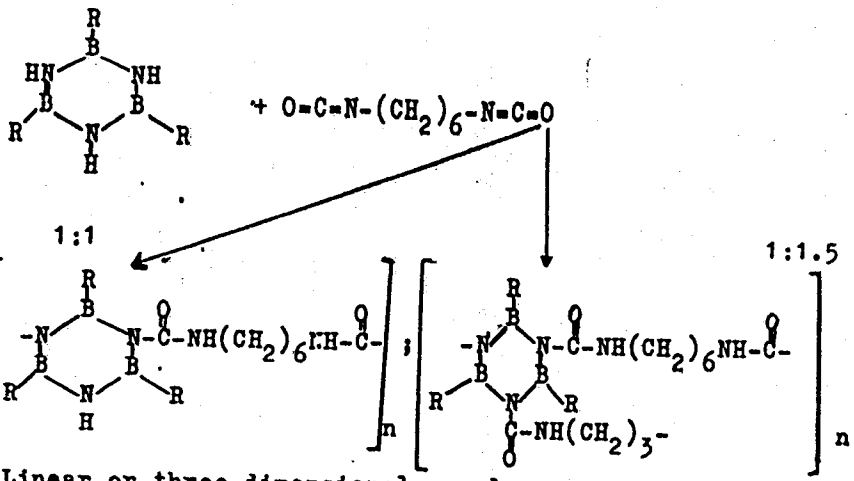
Copolymerization of Boron-substituted Borazoles With Hexamethylene Diisocyanate

86302

S/190/60/002/008/017/017
B004/B054



Linear or three-dimensional copolymers were obtained depending on the ratio of components.

SUBMITTED: February 16, 1960
Card 2/2

15.8114 2209, 1372
11.2212

21131
S/190/61/003/004/004/014
B101/B207

AUTHORS: Korshak, V. V., Bekasova, N. I., Zamyatina, V. A., Aristarkhova, G. I.

TITLE: Copolymerization of bis-(alkylamino-)alkyl- or aryl boron with organic diisocyanates

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 4, 1961, 521-524

TEXT: The papers by B. M. Mikhaylov et al. (Ref. 1: Izv. AN SSSR, Otd. khim. n., 1957, 1123; Ref. 2: ibid., 1958, 777; Ref. 3: Dokl. AN SSSR, 121, 656, 1958) showed that polycondensation of alkyl- or aryl boron dichlorides with primary amines does not lead to linear polymers, but to cyclic trimers. In the present study, the synthesis of linear polymers by copolymerization of bis-(alkylamino)-alkyl- or aryl boron with hexamethylene diisocyanate or toluylene diisocyanate was carried out according to the following equation:

$$R'HN-\underset{\displaystyle R}{\overset{|}{B}}-NHR' + O{=}C{=}N-R''-N{=}C{=}O \longrightarrow \left[-N-\underset{\displaystyle R}{\overset{|}{B}}-N-\overset{\displaystyle O}{\overset{\|}{C}}-HN-R''-NH-\overset{\displaystyle O}{\overset{\|}{C}}-\right]_n$$

Card 1/4

Copolymerization of ...

The following compounds were synthesized as initial substances: 1) bis-(methylamino)-butyl boron; 2) bis-(ethylamino)-butyl boron (according to Ref. 3); 3) bis-(methylamino)-, 4) bis-(ethylamino)-, and 5) bis-(phenylamino)-phenyl boron (according to Ref. 1). Copolymerization was carried out at a molar ratio of 1 : 1 and three-hr heating to 50°C, then to 100, 150, 200, 250, and 275°C (bis-(methylamino)-butyl boron) was only heated to 150°C). The authors used ampoules which were evacuated after passing through of N_2. The monomer was obtained from the copolymers by means of benzene, and the copolymer composition was determined by means of elementary analysis. The intrinsic viscosity of the 5% copolymer solution in tricresol was determined at 20°C. Tables 1 and 2 give the data for the copolymers. The figure shows the thermomechanical curve of the copolymer from bis-(phenylamino)-phenyl boron with hexamethylene diisocyanate. The copolymers obtained contain B, N, and C atoms in the chain. They are solid, brittle, transparent, yellowish or reddish substances which are stable to air moisture and do not decompose, even when heated beyond the melting point. There are 1 figure, 2 tables, and 3 Soviet-bloc references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds, AS USSR)

S/190/61/003/004/004/014
B101/B207

Copolymerization of ...

SUBMITTED: July 1, 1960

Table 1: Copolymers with hexamethylene diisocyanate.
Legend: 1) initial compound; 2) intrinsic viscosity; 3) softening temperature; 4) weight increase after three-day storage in the air; 5) polymer residue after 1-hr boiling with water; a) insoluble, swells.

Table 2: Copolymers with toluylene diisocyanate.
Legend as to Table 1.

Исходный органобордиамин (1)	Приведенная вязкость (2)	Температура размягчения, °С (3)	Увеличение в весе после трех суток пребывания на воздухе, % (4)	Остаток полимера после кипячения в воде в течение 1 часа, % (5)
$(CH_3NH)_2BC_6H_4$	0,28	60	0,0	71,7
$(C_2H_5NH)_2BC_6H_4$	0,10	70	0,0	0,0
$(CH_3NH)_2BC_6H_3$ (a)	Не растворяется, набухают	160	0,0	69,0
$(C_2H_5NH)_2BC_6H_3$	0,14	130	0,0	0,0
$(C_4H_9NH)_2BC_6H_3$	0,24	115	0,0	0,0

Card 3/4

21131
S/190/61/003/004/004/014
B101/B207

Copolymerization of ...

Table 1 cont.

Исходный органобораминн (1)	Приведенная вязкость (2)	Температура размягчения, °C (3)	Увеличение в весе после трех суток пребывания на воздухе, % (4)	Остаток полимера после кипячения в воде в течение 1 часа, % (5)
$(CH_2NH)_2BC_6H_5$	0,10	60—67	0,0	0,0
$(C_2H_5NH)_2BC_6H_5$	0,08	50	1,6	0,0
$(CH_2NH)_2BC_6H_5$	0,06	150	0,0	0,0
$(C_2H_5NH)_2BC_6H_5$	0,10	140—170	0,0	0,0
$(C_6H_5NH)_2BC_6H_5$	0,10	140—160	1,4	93,7

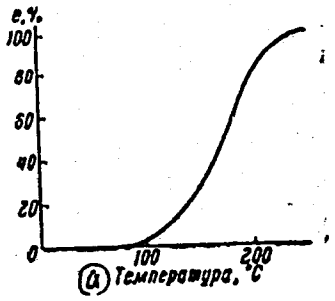


Figure. Thermomechanical properties of the copolymer from bis-(phenyl-amino)-phenyl boron with hexa-methylene diisocyanate.
Legend: a) temperature.

