicon succinic anhydride tend to prove the structure (III). The comparison of the experimental data and the calculated data in the table shows completely that the silicon succinic anhydride synthesized from succinic acid and SiCl_4 according to the method mentioned corresponds to

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On the Structure of the Silicic Anhydrides of the Bivalent Saturated
Organic Acids

the structure (III) in which the carboxyl groups are
maintained in each of the four acid radicals combined with
the silicon atom. There are 1 table and 10 references,
3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: September 20, 1957

Card 3/3

5(3)

AUTHORS:

Yur'yev, Yu. K., Belyakova, Z. V.

SOV/79-29-5-11/75

TITLE:

Tetraacyl-oxy-silanes in Organic Synthesis (Tetraatsiloksisilany v organicheskom sinteze).
20. Synthesis of β -Diketones by Acylation of Malonic and Acetoacetic Ester With Tetraacyl-oxy-silanes (20. Sintez β -diketonov atsilirovaniyem malonovogo i atsetouksusnogo efirov tetraatsiloksisilanami)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1458-1463 (USSR)

ABSTRACT:

An interesting synthesis method of β -diketones of the RCOCH_2COR type is the acylation of malonic ester with acid anhydrides in the presence of magnesium oxide or copper acetate catalyst (Ref 16). In the present paper it was investigated whether silicides of monobasic organic acids can be used in this reaction. By their application to the acylation of malonic ester in the presence of magnesium oxide or copper acetate at $165-170^\circ$ the following β -diketones were obtained in yields of 34-37%: pentanedione-2,4, heptanedione-3,5, nonanedione-4,6, undecanedione-5,7, 2,8-dimethyl nonanedione-4,6 and tridecanedione-6,8. By the action of benzoic acid silicide on malonic ester dibenzoyl methane was obtained in a

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Tetraacyl-oxy-silanes in Organic Synthesis.

SOV/79-29-5-11/75

20. Synthesis of β -Diketones by Acylation of Malonic and Acetoacetic Ester With Tetraacyl-oxy-silanes

19% yield. Further a method of synthesis for β -diketones of the $\text{CH}_3\text{COCH}_2\text{COR}$ type was devised. It consists of acylation of the acetoacetic ester with silicides of saturated monobasic organic acids. The reaction takes place under the same conditions and with subsequent ketonic cleavage of the obtained C-acyl derivative of the acetoacetic ester. In this way the following β -diketones were obtained in yields of 34.5-77%: pentanedione-2,4, hexanedione-2,4, heptanedione-2,4, 6-methyl-heptanedione-2,4 and nonanedione-2,4. The yields increase on a change of the ratio acid: acetoacetic ester from 1 : 1 to 2 : 1. In the synthesis of the β -diketones of the $\text{CH}_3\text{COCH}_2\text{COR}$ type by acylation of the acetoacetic ester with tetraacyl-oxy-silanes it is not always suitable to isolate them in the form of copper salts. On slow distillation sufficiently pure β -diketones are obtained in good yields. The low yields which are obtained on separation on copper salt are probably due to the fact that too little copper salts are formed from the β -diketone mixture with corresponding esters. There are 23 references.

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Tetraacyl-oxy-silanes in Organic Synthesis.

SOV/79-29-5-11/75

20. Synthesis of β -Diketones by Acylation of Malonic and Acetoacetic Ester With Tetraacyl-oxy-silanes

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: April 1, 1958

Card 3/3

5(3)

AUTHORS:

Yur'yev, Yu. K., Belyakova, Z. V., Volkov, V. P. SOV/79-29-5-12/75

TITLE:

Tetraacyl-oxy-silanes in Organic Synthesis (Tetraatsiloksisilany v organicheskom sinteze).

21. Preparation of Acyl-oxy-trichloro Silanes From Acids of Aromatic Nature (21. Polucheniye atsiloksitrikhlorsilanov iz kislot aromaticheskoy prirody)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1463-1470 (USSR)

ABSTRACT:

It was found in the present paper that the homologues of benzoic acid (o- and p-toluic acid), α -naphthoic acid, substituted benzoic acids (o- and p-chloro benzoic-, o-, m- and p-nitro-benzoic acid) as well as α -furan carboxylic and α -thiophene carboxylic acid yield the corresponding acyl-oxy-trichloro silanes under the influence of excess silicon tetrachloride. On longer standing they disproportionate to give tetraacyl-oxy-silanes and silicon tetrachloride. The tendency towards disproportionation rises with an increased strength of the organic acid contained in the acyl-oxy-trichloro silanes (Table 1). On dilution with inert solvents (benzene, ether) acyl-oxy-trichloro silanes can be preserved for some time. Temperature increase accelerates the disproportionation and thus causes a partial decomposition during their distillation in vacuum. The

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Tetraacyl-oxy-silanes in Organic Synthesis.

SOV/79-29-5-12/75

21. Preparation of Acyl-oxy-trichloro Silanes From Acids of Aromatic Nature.

solubility of the acids in silicon tetrachloride plays an important part in the synthesis. Under the experimental conditions silicon tetrachloride did not react with ether or acetone. The use of the latter to attain a better solubility of the acids accelerates, however, the formation of acyl-oxy-trichloro silanes. The formation mechanism of acyl-oxy-trichloro silanes was investigated on the example of the interaction of silicon tetrachloride with o-chloro benzoic- and benzoic acid. By the influence of excess silicon tetrachloride upon the organic acid acyl-oxy-trichloro silane is formed without any intermediate products. When studying the properties of the acyl-oxy-trichloro silanes the cleavage reaction under various conditions was investigated with special thoroughness. It was found on benzoyl-trichloro silane that its cleavage is especially considerable during distillation under atmospheric pressure, in which connection benzoyl chloride, silicon dioxide and silicon tetrachloride are formed (Ref 1). On the basis of experimental data the following scheme of the thermal decomposition of benzoyl trichloro silane can be established:

- 1) Benzoyl-oxy-trichloro silane is disproportionated in vacuum and on standing to give silicide and silicon tetrachloride.
- 2) The

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21. Preparation of Acyl-oxy-trichloro Silanes From Acids of Aromatic Nature.

benzoic acid silicide is further cleaved to form benzoic anhydride and silicon dioxide. 3) The formed benzoic anhydride yields under the influence of silicon tetrachloride on one hand and of benzoyl-trichloro silane on the other hand benzoyl chloride and silicon dioxide. Table 1 - the rate of the disproportionation of acyl-trichloro silanes; table 2 - acyl-oxy-trichloro silanes; table 3 - disproportionation products of the acyl-oxy-trichloro silanes; table 4 - tetra-acyl-oxy-silanes. There are 4 tables and 8 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 19, 1958

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5(3)

SOV/79-29-8-30/81

AUTHORS:

Yur'yev, Yu. K., Belyakova, Z. V., Kostetskiy, P. V.,
Prokof'yev A. I. ~~XXXXXXXXXXXXXXXXXXXX~~

TITLE:

Tetraacyloxy-silanes in Organic Synthesis. XXIII. Acylation
of Amines, Arylhydrazines and Acid Hydrazides With Tetraacyl-
oxy-silanes

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 8,
pp 2594 - 2597 (USSR)

ABSTRACT:

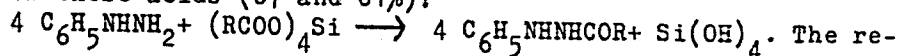
Previously (Ref 1) the authors described the acylation of
diethyl-amine with tetraacyloxy-silanes as a convenient syn-
thesis of the N-N-diethylamides of the saturated monobasic
organic acids (yields 60-90%)
 $(RCOO)_4Si + 4 NHR'R'' \rightarrow 4 RCONR'R'' + Si(OH)_4$. It suggested
itself to synthesize also other N,N-dialkyl- and N-alkylamides
of the acids in the same way, and to use this method for the
synthesis of the N,N-diethylamides of the aromatic acids,
especially benzoic acid, o- and p-toluic acids (Refs 2,3).
The acylation of dibutylamine was carried out with the silicic
anhydrides of acetic, propionic, butyric and caproic acid,

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Tetraacyloxy-silanes in Organic Synthesis. XXIII. Acylation
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in which connection the N,N-dibutyl-acylamides of these acids were obtained in yields of 65-81%. Acylation of diethyl amine with the silicic anhydrides of benzoic acid, o- and p-toluic acids yielded the N,N-diethyl-benzamide (63%), N,N-diethyl-o-toluamide (24%), and N,N-diethyl-p-toluamide (37%). The decrease in the acylation capability of the tetraacyloxy-silane with increasing acidity was already previously observed by the authors (Ref 4). According to C. Friedel and A. Ladenburg (Ref 5), acetamide and N-ethyl acetamide were obtained in yields of only 12% and, accordingly, 5-6% on letting through ammonia and ethyl amine into the benzene solution of the silicon-acetic anhydride. The acylation of ethyl amine on heating with tetraacyloxy-silanes in the autoclave at 100° gave the N-ethyl amides of the acetic, propionic, butyric, valerianic, isovalerianic and caproic acid in yields of 33-82%. The acylation of phenyl hydrazine with the silicic anhydrides of acetic and propionic acid yielded the phenyl hydrazides of these acids (67 and 61%):



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Tetraacyloxy-silanes in Organic Synthesis. XXIII. SOV/79-29-8-30/81
Acylation of Amines, Arylhydrazines and Acid Hydrazides With Tetraacyloxy-
silanes

sultant substituted amides and hydrazides of the acids obtained by the above-mentioned acylation, their yields and constants, are presented in the table. There are 1 table and 29 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 2, 1958

Card 3/3

5(3)

AUTHORS: Yur'yev, Yu. K., Belyakova, Z. V. SOV/79-29-9-32/76

TITLE: Tetraacyloxysilanes in Organic Synthesis.
XXIV. Reaction of Tetraacyloxysilanes With Organomagnesium-
and Organocadmium Compounds

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2960-2964
(USSR)

ABSTRACT: Two kinds of reaction are characteristic of acyloxysilanes:
(1) Reactions taking place under the decomposition of the
C-O-bond; (2) reactions taking place under the decomposition
of the Si-O-bond. All acylation reactions with tetraacyloxy-
silanes belong to the first kind: acylation of the benzene
cycle, thiophene, selenophene, pyrrole (Refs 1-4), of malonic
ester, acetoacetic ester (Ref 5), and amines (Refs 6,7)
(Scheme 1). In continuation of the collected investigation
data of the papers quoted in references 1-11 the authors
of the present paper investigated the reaction of tetraacyl-
oxysilanes with organomagnesium- and organocadmium compounds;
theoretically, two directions of reaction were possible due
to the decomposition of the C-O- or Si-O-bonds, i.e. accord-
ing to schemes (IV) and (V). Taking account of the papers

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Tetraacyloxysilanes in Organic Synthesis.