Card 4/4

15.8114 2209, 1372
11.2212

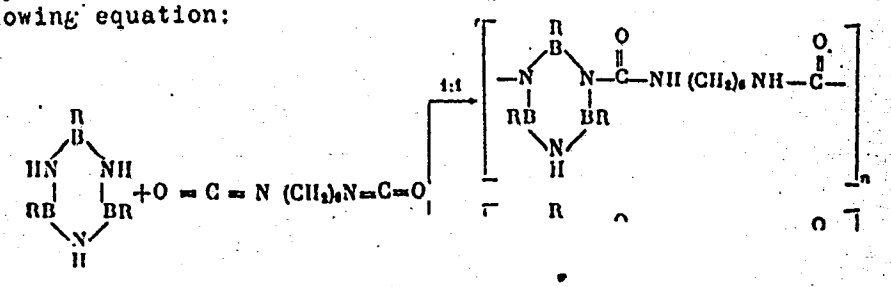
S/190/61/003/004/005/014
B101/B207

AUTHORS: Korshak, V. V., Zamyatina, V. A., Bekasova, I. I., Ma Jui-jan

TITLE: Copolymerization of boron-substituted borazoles with hexamethylene diisocyanate

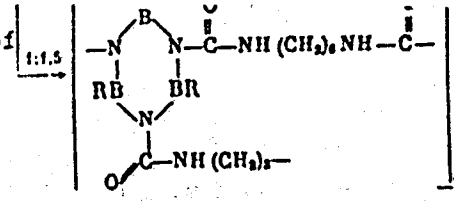
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 4, 1961, 525-529

TEXT: In the present study, the authors aimed at obtaining heat resistant polymers. They proceeded from boron-substituted borazoles which, by way of migration copolymerization with hexamethylene diisocyanate, reacted according to the following equation:



Card 1/4

S/190/61/003/004/005/014
B101/B207

Copolymerization of 

The molar ratio of components was 1 : 1 or 1 : 1.5. The boron-substituted borazoles were synthesized according to the method proposed by B. M. Mikhaylov, T. V. Kostroma (Ref. 8: Izv. AN SSSR, Otd. khim. n., 1957, 1125). A. F. Zhigach provided trimethyl borazole. The compound was copolymerized in glass ampoules from which air had been displaced by means of N_2 and which, subsequently, were evacuated and sealed. The ampoules were heated for 3 hr to 100°C and 3 hr each to 150, 200, and 250°C. Table 1 gives the data of the polymers obtained. In the case of aliphatically substituted borazoles, thermomechanical testing yielded the highest softening temperature for trimethyl borazole. Triphenyl borazole yielded copolymers which melt only at high temperatures. [Abstracter's note: The authors provide no data on softening temperature and melting point.] The resistivity of the copolymer from B-trimethyl borazole with hexamethylene diisocyanate 1 : 1.5, was $2.5 \cdot 10^{11}$ ohm-cm, tan δ = 0.0072 at 10^3 cps. at room temperature. At 150°C,

Copolymerization of ...

these values were $8 \cdot 10^{11}$ ohm·cm, and 1.1, respectively. (This study was made by T. S. Knyazeva and Z. V. Lyamkina). The experiment of copolymerizing the components in dinyl solution (boiling point 250°C), resulted in a lower copolymer yield (60-65%) with only 25-33% of the calculated boron content, and, probably, consisted mainly of polyisocyanuric acid. The thermal properties of these copolymers differed greatly from those of the copolymers obtained without solvent. There are 1 figure, 2 tables, and 10 references: 3 Soviet-bloc and 9 non-Soviet-bloc. The 2 references to English-language publications read as follows: S. J. Groszos, S. F. Stafiej, J. Amer. Chem. Soc., 80, 1357, 1958; M. Lappert, Proc. Chem. Soc., 1959, no. 2, 59.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR
(Institute of Elemental Organic Compounds, AS USSR)

SUBMITTED: July 1, 1960

Card 3/4

Copolymerization of ...

Table 1. Copolymers from B-substituted borazoles with hexamethylene diisocyanate. Legend: 1) R in $(RBNH)_3$; 2) molar ratio borazole: diisocyanate; 3) intrinsic viscosity; a) in cresol; b) in H_2SO_4; 4) polymer residue after 1-hr boiling in water; 5) shape of the polymer; 6) gelatinous substance, hardening in the air; 7) insoluble, swells; 8) transparent, solid substance; 9) ditto; 10) transparent, rubber-like resin.

Card 4/4

(1) R в $(RBNH)_3$	(2) Молярное соотношение боразол : диизоцианат	(3) Приведенная вязкость: (a) в крезоле	(3) (b) в серной кислоте	(4) Остаток полимера после кипячения в воде в течение 1 часа, %	(5) Внешний вид
CH_3	1:1	0,36	—	73,6	(6) Желатинообразное вещество, твердеет на воздухе
	1:1,5	(7) Не растворяется, набухает	(7) Не растворяется, набухает	91,7	(8) Прозрачное твердое вещество
C_2H_5	1:1	0,34	0,14	—	(9) То же
	1:1,5	(7) Не растворяется, набухает	(7) Не растворяется, набухает	61,0	» »
n-C_4H_9	1:1	(9) То же	0,10	—	(10) Прозрачная каучукоподобная смола
	1:1,5	» »	0,22	64,8	(8) Прозрачное твердое вещество
изо-C_4H_9	1:1	0,24	0,06	—	(9) То же
	1:1,5	(7) Не растворяется, набухает	(7) Не растворяется, набухает	—	» »
C_6H_5	1:1	(9) То же	(9) То же	96,7	» »
	1:1,5	» »	» »	58,8	» »

S/074/61/030/001/002/003
B013/B055

AUTHORS: Zamyatina, V. A., Bekasova, N. I.