SOV/79-29-9-32/76

XXIV. Reaction of Tetraacyloxysilanes With Organomagnesium-
and Organocadmium Compounds

quoted in references 12-17, the reaction of silico-acetic anhydride with alkyl magnesium halides was investigated; in all cases tertiary alcohols were obtained in yields of 58-68,5%, tetraalkyl silanes (51-72%), and fractions with a high boiling point (apparently siloxanes). All these data as well as the absence of silicic acid show that the reaction of tetraacyloxysilanes with organomagnesium compounds takes place under the decomposition of the Si-O-bond according to scheme (V). The stability of this bond decreases with increasing acidity of the organic acid in the silico-acetic anhydride which results in a higher reactivity of tetraacyloxysilane towards the organomagnesium compound. Ketones (20-46%) and silicic acid resulted in the reaction of silico-acetic anhydride apparently under the decomposition of the C-O-bond according to scheme (IV). There are 28 references, 13 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 4, 1958
Card 2/2

YUR'YEV, Yu.K.; BELYAKOVA, Z.V.; VOLKOV, V.P.; OSADCHAYA, R.A.;
SHAYDEROVA, L.P.

Tetraacyloxysilanes in organic synthesis. Part 28: Acylation of
benzene by silicon- β -chloropropionic and γ -chlorobutyric anhydrides.
Part 29: Preparation of organic acid anhydrides from their silicon
anhydrides. Vest.Mosk.un.Ser. 2: Khim. 15 no.1:61-67 '60.
(MIRA 13:7)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Silicon organic compounds)
(Anhydrides)
(Acylation)

BELYAKOVA, Z. V.

pa-

81974

S/074/60/029/07/01/004
B020/B068

5.3700

AUTHORS: Yur'yev, Yu. K., Belyakova, Z. V.TITLE: Acyloxysilanes

PERIODICAL: Uspekhi khimii, 1960, Vol. 29, No. 7, pp. 809-832

TEXT: Acyloxysilanes covered in this review are monomeric organosilicon compounds with at least one acyloxy group bound to the silicon atom. Well-known types of acyloxysilanes are tetraacyloxysilanes with the general formula $\text{Si}(\text{OCOR})_4$, alkylacyloxysilanes $\text{R}_x\text{Si}(\text{OCOR}')_{4-x}$, alkoxyacyloxysilanes $(\text{RO})_x\text{Si}(\text{OCOR}')_{4-x}$, alkylalkoxyacyloxysilanes $\text{R}_x(\text{R}'\text{O})_y\text{Si}(\text{OCOR}'')_{4-x-y}$, and acyloxytrichlorosilanes Cl_3SiOCOR . Compounds like aminoacyloxysilanes $(\text{NH}_2)_x\text{Si}(\text{OCOR})_{4-x}$ and (alkylthio)-acyloxysilanes $(\text{RS})_x\text{Si}(\text{OCOR})_{4-x}$ are unknown. From the day when the first acyloxysilane - tetraacetoxysilane - was synthesized (1868) until 1947, only 15 papers

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Acyloxysilanes

S/074/60/029/07/01/004
B020/B068

dealing with these compounds had been published, while during the last 10 to 12 years more than 100 theoretical and practical papers have appeared on this subject. This is due to their growing practical importance. A review of methods used for the preparation of tetraacyloxysilanes and acyloxytrichlorosilanes, alkyl- and arylacyloxysilanes, alkylalkoxyacyloxy- and alkoxyacyloxysilanes, as well as of the reactions of these compounds is given. Yu. N. Vol'nov, G. B. Yelyakov, V. P. Volkov, B. N. Dolgov, N. P. Kharitonov, M. G. Voronkov, I. G. Khaskin, V. P. Davydova, K. D. Petrov, M. I. Itkina, Ye. S. Lagucheva, A. N. Nesmeyanov, E. G. Perevalova, A. N. Vysokosov, K. A. Andrianov, V. G. Dubrovina, and T. N. Ganina are mentioned. There are 151 references: 74 Soviet, 28 US, 18 British, 18 German, 7 French, 2 Italian, 1 Austrian, 1 Swedish, 1 Indian, and 1 Japanese.

ASSOCIATION: Khimicheskiy fakul'tet MGU im. M. V. Lomonosova
(Chemical Department of Moscow State University imeni
M. V. Lomonosov)

Card 2/2

5.3400,5.3600,5.3700

77862
SOV/79-30-2-13/78

AUTHORS: Yur'Yev, Yu. K., Belyakova, Z. V., Kostetskiy, P. V.,
Prokof'yev, A. I.

TITLE: Triacyloxyboranes and Tetraacetoxygermanium in Acylation
of Benzene and Thiophene

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2,
pp 415-420 (USSR)

ABSTRACT: The authors studied relative acylating ability of mixed
anhydrides of various organic acids (acetic, propionic, and
butyric) and inorganic acids, $B(OH)_3$, $Al(OH)_3$, $Ge(OH)_4$, and
 $Si(OH)_4$. The acylation of benzene was performed with the
anhydrides formed in situ from the organic acid and the
halides of the nonmetals (boron bromide, germanium
tetrachloride, aluminum chloride, and silicon tetra-
chloride) in benzene solution in presence of anhydrous
aluminum chloride. If the latter is absent, the mixed
anhydrides can be isolated. The yields of the synthesized
ketones are shown in Table 1.