TITLE: Polymer Compounds of Boron

PERIODICAL: Uspekhi khimii, 1961, Vol. 30, No. 1, pp. 48-59

TEXT: The present survey deals with publications on the preparation of polymer compounds of boron and on studies of monomer boron compounds and formation of polymers. The following Soviet authors who work in these fields are mentioned: B. M. Mikhaylov, F. B. Tutorskaya (Refs. 16 and 17); A. V. Topchiyev, Ya. M. Paushkin, A. A. Prokhorova (Refs. 18 and 19); V. M. Sleptsov, G. V. Samsonov (Ref. 36); V. V. Korshak, V. A. Zamyatina, N. I. Bekasova, Ma Zhuy zhan' (Ref. 47); A. F. Zhigach, Ye. B. Kazakova, I. S. Antonov (Ref. 55); K. A. Andrianov, L. M. Volkova (Ref. 80); A. V. Topchiyev and coworkers (Ref. 89); I. V. Kamenskiy, I. K. Sanin, V. I. Itinskiy, G. D. Krylova (Ref. 90). As may be seen from the comparatively small number of publications dealing with polymer compounds of boron, this branch of high-molecular chemistry is only at the stage of development. The synthetic methods are not worked out thoroughly, the

properties of the polymers are not always described and the polymers themselves are scarcely available since many of them were only obtainable in quantities of a few grams. Owing to the demands of modern engineering, however, studies in this field are being continued. On the basis of theoretical premises it seems possible to obtain high-melting polymers resistant to heat and chemical attack. Phosphoborines, which are expected to possess good mechanical properties, seem most promising in this respect. In all probability, polymers containing borazole rings in the main chain will have a rigid spatial structure. Studies of various linear polymer compounds containing -B-N- and -B-P-chains showed that they are not high-melting, less resistant to heat and can be transformed into low-molecular cyclic compounds at high temperatures (phosphoborines). The properties of polymers containing -B-C- bonds have scarcely been described. A disadvantage of many of these compounds is their readily occurring oxidation by atmospheric oxygen. Though, in general, the polyanhydrides and polyesters of boric acid and boric-acid derivatives are easily hydrolizable, various individual compounds are highly resistant to hydrolysis, oxidation and heat. There are 100 references: 22 Soviet, 43 US, 14 British, 9 French, and 18 German.

Polymer Compounds of Boron

S/074/61/030/001/002/003
B013/B055

ASSOCIATION: In-t elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)

Card 3/3

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKASOVA, N.I.; OGANESYAN, R.M.; SOLOMATINA, A.I.

Polyesters of boric acid. Izv.AN SSSR.Ser.khim. no.8:1496-1502 Ag '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Boric acid) (Esters)

KORSHAK, V.V.; BEKASOVA, N.I.; CHURSINA, L.M.; ZAMYATINA, V.A.

Reaction of 1,2-diphenyldiborane with amines and organoborodiamines.
Izv. AN SSSR. Ser.khim. no.9:1645-1648 S '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Diborane) (Amines) (Boron organic compounds)

KORSHAK, V.V.; ZAMYATINA, V.A.; CHURSINA, L.M.; BEKASOVA, N.I.

Polycondensation of B-trichloroborazole with bifunctional compounds. Vysokom.soed. 5 no.8:1127-1129 Ag '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Borazine) (Polymerization)

KORSHAK, V.V.; ZAMYATINA, V.A.; BEKASOVA, N.I.

Polycondensation of 1,2-diphenyldiborane with diamines. Izv. AN SSSR. Ser.khim. no.9:1648-1651 S '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Diborane) (Amines)

L 14531-63 EPR/EPF(c)/EWP(j)/EWT(m)/BDS/ES(s)-2 AFFTC/ASD/SSD Ps-4/Pr-4/
Pc-4/Pt-4 RM/WW/MAY
ACCESSION NR: AP3004698 S/0190/63/005/008/1127/1129 83
82

AUTHOR: Korshak, V. V.; Zamyatina, V. A.; Chursina, L. M.; Bekasova, N. I.

TITLE: Polycondensation of 2,4,6-trichloroborazine with difunctional compounds

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 8, 1963, 1127-1129.

TOPIC TAGS: methylphosphinylpolyborazine, tetramethyldisiloxypolyborazine, 2,4,6-trichloroborazine, dibutyl methylphosphonate, 1,3-dibutoxy-1,1,3,3-tetramethyldisiloxane, dimethyl sebacate, 2,4,6-trichloroborazine—dibutyl methylphosphonate copolymer, 2,4,6-trichloroborazine—1,3-dibutoxy-1,1,3,3-tetramethyldisiloxane copolymer, 2,4,6-trichloroborazine—dimethyl sebacate copolymer, polycondensation

ABSTRACT: Heat-resistant high-melting insoluble copolymers have been synthesized by polycondensation (at 100C under nitrogen, then at 240C and 2 mm Hg) of 2,4,6-trichloroborazine (I) with dibutyl methylphosphonate (II), 1,3-dibutoxy-1,1,3,3-tetramethyldisiloxane (III), or dimethyl sebacate (IV). Compounds I and II yield a powdery yellow copolymer which is insoluble in the common organic solvents, melts above 300C, and has a reduced viscosity in cresol of 0.19 [concentration unspecified]. The copolymer is slowly hydrolyzed by air moisture and

Card 1/2

L 14531-63

ACCESSION NR: AP3004698

cold water. The formula (1) of the copolymer is given in the Enclosure; according to elemental-analysis data, n = 7. Compounds I and III yield a brittle dark-brown copolymer melting above 300C and with a reduced viscosity in cresol of 0.16 [concentration unspecified]. The copolymer is insoluble in the common solvents and is stable to air moisture; its formula (2), determined by elemental analysis, is given in the Enclosure. Interaction of I and IV results in thermal degradation in addition to polycondensation and yields a copolymer with an increased asn content. The copolymer melts above 300C and has a reduced viscosity of 0.2 [solvent and concentration unspecified]. Orig. art. has: 2 formulas.

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

SUBMITTED: 07Dec61 DATE ACQ: 28Aug63 ENCL: 02

SUB CODE: CH, MA NO REF SOV: 000 OTHER: 002

Card 2/2

KORSHAK, V.V.; BEKASOVA, N.I.; CHIKISHEV, Yu.G.; ZAMYATINA, V.A.; TSETLIN, B.L.; RAFIKOV, S.R.

Radiation synthesis of borazole-based polymers. Vysokom. soed. 5 no.10:1447-1450 O '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

KORSHAK, V.V.; SOLOMATINA, A.I.; BEKASOVA, N.I.; ZAMYATINA, V.A.

Polycondensation of trimeric dimethylphosphinoborine with boron-substituted borazoles. Izv. AN SSSR Ser.khim. no.10:1856-1857 O '63. (MIRA 17:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

ACCESSION NR: AP4010050 S/0062/64/000/001/0172/0174

AUTHOR: Bekasova, N. I.; Zamyatina, V. A.; Korshak, V. V.