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Triacyloxyboranes and Tetraaceto-
oxygermanium in Acylation of Benzene
and Thiophene

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Table 1.

(A)	(B)			(C)
	R=CH ₃	R=C ₂ H ₅	R=γ-C ₃ H ₇	
(D)	66	56	63.3	$7.3 \cdot 10^{-10}$
(E)	47	49.5	55	$2.2 \cdot 10^{-10}$
(F)	31	—	—	$6 \cdot 10^{-12}$
(G)	28	—	—	—

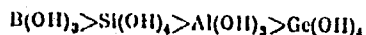
Key to Table 1: (A) Acylating agent; (B) Yield of the ketone C₆H₅COR (in %); (C) The first dissociation constant of inorganic acid of the mixed anhydride; (D) Boroanhydride of organic acid (boran triacetate); (E) Silicon anhydride of organic acid (silicon tetraacetate); (F) Aluminum triacetate; (G) Germanium triacetate

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Triacyloxyboranes and Tetraaceto-
oxygermanium in Acylation of Benzene
and Thiophene

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It can be seen that the acylation capacity of the mixed anhydrides decreases with decreasing acidity of the inorganic acid:



Thiophene was acylated by boroanhydrides of acetic and butyric acids and by germanium tetraacetate (yields of acetothienone and propyl-2-thienyl ketone were 68.5%) using stannic chloride as catalyst. There are 2 tables and 20 references, 5 Soviet, 6 German, 1 French, 1 Finnish, 1 U.K., and 6 U.S. The 5 most recent U.K. and U.S. references are: D. Tarbell, J. Price, J. Org. Chem., 22, 245 (1957); H. Anderson, J. Am. Chem. Soc., 74, 2371 (1952); Chem. Abst., 41, 5481 (1947); H. Cook, J. Ilett, B. Saunders, G. Stacey, J. Chem. Soc., 1950, 3125; J. Johnson, J. Am. Chem. Soc., 73, 5888 (1951).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: February 9, 1959
Card 3/3

BELYAKOVA, Z.V.

41

37753

S/661/61/000/006/004/081
D205/D302

5.3700
11.12.50

AUTHORS: Trofimova, I. V., Andrianov, K. A., Golubtsov, S. A.,
~~Guretskaya, R. A.~~ Belyakova, Z. V., Yakusheva, T. M.,
Lobusevich, N. P. and Luzganova, M. A.

TITLE: On the regulation of the composition of products in the
direct synthesis of methyl- and ethyl chlorosilanes in
a fluidized bed

SOURCE: Khimiya i prakticheskoye primeneniye kremneorganiches-
kikh soyedineniy; trudy konferentsii. no. 6, Doklady,
diskussii, resheniye. II Vses. konfer. po khimii i prakt.
prim. kremneorg. soved., Len., 1958. Leningrad, Izd-vo
AN SSSR, 1961, 25-27

TEXT: Regulation of the process is one of the main problems in
preparing monomeric organosilicon compounds. The most interesting
results were obtained during the attempt to regulate the product
composition by varying the preparation procedure of the catalyst.

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On the regulation ...

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This method opens wide possibilities as can be judged from the obtained data. Thus a synthesis carried out on a Si-Cu melt containing 15 - 20% Cu gave 6% $\text{CH}_3\text{HSiCl}_2$, 30 - 40% $(\text{CH}_3)_2\text{SiCl}_2$ and 40% CH_3SiCl_3 , while the synthesis on a Si-Cu melt activated by cuprous chloride gave 6% $\text{CH}_3\text{HSiCl}_2$, 55% $(\text{CH}_3)_2\text{SiCl}_2$ and 25% CH_3SiCl_3 . Further modifications of the catalyst bring about further changes in the composition. Preliminary experiments on the production of methyl chlorosilanes from methane, were performed. Methyl dichlorosilane can be prepared in this way, with trichlorosilane and silicon by-products which can be utilized. For synthesis of ethyl chlorosilanes other methods of regulating the product composition were employed: Preliminary treatment of the Si-Cu catalyst by various gases at elevated temperatures, dilution of ethyl chloride by gases and activation of the ethyl chloride by minor additions. The most interesting results were obtained with preliminary treatment by air at 370°C. About 45% of diethyl chlorosilane was present in the product using a catalyst treated in this way. Dilution

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of EtCl with HCl and the introduction of 0.5 - 0.7% moisture increases the ethyl dichlorosilane content of diethyl dichlorosilane. There are 1 figure and 3 tables.

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4

S/661/61/000/006/028/081
D205/D302

AUTHORS: Belyakova, Z. V., Yur'yev, Yu. K. and Yelyakov, G. B.
TITLE: Tetraacycloxysilanes in organic synthesis
SOURCE: Khimiya i prakticheskoye primeneniye kremneorganicheskikh soyedeniy; trudy konferentsii. no. 6: Doklady, diskussii, resheniye. II Vses. konfer. po khimii i prakt. prim. kremneorg. soyed., Len., 1958. Leningrad, Izd-vo AN SSSR, 1961, 127-134

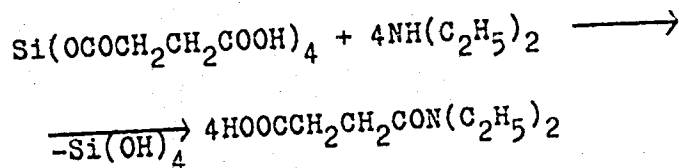
TEXT: A direct proof of the structure of the silicoanhydrides of the dibasic acids was obtained. It was previously stated that these compounds have carboxylic groups in each of the acid remnants bonded to the silicon atom. The reaction of the silico-succinic anhydride with diethylamine

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D205/D302

Tetraacyloxysilanes in ...



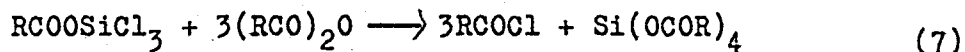
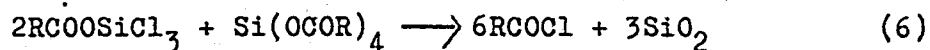
is a direct proof of this structure. In the reaction of excess SiCl_4 with organic monobasic acids (of the fatty, aromatic and heterocyclic series) acyloxy-trichlorosilanes are obtained in quantitative yields; $\text{SiCl}_4 + \text{RCOOH} \rightarrow \text{RCOOSiCl}_3 + \text{HCl}$ where $\text{R} = \text{CH}_3, \text{C}_2\text{H}_5, \text{n-C}_3\text{H}_7, \text{iso-C}_3\text{H}_7, \text{n-C}_4\text{H}_9, \text{iso-C}_4\text{H}_9, \text{tert.-C}_4\text{H}_9, \text{n-C}_5\text{H}_{11}, \text{n-C}_7\text{H}_{15}, \text{C}_6\text{H}_5, \text{o-, p-CH}_3\text{C}_6\text{H}_4, \text{o-, p-ClC}_6\text{H}_4, \text{o-, m-, p-NO}_2\text{C}_6\text{H}_4, \alpha\text{-C}_{10}\text{H}_7, \alpha\text{-C}_4\text{H}_3\text{S}$. The excess SiCl_4 is distilled off in vacuum. Acids insoluble in SiCl_4 give, under these conditions, only tetraacyloxysi-

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Tetraacyloxysilanes in ...

S/661/61/000/006/028/081
D205/D302

lanes, a solvent being indispensable for preparing acyloxy-trichlorosilanes. Acyloxy-trichlorosilanes are mobile, fuming, easily hydrolysable liquids. They disproportionate easily according to $4\text{RCOOSiCl}_3 \longrightarrow \text{Si}(\text{OCOR})_4 + 3\text{SiCl}_4$. The stronger the organic acid, the higher is the tendency towards disproportionation. In the fatty acid series, this tendency decreases with the length and degree of branching of the organic chain. The known process of the preparation of chloroanhydrides from acids and SiCl_4 which supposedly takes place in two stages, is shown to take place in four stages with possible 3 alternative chemical routes. Two of the alternative routes were tested:



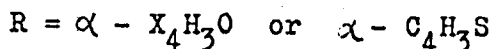
Card 3/5

✓

Tetraacyloxysilanes in ...

S/661/61/000/006/028/031
D205/D302

Thus, benzoyloxy trichlorosilane reacted with silicobenzoic and benzoic anhydrides yielding 64.5 and 74% of benzoyl chloride respectively. Acyloxy-trichlorosilanes are good acylation agents. The acyloxy group is more readily substituted for the alkoxy-group by the action of ethyl alcohol at -30°C than the chlorine atoms. The acyloxy trichlorosilanes may serve for the formation of new mixed anhydrides: $\text{RCOOSiCl}_3 + 3\text{CH}_3\text{COOH} \longrightarrow \text{RCOOSi}(\text{OCOCH}_3)_3$



By the action of Grignard reagents the acyloxy-trichlorosilanes form tetraalkyl silanes and tertiary alcohols. S. A. Golubtsov (Moscow), V. P. Davydova (IKhS AN SSSR, Leningrad), N. S. Leznov (Moscow), A. L. Klebanskiy (VNIISK, Leningrad), Yu. Ya. Fialkov (KPI, Kiyev), P. V. Davydov (Moscow), R. Kh. Freydlina (INEOS AN SSSR, Moscow) and M. G. Voronkov (IKhS AN SSSR, Leningrad) took part in the discussion. There are 2 tables. ✓

Card 4/5

Tetraacyloxysilanes in ...

S/661/61/000/006/028/081
D205/D302

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V.
Lomonosova (Moscow State University im. M. V. Lomono-
sov)

Card 5/5

✓

BELYAKOVA, Z.V.; GOLUBTSOV, S.A.

Synthesis of some (chloroörgano)hydrosilanes. Zhur.ob.khim. 31
no.10:3178-3181 0 '61. (MIRA 14:10)
(Silane)

5.3700

21421

S/191/61/000/012/005/007

B110/B147

AUTHORS: Golubtsov, S. A., Belyakova, Z. V., Yakusheva, T. M.TITLE: Synthesis of β -ethyl cyanide trichlorosilane