TITLE: Copolymerization of tri(ethylamino)boron and B-aminoborazoles with hexamethylenediisocyanate

SOURCE: AN SSSR. Izvestiya. Ser. khim., no. 1, 1964, 172-174

TOPIC TAGS: boro-organic polymer, linear boro-organic polymer, cross linked boroorganic polymer, tri(ethylamino)boron hexamethylene-diisocyanate copolymer, B-aminoborazole hexamethylenediisocyanate copolymer, borazole copolymer

ABSTRACT: Linear polymers containing B-N bonds were obtained by copolymerizing tri(ethylamino)boron and hexamethylenediisocyanate. Essentially the same product was obtained with reactant ratios of 1:1 and 1:1.5. New linear boro-organic polymers containing molecules of the borazole ring in the basic chain were obtained by copolymerizing boron-substituted borazoles with hexa-

Card 1/2

ACCESSION NR: AP4010050

methylenediisocyanate. Reaction of B-triethylamino-N-triethylborazile with hexamethylenediisocyanate, 1:1, gives a linear polymer; product of 1:1.5 ratio is a polymer cross-linked in several places with the diisocyanate as evidenced by higher fusion temperature and lowered boron content. Reaction of B-tri-(dimethylamino)borazole with hexamethylene diisocyanate, 1:1 and 1:1.5, gives a linear polymer. Here the lowered reaction temperature indicates the catalytic action of the dimethylamino group situated at the B atom. However, block polymerization of a 1:1.5 mixture at higher temperatures does give a cross linked polymer. Orig. art. has; 1 table and 1 equation.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences SSSR)

SUBMITTED: 08Jul63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: CH NO REF SOV: 001 OTHER: 004

Card 2/2

ZANYATINA, V.A.; BEKASOVA, N.I.

Polymer compounds of boron. Usp. khim. 33 no.10:1216-1231 O '64.
(MIRA 17:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 21140-65 EPA/EPF(c)/EPR/EPA(s)-2/EWA(h)/EWP(j)/EWT(m)/T Pc-4/Pr-4/Ps-4/
Pt-10/Peb RPL/ASD(m)-3 RM/JW/JW

ACCESSION NR: AP5001600 S/0062/64/000/012/2223/2224

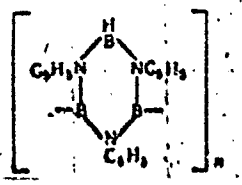
AUTHOR: Korshak, V. V.; Zamyatina, V. A.; Bekasova, N. I.; Komarova, L.G.

TITLE: Polycondensation of 1,3,5-triphenylborazine

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1964, 2223-2224

TOPIC TAGS: borazine, triphenylborazine, thermal stability, polymer

ABSTRACT: The thermal stability of 1,3,5- triphenylborazine (I) and 2-methyl-1,3,5-triphenylborazine (II) has been studied. Heating of I to 400—420C produced evolution of hydrogen and polycondensation to form a polymer with a molecular weight of 7000. The polymer is transparent and brittle and melts at above 500C; it is stable in air but partly hydrolizes in cold and boiling water. IR analysis suggests the following structure:



Card 1/2

L 21140-65
ACCESSION NR: AP5001600

3

Heating of II to 400C caused no polycondensation, and virtually no evolution of hydrogen. Apparently trifunctional borazine has a lower thermal stability than difunctional borazine. Orig. art. has: 2 formulas.

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

SUBMITTED: 04May64 ENCL: 01 SUB CODE: OC, GC

NO REF SOV: 000 OTHER: 003 ATD PRESS: 3165

Card 2/2

L 20374-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/JW/JWD/RM

ACC NR: AP6006539 (A) SOURCE CODE: UR/0191/65/000/011/0016/0018

AUTHORS: Akimov, B. A.; Bekasova, N. I.; Zhigach, A. F.; Zamyatina, V. A.; Korshak, V. V.; Sarishvili, I. G.; Sobolevskiy, M. V.

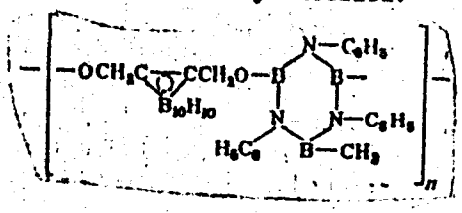
ORG: none

TITLE: Synthesis of thermostable polymers on the basis of borazole and carborane compounds

SOURCE: Plasticheskiye massy, no. 11, 1965, 16-18

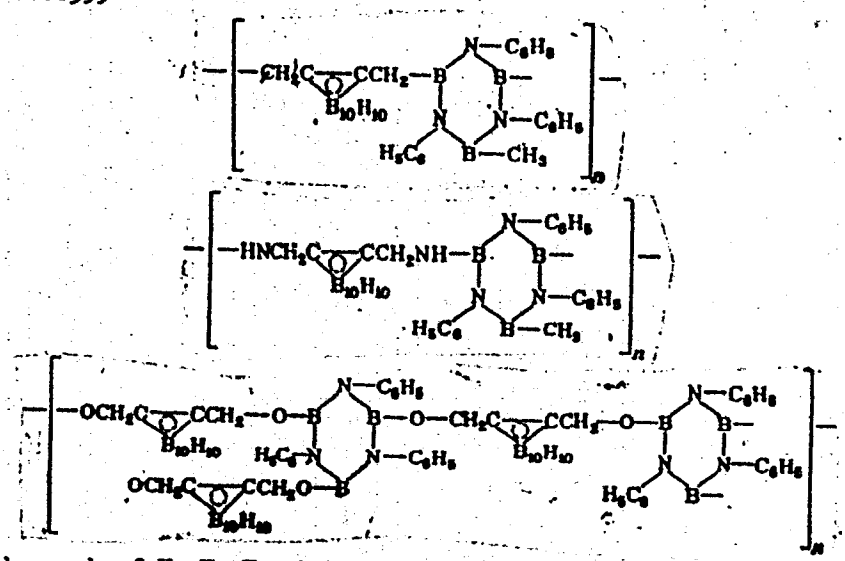
TOPIC TAGS: copolymerization, boron compound, organoboron compound, thermal stability, polymer, organic synthetic process, thermomechanical property

ABSTRACT: The following polymers were synthesized:



Card 1/3

UDC: 678.86



to extend the work of V. V. Korshak, V. A. Zamyatina, L. M. Chursina, and N. I. Bekasova (Vysokomolek. soyed., 5, No. 8, 1963). The thermomechanical properties and the thermal stability of the synthesized polymers were determined. The experimental

L 20374-66
ACC NR: AP6006539

results are presented graphically (see Fig. 1).

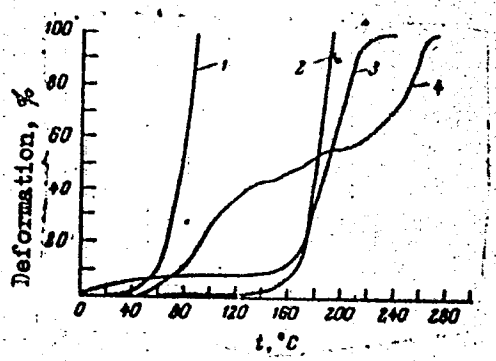


Fig. 1. Thermomechanical curves for the polymers obtained by the polymerization of: 1 - B-methyl-N-triphenylborazole and dichlorodimethylcarborane; 2 - B-methyl-N-triphenylborazole and bishydroxymethylcarborane; 3 - N-triphenylborazole and bishydroxymethylcarborane; 4 - B-methyl-N-triphenylborazole and diaminodimethylcarborane.

It was found that polymers synthesized from N-triphenyl and B-methyl-N-triphenylborazoles and di-(oxymethyl)-carborane possessed the highest thermal stability. It is suggested that the increased stability is due to the presence of the highly stable B-O bond in the molecule. Orig. art. has: 2 graphs and 4 equations.

SUB CODE: 07,11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 007

Card 3/3 vmb

L 45225-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6027771 (A) SOURCE CODE: UR/0190/66/008/008/1383/1385

AUTHOR: Korshak, V. V.; Bekasova, N. I.

ORG: Institute of Organoelemental Compounds AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Heat resistant polymer from B-trimethyl-N-triphenylborazole

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 8, 1966, 1383-1385

TOPIC TAGS: heat resistant polymer, polymerization

ABSTRACT: An ampul containing 1.5 g of B-trimethyl-N-triphenylborazole was evacuated and filled with nitrogen, soldered under vacuum and heated at 450—480C for 25 hr. After cooling with dry ice the ampul was opened. The dark and brilliant polymer obtained (1.26 g) was pulverized and boiled in dioxane in order to remove traces of borazole. The polymer does not dissolve in alcohols, ethers, or aromatic and aliphatic hydrocarbons. Its decomposition temperature is above 500C.

[DW]

SUB CODE: 07/ SUBM DATE: 02Jul65/ OTH REF: 006/

Card 1/1 UDC: 678.86

L 01269-66 EWT(l)/EWT(m) LJP(c) RM

ACCESSION NR: AP5020808 UR/0048/65/029/008/1399/1403

AUTHOR: Yevstigneyev, V. B.; Bekasova, O. D.

TITLE: Influence of polar impurities on the absorption and fluorescence spectra of chlorophyll pigments in nonpolar solvents /Report, 13th Conference on Luminescence held in Khar'kov 25 June to 1 July 1964/

SOURCE: AN SSSR. Izvestiay. Seriya fizicheskaya, v. 29, no. 8, 1965, 1399-1403

TOPIC TAGS: absorption spectrum, luminescence spectrum, solution property, chlorophyll, solvent action

ABSTRACT: The fluorescence of chlorophyll in nonpolar solvents is considerably increased by the presence of small quantities of polar materials. One of the authors has advanced the following explanation of this phenomenon (Izv. AN SSSR. Ser. fiz., 23, 74, 1959): The chlorophyll molecules (or the molecules of magnesium-containing chlorophyll analogs) are associated in nonpolar solvents and the dimers do not fluoresce; the presence of polar molecules leads to dissociation and the formation of fluorescing monomers. The view of R.Livingston (J. Amer. Chem. Soc., 71, 1542, 1949; Quart. Rev., 14, 2, 174, 1960), however, that the "activation" of chlorophyll fluorescence by polar molecules is due to formation of flu-