PERIODICAL: Plasticheskiye massy, no. 12, 1961, 20 - 21

TEXT: The long heating in the synthesis of β -ethyl cyanide trichlorosilane (I) according to J. C. Saam, J. L. Speier (see below):
$$\text{HSiCl}_3 + \text{CH}_2=\text{CH}-\text{CN} \longrightarrow \text{Cl}_3\text{SiCH}_2\text{CH}_2\text{CN}$$
 was avoided by working in a 0.5

liter autoclave. 53 g of acrylonitrile, 181.5 g of trichlorosilane, and 3.6 g of dimethyl formamide were heated for 1 - 2 hr, and the reaction products fractionated. Optimum yield (60 - 67%) of I was obtained by 1-hr heating at 80 - 100°C. At 50 - 70°C 47%, at 110 - 130°C 53% yield, only the β -isomer, was obtained. Rectification on a column (efficiency = 15 theoretical plates) yielded a fraction with 3.2% of trichlorosilane, 2.7% of azeotropic mixture (11% of acrylonitrile and 89% of SiCl_4), and 81.3% of SiCl_4 . The gases contained 84% of H_2 , 9.4% of N_2 , 1.5% of acid

Card 1/2

21421

S/191/61/000/012/005/007
B110/B147Synthesis of β -ethyl cyanide....

admixtures, and 5.1% of CH_3Cl . For the continuous synthesis of I (Fig.), dosing vessel 1 was filled through opening 4. The reaction mixture is pressed into the reaction vessel 2 (a spiral pipe immersed into water) by N_2 supplied through 5. Dosing valve 7 and connector 8 are placed between 1 and 2. The mixture passes from 2 into condenser 3. The condensate reaches the receiving vessel 12. The noncondensed gases are carried off through the throttle valve 9. By means of the continuous apparatus which can easily be automatized, working is possible for a longer period under steady conditions. Productivity of the reaction vessel per unit volume increases by the twofold as compared to cyclic operation under pressure, and by the 140-fold as compared to operation under atmospheric pressure. There are 1 figure and 5 non-Soviet references. The three most recent references to English-language publications read as follows: G. D. Cooper, M. Prober, J. Org. Chem., 25, 240 (1960); J. C. Saam, J. L. Speier, J. Org. Chem., 24, 427 (1959); S. Nozakura, S. Konotsune, Bull. Chem. Soc. Japan, 29, 322 (1956).

Card 2/3

15.8170

27902
S/079/61/031/010/002/010
D227/D302

AUTHORS: Belyakova, Z.V., and Golubtsov, S.A.

TITLE: Synthesis of some (chloro-organo) silanes

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 10, 1961,
3178-3181

TEXT: Tri- substituted silanes in which a silicon atom is linked to both hydrogen and a chlorinated organic radical Cl-R-Si(R') (R'')H are practically unknown in the literature. Such compounds are of interest producing polymers having chains with alternating silicon atoms and hydrocarbons. In the present work the authors prepared chloromethyl-methylphenyl silane, chloromethyldiphenylsilane and chlorophenylmethylsilane by reducing the corresponding chlorosilanes with lithium aluminum hydride. In the case of chlorophenylmethylphenylchlorosilane the reduction proceeded smoothly and the yield of chlorophenylmethylphenylsilane was 69.5 - 72% irrespective of the order of addition of the reagents. The reduction of chloromethylmethylphenylchlorosilane proved more complex;

Card 1/3

X

Synthesis of some ...

27902
S/079/61/031/010/002/010
D227/D302

when LiAlH_4 was added to chlorosilane the yield of product was 83% and reduction of chlorine in the chloromethyl group was practically non-existent. When the order of addition was changed the yield of chloromethylmethylphenylsilane was only 56%. The most difficult reaction occurred in the case of chloromethyldiphenylsilane; under optimum conditions, the yield of chloromethyldiphenylsilane was only 67% and that of methyl-diphenylsilane 7%. Experimental procedure: The starting materials were prepared by reacting the corresponding dichlorosilane (chloromethylmethyl-dichlorosilane or chlorophenylmethyl-dichlorosilane) with phenylmagnesium bromide under the usual Grignard reaction conditions. The products of distillation were used in the reduction which was carried out in ether, adding the reducing agent to the chlorosilane. After completing the addition the mixture was refluxed for 6 hours, cooled and decomposed with 5% HCl. The ethereal solution was washed and distilled. Redistillation of the residue in the case of chloromethylmethylphenylchlorosilane reduction yielded chloromethylmethylphenylsilane b.pt. 99-100°C/14 mm n_D^{20} 1.5326, J

Card 2/3

Synthesis of some ...

27902

S/079/61/031/010/002/010
D227/D302

d_4^{20} 1.0485 MR_D 50.49; MR_{calc} 50.69. Chloromethyldiphenylsilane and chlorophenylmethylphenylsilane were also prepared; their properties are: b.pt. 175-180°C/15 mm n_D^{20} 1.5842, d_4^{20} 1.1089, MR_D 70.25, MR_{calc} 70.46; and b.pt. 172-180°C/25 mm n_D^{20} 1.5795, d_4^{20} 1.0982, MR_D 70.50; MR_{calc} 70.46, respectively. There are 7 references: 3 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: H. Gilman, G. E. Dunn, J. Am. Chem. Soc. 73, 3404 (1951); U.S. Patent 2,527,591 (1950); G. Russell, J. Org. Chem. 21, 1190 (1950); R. A. Benkeser, D. Foster, J. Am. Chem. Soc. 74, 5314 (1952).

SUBMITTED: November 14, 1960

Card 3/3

38678

S/079/62/032/006/006/006
D202/D304

5.2700

AUTHORS: Belyakova, Z. V., Golubtsov, S. A. and Yakusheva, T.M.

TITLE: Synthesis of organosilicon monomers containing the β -cyanoethyl group

PERIODICAL: Zhurnal obshchey khimii, v.32,no.6, 1962, 1997-2003

TEXT: The authors studied the cyanoethylation of methylchlorosilane, but with no success. Syntheses were carried out of methyl, ethyl and phenyl derivatives of β -cyanoethyldichlorosilane from the trichloro compound. Methyl- β -cyanoethyldichlorosilane was obtained from dimethylcadmium by the method of Cooper and Prober. The pure methyl compound was isolated from the reaction products by esterification with iso-butyl alcohol. Using ethyl and phenyl magnesium bromides, ethyl and phenyl-cyanoethyldichlorosilanes were prepared, the last not being previously described in literature. By a full or partial esterification of various cyanoethylchlorosilanes the authors obtained: β -cyanoethyltriethoxysilane, ethyl- β -cyanoethyldichlorosilane, β -cyanoethyltriacetoxysilane,

Card 1/2

Synthesis of organosilicon ...

S/079/62/032/006/006/006
D202/D304

methyl-β-cyanoethyldiethoxychlorosilane, and 6 new compounds:
β-cyanoethyldiethoxychlorosilane, β-cyanoethyldibutoxychlorosi-
lane, β-cyanoethylbutoxydichlorosilane, methyl-β-cyanoerhydibu-
toxysilane, methyl-β-cyanoethyldi-iso-butoxysilane and ethyl-β-
cyanoethyldiacetoxysilane.

SUBMITTED: June 30, 1961

Card 2/2

BELYAKOVA, Z.V.; YAKUSHEVA, T.M.; GOLUBTSOV, S.A.

Reaction mechanism of addition of hydrides of chlorosilanes
to acrylonitrile, Zhur. ob. khim. 34 no. 5:1480-1484 My '64.
(MIRA 17:7)

L 22441-65 EWT(m)/EPF(c)/EPR/EMP(j)/T Pc-4/Pr-4/Ps-4 RPL WW/RM
ACCESSION NR: AP5000484 S/0062/64/000/011/2068/2069

AUTHOR: Belyakova, Z. V.; Pomerantseva, M. G.; Andrianov, K. A.;
Golubtsov, S. A.; Popel'eva, G. S. 31 B

TITLE: Obtaining γ -trifluoropropylalkenylchlorosilanes and their interaction with hydride chlorosilanes

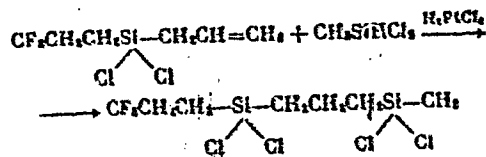
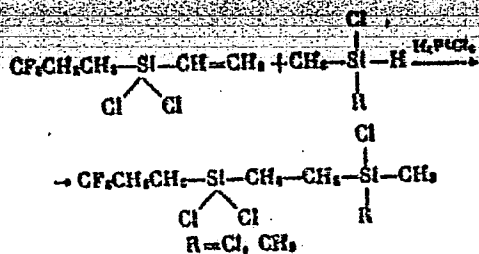
SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 11, 1964, 2068-2069

TOPIC TAGS: Grignard addition reaction, gamma trifluoropropylalkenylchlorosilane, methylchlorosilane, dimethylchlorosilane, gamma trifluoropropyldivinyl-dichlorosilane

ABSTRACT: The vinyl and allyl title compounds were prepared by Grignard addition reaction of methylchlorosilane or dimethylchlorosilane with γ -trifluoropropyldivinylchlorosilane in accordance with the following formulas:

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1 22441-65
 ACCESSION NR: AP5000484



The yields are about 30%. The interaction of γ -trifluorochloropropane with magnesium and allyltrichlorosilane gave only γ -trifluoropropylallyldichlorosilane at a 9.2% yield, that of γ -trifluorochloropropane with magnesium and vinyltrichlorosilane gave 32% γ -trifluoropropylvinylidichlorosilane and 25% bis (γ -trifluoro-

Card 2/3

L 22441-65

ACCESSION NR: AP5000484

propyl)vinylchlorosilane. Orig. art. has: 2 formulas

ASSOCIATION: None

SUBMITTED: 26Sep63

ENCL: 00

SUB CODE: GC, OC

NR REF SOV: 000

OTHER: 000

Card 3/3

GOLUBTSOV, S.A.; BEL'YAKOVA, Z.V.; POMERANTSEVA, M.G.

Cleavage of siloxanes by silicon tetrachloride. Zhur. ob. khim.
35 no.6:1044-1048 Je '65.

Reaction of silane hydrides with allyl chloride. Ibid.:1048-1052
(MIRA 18:6)

BELYAKOVA, Z.V.; GOLUBTSOV, S.A.; YAKUSHEVA, T.M.

Addition of trichlorosilane to acrylonitrile and allyl cyanide.
Zhur. ob. khim. 35 no.7:1183-1186 J1 '65. (MIRA 18:8)

BELYAKOVSKAYA, T.N.; LEVIN, S.M.

Vladimir Dmitrievich Tikhomirov. Vest.ven. i derm. no.3:60 My-Je '56.
(MLRA 9:9)

(TIKHOMIROV, VLADIMIR DMITRIEVICH, 1896-)

(N)

ACC NR: AN5093235

Monograph

UR/

Belyakovskiy, Nikolay Georgiyevich

Structural amortization of mechanisms, instruments and equipment on ships
(Konstruktivnaya amortizatsiya mekhanizmov, priborov i apparatury na sudakh)
Leningrad, Izd-vo "Sudostroyeniye", 65. 0522 p. illus., biblio.
Errata slip inserted. 2,000 copies printed.