Card 1/3

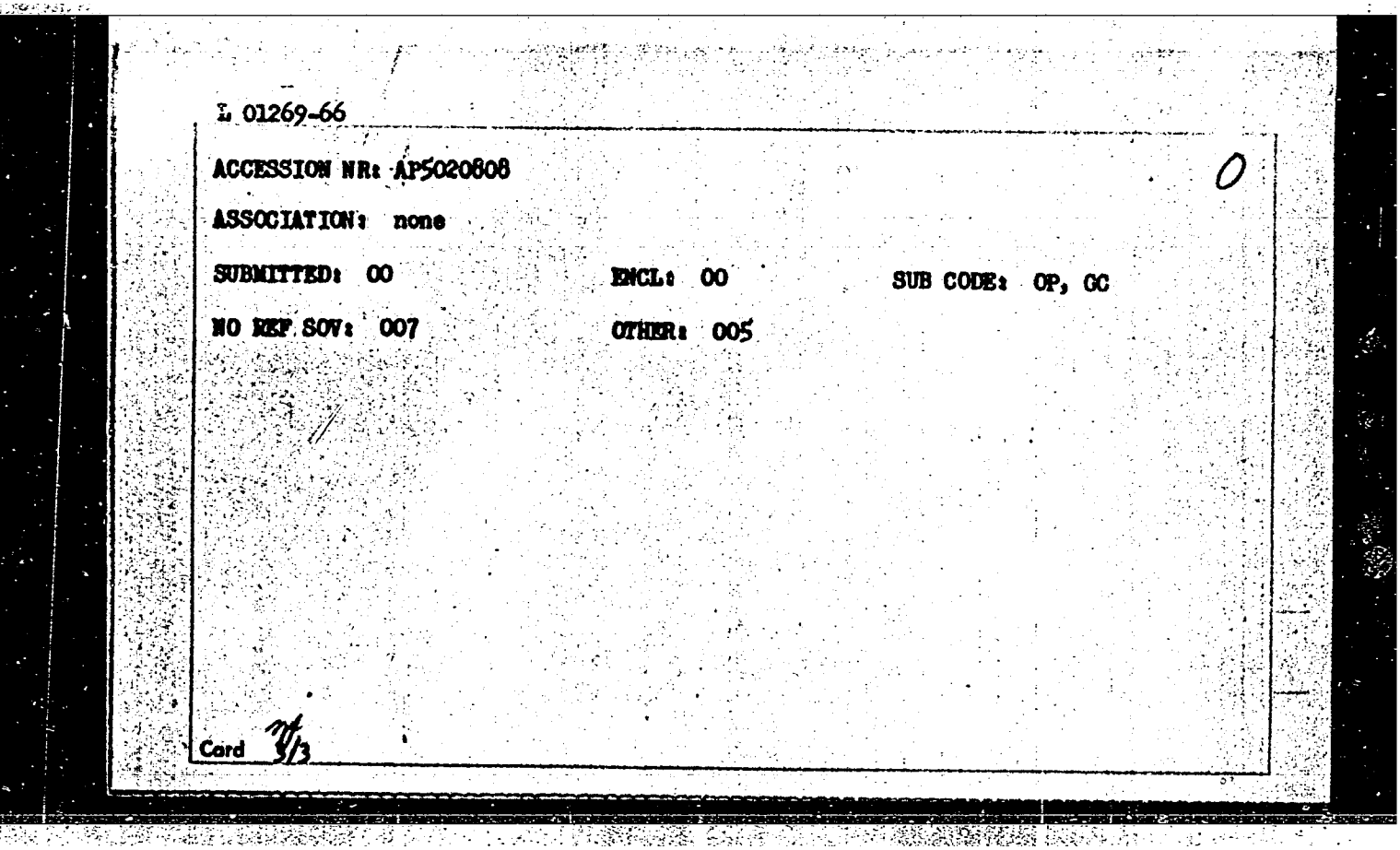
L 01269-66

ACCESSION NR: AP5020808

0

orescing solvates from nonfluorescing single molecules is still widespread. In order to settle this point, the authors have undertaken an investigation of a bacterioviridin isolated from Chloropseudomas ethylicum. This material was selected because its molecular associations have well-developed absorption and fluorescence bands in the long wavelength region which are easily distinguishable from the absorption and fluorescence of the monomer. The absorption and fluorescence spectra of the bacterioviridin in toluene were examined. When the dissolved air was pumped out (with boiling of the solution), the short wavelength band decreased in intensity and the long wavelength band increased. When air was again admitted, the spectra gradually (over a period of hours) resumed their original forms. Similar results were obtained in benzene and carbon tetrachloride. When the bacterioviridin was replaced by pheophytin these changes did not occur. The effect of conditions favoring association (increased concentration, reduced temperature, presence of nonpolar materials in which the pigment is relatively insoluble) was investigated, and the results were consistent with the authors' hypothesis. The authors regard the question of the mechanism of the "activation" of the fluorescence of chlorophyll pigments in nonpolar solvents by polar molecules as definitely settled. Orig. art. has: 3 figures.

Card 2/3



L 01269-66

ACCESSION NR: AP5020808

0

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: OP, GC

NO REF SOV: 007 OTHER: 005

Card 1/3

ACCESSION NR: AP4012979 S/0020/64/154/004/0946/0949

AUTHORS: Yebstigneyev, V.B.; Bekasova, O.D.

TITLE: On photoreduction of chlorophyll a, bacterioviridin, bacteriochlorophyll and protochlorophyll in nonpolar solvents

SOURCE: AN SSSR. Doklady*, v. 154, no. 4, 1964, 946-949

TOPIC TAGS: photoreduction, chlorophyll a, bacterioviridin, bacteriochlorophyll, protochlorophyll, phaephytin, nonpolar solvent, polar solvent, phenylhydrazine, absorption, spectrum, chlorophyll absorption, bacterioviridin complex formation

ABSTRACT: In continuation of earlier work on the influence of the solvent upon the absorption spectra of such pigments, the title substances obtained from nettles, chlorobium thiosulfatophilum and chloropseudomonas ethylicum, rhodopseudomonas palustris and the interior membrane of pumpkin seeds respectively were dissolved in toluene. 0.05 ml phenylhydrazine was added to 6ml solution and the

Card 1/3

ACCESSION NR: AP4012979

mixture was subjected to spectrophotometry study after photoreduction. The equipment used for the usual and for luminescent spectrophotometry is described. The chlorophyll a spectra, obtained after photoreduction at room and at low temperatures (~-50°) showed the usual maximum at 520 and an additional one at 585 mμ, the latter particularly pronounced at low temperatures. Increasing the temperature resulted in rapid decrease of the 585 absorbance; addition of a polar solvent (e.g. alcohol) also depressed formation of the latter maximum down to its complete disappearance. Solvents such as benzene, pentane, xylene also gave 2 maxima. Bacterioviridin yielded similar results, except for greater stability of the longer wave maximum (560 mμ). Protochlorophyll had one at 470 mμ. The other pigments were almost colorless. Measurements with fluorescent solutions gave essentially the same results for the first 2 pigments. It is concluded that the apparent presence of 2 forms of photoreduced chlorophyll a and bacterioviridin in nonpolar solvents may be explained by complex formation of the pigment with phenylhydrazine. Addition may proceed either at the basic ring of conjugated bonds or at the central magnesium atom or both. This would

Card 2/3

ACCESSION NR: AP4012979

facilitate electron migration, thus afford photoreduction at very low temperatures. This complexed form may cause the appearance of the long-wave maximum. No changes in the 520 maximum were observed throughout the experiment. Orig. art. has: 2 figures.

ASSOCIATION: Institut biokhimii A.N. Bakha Akademii nauk SSSR (Institute of Biochemistry, Academy of Sciences SSSR)

SUBMITTED: 19Jun63 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: CH NO REF SOV: 010 OTHER: 005

Card 3/3

YEVSTIGNEYEV, V.B.; BEKASOVA, O.D.

Photoreduction of chlorophyll A, bacterioviridin, bacteriochlorophyll and protochlorophyll in nonpolar solvents. Dokl. AN SSSR 154 no.4:946-949 F '64. (MIRA 17:3)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Predstavleno akademikom A.N. Tereninym.

BRKASOVA, O.D.; KOKIN, K.A.

Effect of the decomposition of some freshwater macrophytes on the quality of water. Biul.MOIP.Otd.biol. 67 no.3:152-153 My-Je '62. (MIRA 15:11)

(Freshwater flora) (Water--Pollution)

BEKASOVA, P.G.

USSR/Cultivated Plants - Potatoes, Vegetables, Melons, etc. M.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15596

Author : I.G. Osipov, P.G. Bekasova

Inst : Agricultural Institute of the Academy of Sciences, Turkmen SSR.

Title : Potato Sowing Methods in the Kolkhoz. (Sposoby posadki kartofelya v kolkhoze).

Orig Pub : Tr. In-ta zemledeliya AN TurkmSSR, 1957, 1, 157-166

Abstract : At the Andryev Kolkhoz in Ashkhabadskaya Oblast' in 1954, the effect of the density of potato planting on the yield was sutided. Two tubers were placed in each cluster with 60 x 60 and 70- x 70 cm. the spacing between clusters. The variation in planting of 70 x 30 centimeters with a single tuber in the hole was also tried out. The best results were gotten with the

Card 1/2

USSR/Cultivated Plants - Potatoes. Vegetables. Melons. etc. M.

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15596

60 x 60 cm. combination (16.7 tons per hectare) and with the 70 x 30 cm. combination (15.3 tons per hectare). The dense planting not only increased the yield but decreased the number of excrescent and off-shooting tubers.

Card 2/2

61

BEKASOVA, V.S.

Clinical and morphological changes in tuberculosis of the talocrural joint. Ortop., travm. i protez, 21 no.8:48-52 Ag '60. (MIRA 13:11)

1. Iz kostnokhirurgicheskogo otdeleniya (zav.-kand.med.nauk Ye.N. Stanislavleva) Moskovskogo nauchno-issledovatel'skogo instituta tuberkuleza Minzdrava RSFSR (direktor - kand.med.nauk V.F.Chernyshev).
(ANKLE—TUBERCULOSIS)

BEKASOVA, V. S. (Moskva I-18, 4-y Streletskiy per., d. 3/5, korpus 3, kv. 56)

Treatment of tuberculosis of the talocrural joint by the method of astragalectomy with reimplantation of the astragalus bone and compression arthrodesis. Ortop., travm. i protez. no.3:36-41 '62. (MIRA 15:6)

1. Iz kostnokhirurgicheskogo otdeleniya (zav. - doktor med. nauk Ye. N. Stanislavleva) Moskovskogo nauchno-issledovatel'skogo instituta tuberkuleza (dir. - kand. med. nauk T. P. Mochalova) Ministerstva zdravookhraneniya RSFSR.