TOPIC TAGS: solid mechanics, mechanical vibration, structure stability, ship component, sound absorption

PURPOSE AND COVERAGE: This book deals with the problem of selecting and calculating the characteristics of amortization reinforcement of equipment on ships. The influence of a foundation and amortized object on the effectiveness of antivibration reinforcement is shown. Also viewed are the amortization structures and means of testing them. The book is recommended for engineers, constructors and designers working with amortization reinforcement of ship mechanisms, instruments and equipment. It is also useful for participants in experimental testing on ships.

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UDC: 629.12.02

ACC NR: AM6003235

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ACC NR: AM6003235

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Part III. Planning and applying amortization reinforcements

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Ch. 19. Anti-shock and vibration-isolating reinforcements of apparatus and instruments -468

Ch. 20. Amortization reinforcements of ship mechanisms -- -482

Ch. 21. Features of the arrangements on absorbers of mechanisms connected to a linear shaft -- -497

Ch. 22. Incorporating and testing amortization reinforcements on ships -502

Bibliography ---515

SUB CODE: 20,13/ SUBM DATE: 12Aug65/ ORIG REF: 047/ OTH REF: 007

Card 3/3

BELYAKOVSKIY, V.P.

New designs of twist drills. Stan.i instr. 31 no.12:32-33 D '60.
(MIRA 13:11)

(Twist drills)

BELYAKOVSKIY, V.P.

Machining spherical surfaces of large parts. Mashinostroitel'
no.11:30 N '61.

(MIRA 14:11)

(Milling machines)

BELYAKOVSKIY, V.P., inzh.

Determining front angles of drills with a sharpened front surface. Vest. mashinostr. 44 no.9:66-67 S '64.

(MIRA 17:11)

BELYALOV, Shakhsadi

[75 centners of corn per hectare] Gektarynan 75 tsentnerden zhugoru dany uchun. Frunze, Kirgызstan mamleketik basmasy, 1962. 19 p. [In Kirghiz] (MIRA 17:11)

BEIYALOV, U.B.

[Beginning of socialist reforms in the economy of the Kazan Government; from October, 1917 to August, 1918] Nachalo sotsialisticheskikh preobrazovani v ekonomike Kazanskoi gubernii, oktiabr' 1917- avgust 1918 g. Kazan', Izd-vo Kazanskogo univ., 1961. 53 p. (MIRA 15:5)
(Kazan Government—Economic conditions)

BELYALOV, Umar Belyalovich

[Supervision of economic construction in Tataria during the civil war (1918-1920)] Rukovodstvo khoziaistvennym stroitel'stvom v Tatarii v gody grazhdanskoj voiny (1918-1920). Kazan', Izd-vo Kazanskogo univ., 1963. 207 p.
(MIRA 17:7)

L 54809-65 EWT(1) GW
ACCESSION NR: AR4039861

S/0275/64/000/004/A039/A039
621.383.5

SOURCE: Ref. zh. Elektr. i yeye primeneniye. Sv. t., Abs. 4A233

AUTHOR: Andreyev, I. S.; Arzumanyan, G. B.; Belyalova, R. F.

17
B

TITLE: Pulse source for a reference luminous signal intended for stabilizing the gain of a multiplier phototube

CITED SOURCE: Nauchn. tr. Tashkentsk. un-t, vyp. 221, 1963, 45-52

TOPIC TAGS: photomultiplier, multiplier phototube, geological survey

TRANSLATION: The luminescence of the glass of a 6N15P tube envelope excited by the current pulses in the tube is used for building the reference signal in a system that stabilizes the photomultiplier gain. The envelope luminescence occurs in the blue and violet regions of the spectrum. Hence, a possibility to suppress the radiation of the tube cathode by means of an FS-1 2-mm thick filter. This was assisted by a reduced to 3.1-v tube-heater voltage. The luminescence reaches its maximum with heater voltages as low as 2.5--3 v. The luminous-pulse amplitude varies approximately 4-fold with an anode-voltage variation of 150--300 v. The circuit is used in the geological survey instruments. Bibliography: 7 titles.

Card 1/1

SUB CODE: EC, ES

ENCL: 00

PAVLOVSKIY, Nikolay Nikolayevich; BELIAN, Aleksandr Titovich;
ZAMOTA, V.G., red.; GUREVICH, M.M., tekhn. red.

[High potato yields]Vysokie urozhai kartofelia. Moskva,
Sel'khozizdat, 1962. 53 p. (MIRA 15:11)

1. Direktor sovkhoza "Vedrich" Rechitskogo rayona Gomel'skoy ob-
lasti (for Pavlovskiy). 2. Glavnyy agronom sovkhoza "Vedrich"
Rechitskogo rayona Gomel'skoy oblasti (for Belian).
(Potatoes)

BEL'YAN, R.Kh., kand. tekhn. nauk

Determination of the engineering and economic effectiveness of
low-power transformers. Elektrotehnika 35 no.9:43-46 S '64.
(MIRA 17:11)

BELYANCHEV, N.P., general-leytenant inzhenerno-tekhnicheskoy sluzhby

The main thing in the preparation of armored equipment for summer.
Tekh. i vooruzh. no.3:38-40 Mr '64. (MIRA 17:8)

1. Nachal'nik Glavnogo bronetankovogo upravleniya.