(ANKLE—TUBERCULOSIS) (EXCISION OF ANKLE)
(ARTHRODESIS) (ANKLE BONE) (TRANSPLANTATION)

BEKASOVA, V. S.

Treatment of primary and organ-destructive forms of osteoarticular tuberculosis by the intraosseous administration of streptomycin. Probl. tub. 40 no.4:60-64 '62. (MIRA 15:6)

1. Iz kostnokhirurgicheskogo otdeleniya (zav. - doktor meditsinskikh nauk Ye. N. Stanislavleva) Moskovskogo gosudarstvennogo nauchno-issledovatel'skogo instituta tuberkuleza Ministerstva zdravookhraneniya RSFSR (dir. - kandidat meditsinskikh nauk T. P. Mochalova, zam. dir. po nauchnoy chasti - prof. D. D. Aseyev)

(STREPTOMYCIN) (BONES--TUBERCULOSIS)
(JOINTS--TUBERCULOSIS)

KALMYKOV, P.Ye., doktor med.nauk, prof.; BEKATOV, A.I., kand.med.nauk

Study on the thermal properties of ready-to-wear clothing on a model device. Gig. i san. 26 no.9:41-44 S '61. (MIRA 15:3)

1. Iz kafedry obshchey i voyennoy gigiyeny Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
(CLOTHING--TESTING)

BA Bekatorskiy, S.N. XII-3

Crystallization of fibroin. S. N. Bekatovsky (*Tekst. prom.*, 1950, No. 5, 35).—Silk fibroin free from sericin was boiled in aq. 40% $LiNO_3$ until dissolved. Direct evaporation of the liquid gave long yellowish prisms containing C, H, N, Li, and NO_3; the dialysed liquid deposited minute needle-like crystals of fibroin free from $LiNO_3$.

E. B. Uvarov.

MELIKADZE, L.D.; BEKAURI, N.G.

Distillation of mineral oil by surface evaporation. Soob.AN Gruz.SSR 16 no.3:213-220 '55. (MIRA 9:7)

1.Akademiya nauk Gruzinskoy SSR, Institut khimii imeni P.G.Melikishvili. Predstavlene chlenom-korrespondentom Akademii G.V.TSitsishvili. (Mineral oils) (Distillation, Destructive)

5(3)

AUTHORS: Bekauri, N.G., Shuykin, N.I., Yegorov, Yu.P., Shakarashvili, T.S.

SOV/62-58-11-17/26

TITLE: Separation of Higher n-Alkanes From the Fraction With Its Boiling Point at 190-350° of the Sokolovogorskaya and Mirzaani Petroleums (Vydeleniye vysshikh n.alkanov iz fraktsii s t.kip. 190-350° sokolovogorskoy i mirzaanskoy neftey)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 11, pp 1376 - 1382 (USSR)

ABSTRACT: In the present paper the authors investigated kerosene-gas oil fractions of petroleum from the Sokolovy mountains (Ural) and Mirzaani (Gruzinskaya SSR) deposits. Under laboratory conditions fractions were separated by means of direct distillation which evaporate in the temperature range of 190-350°. The properties of the distillates obtained are given (Table 1). 10 normal alkanes of the composition $C_{11}H_{24}$-$C_{20}H_{42}$ from the fraction with its boiling point at 190-350° were identified by means of physico-chemical methods and infrared spectroscopy. The working methods applied were already described in previous papers (Refs 1 - 6). In the investigated fractions the content of each separated hydrocarbon was ascertained. The

Card 1/2

data are given (Table 5). Parameters characterizing the motoric properties have been determined. The results of these determinations are given (Table 6). As can be seen from the table, the fraction with its boiling point at 190-350° of the Mirzaani petroleum as compared with the same fraction of the Sokolovogorskaya petroleum has a slightly lower characteristic. There are 2 figures, 6 tables, and 16 references, 11 of which are Soviet.

ASSOCIATION: Institut khimii im. P.G.Melikashvili Akademii nauk Gruz SSR (Institute of Chemistry imeni P.G.Melikashvili, Academy of Sciences, Gruzinskaya SSR)
Institut organicheskoy khimii im.N.D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N.D. Zelinskiy, Academy of Sciences, USSR)

SUBMITTED: March 22, 1957

BEKAURI, N.G.; SHUYKIN, N.I.; SHAKARASHVILI, T.S.; YEGOROV, Yu.P.

Normal alkanes included in the composition of liquid fuels for jet engines and the synthesis of some of their analogs. Trudy Inst.khim. AN Gruz.SSR 14:177-191 '58. (MIRA 13:4)
(Paraffins) (Jet planes--Fuel)

BEKAURI N.G.
BEKAURI'?

КОНТАКТНО-КАТАЛИТИЧЕСКИЕ ПРЕВРАЩЕНИЯ
НОРМАЛЬНЫХ АЛКАНОВ,
ВХОДЯЩИХ В КЕРОСИНО-ГАЗОЙЛЕВУЮ ФРАКЦИЮ
НЕФТИ

[redacted]

VIII Mendeleyev Congress for General and Applied Chemistry
Section of Chemistry and Chemical Technology of Fuels,
publ. by Acad. Sci. USSR, Moscow 1959

abstracts of reports scheduled to be presented at above mentioned congress,
Moscow, 15 March 1959.

5(3) SOV/62-59-1-10/38

AUTHORS: Shuykin, N. I., Bekauri, N. G., Shakarashvili, T. S.

TITLE: Contact-Catalytic Transformations of n-Hexadecane in the Presence of Gumbrine (Kontaktno-kataliticheskiye prevrashcheniya n. geksadekana v prisutstvii gumbrina)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 1, pp 110 - 114 (USSR)

ABSTRACT: In the present paper the authors investigated the transformation of n-hexadecane in the presence of natural and activated gumbrine. It was shown for the first time that these transformations at high temperatures (450 and 400°) and hydrogen pressure of 30 atmospheres absolute pressure in contact with natural and activated gumbrine take place almost equally. In this case the degree of transformation of n-hexadecane amounts to 58%. The effect exercised by activated gumbrine saturated with zinc chloride solution (20%) differs, however, considerably from that of pure gumbrine. In this case the formation of cracking gases is reduced approximately a threefold and the yield of the readily boiling fraction (up to 100°), which mainly consists

Card 1/2

of isomer alkanes, strongly increases. Thus n-hexadecane is transformed in a degree of 80%. Natural gumbrine was supplied by pit Nr 1 "Tetra" (30 m deep) of the deposit near Gumbri Gruzinskaya SSR. The compositions and properties of natural and activated gumbrine are given in table 1 . The main reaction during the transformation of n-hexadecane is its hydro-cracking in which isomerization products are formed. The dehydrocyclization takes place simultaneously in which high-boiling aromatic hydrocarbons are formed. There are 1 figure, 6 tables, and 7 references, 5 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR) Institut khimii im. P. G. Melikishvili AN GruzSSR (Institute of Chemistry imeni P. G. Melikishvili, AS Georgian SSR)

SUBMITTED: May 17, 1957

5 (3)

AUTHORS: Shuykin, N. I., Corresponding Member AS USSR, Bekauri, N. G. SOV/20-126-1-28/62

TITLE: Catalytic Polycyclization of Higher Alkanes (Kataliticheskaya politsiklizatsiya vysshikh alkanov)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 103 - 106 (USSR)

ABSTRACT: A group of scientists detected at the same time (Refs 1-3) the reaction of the catalytic dehydrocyclization of alkanes which have a chain of carbon atoms in the molecule (not less than 6). This reaction was investigated mainly in the case of hydrocarbons of simple composition. They gave as final yield benzene, toluene, and xylenes. According to the multiplet theory of A. A. Balandin and other theories it could, however, be expected, that higher alkanes of normal structure (beginning with the n-decane) are bound to yield condensed systems of naphthalene, phenanthrene, and still more complicated polycycles under conditions which favor dehydrocyclization. This is in fact the case (Ref 4) (see scheme). α-Naphthalenes can be partly or completely isomerized into the β-form in this reaction. This formation is, however, possible with an intermediate stage of

Card 1/4

a substituted benzene with a subsequent closing of the side chain (see scheme). This is based upon a previous paper of the first author (Ref 5, see scheme). In the present paper transformations of n-heptadecane and n-octodecane were investigated in the presence of 0.5% platinum precipitated on aluminum oxide and on "gumbrine" (bleaching earth), or palladium precipitated at 450° and a hydrogen pressure of 30 atm (Ref 6). The initial alkanes were isolated from the fraction 190-350° of the Sokolovogorskaya and Mirzaanskaya petroleum (Ref 7) and carefully cleaned. 8 liquid catalyzates were obtained as the result of the experiments which were thoroughly investigated according to an earlier described (Ref 4) method. These catalyzates contained products of the polymerization, of hydrocracking, and of the dehydrocyclization of the initial alkanes. After a small fraction which boils out up to 100° has been distilled off, aromatic hydrocarbons were isolated from the rest of the individual catalyzates by means of the chromatographic adsorption on silica gel of the type ASM. By means of further fractionating in a nitrogen atmosphere a greater content of toluene and xylene and platinum was obtained on "gumbrine" in fractions which boil out up to 150°. Therefore,

"gumbrine" is able to initiate aromatization reactions. Figure 1 shows the properties of the aromatic hydrocarbons which boil above 150°. They have a blue-green fluorescence. The mixture was divided into 5, 6 zones respectively by ultraviolet illumination with a luminescence of different intensity and color (wave length 360 mμ). The comparison of the spectra showed that the fraction II (Figs 1:1 cursive) is in this connection most similar to phenanthrene and its homologues. The spectrum of the fraction IV (Figs 1:2 cursive) is similar to that of α-methyl--naphthalene (Figs 1:4 cursive), although the two spectra did not agree. Thus alkyl phenanthrenes with the side groups $C_3 - C_4$ exist in the fraction II. They represent probably a mixture of n-propyl- and n-butyl phenanthrenes with a chrysene admixture (see scheme). The investigations are continued. There are 1 figure, 1 table, and 7 Soviet references.

Catalytic Polycyclization of Higher Alkanes SOV/20-126-1-28/62

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR), Institut khimii im. P. G. Melikishvili Akademii nauk GruzSSR (Institute of Chemistry imeni P. G. Melikishvili of the Academy of Sciences, Gruzinskaya SSR)

SUBMITTED: February 21, 1959

Card 4/4

BEKAURI, N.G.; SHUYKIN, N.I.; SHAKARASHVILI, T.S.

Catalytic transformations of N tridecane, N tetradecane and N pentadecane under hydrogen pressure in a flow system. Soob.AN Gruz. SSR 24 no.6:655-662 Je '60. (MIRA 13:9)

1. AN GruzSSR, Institut khimii im. P.G. Melikashvili, Tbilisi i AN SSSR, Institut organicheskoy khimii im.N.D. Zelinskogo, Moskva Predstavleno chlenom-korrespondentom Akademii G.V. TSitsishvili.
2. Chlen-korrespondent AN SSSR (for Shuykin).
(Decane)

BEKAURI, N.G.; SHUYKIN, N.I.; SHKARASHVILI, T.S.

Improving the motor characteristics of a normal undecane and dodecane. Soob.AN Gruz.SSR 25 no.5:525-531 N '60. (MIRA 14:1)

1. Akademiya nauk GruzSSR, Institut khimii imeni P.G.Melikishvili, Tbilisi i AN SSSR, Institut organicheskoy khimii imeni N.Zelinskogo, Moskva. Predstavleno chlenom-korrespondentom Akademii G.V.TSitsishvili.

(Dodecane) (Undecane)

BEKAURI, N.G.; SHUYKIN, N.I.

Contact-catalytic conversions of C_{11}-C_{18} n-alkanes under hydrogen pressure in a flow system. Izv. AN SSSR. Otd. khim. nauk no.2: 311-318 F '61. (MIRA 14:2)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR i Institut khimii im.P.G.Melikishvili AN GruzSSR.
(Paraffins) (Catalysts)

BEKAURI, N.G.; SHUYKIN, N.I.; SHAKARASHVILI, T.S.

Conversions of n-nonadecane and eicosane over metal oxide catalysts in a flow system under hydrogen pressure. Izv. AN SSSR. Otd. khim. nauk no.2:318-325 F '61. (MIRA 14:2)

1. Institut khimii im.P.G.Melikishvili AN GruzSSR i Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Nonadecane) (Eicosane) (Catalysts)

40195
S/081/62/000/013/038/054
B156/B101

11.0121

AUTHORS: Bekauri, N. G., Shuykin, N. I., Shakarashvili, T. S.

TITLE: Motor fuel properties of high-molecular alkanes of normal structure improved by catalytic cyclization

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1962, 530, abstract 13M169 (Tr. In-ta khimii. AN GruzSSR, v. 15, 1961, 141-157)

TEXT: The catalytic transformations occurring in normal C_{11}-C_{18} alkanes in the presence of catalysts have been investigated. The catalysts were 0.5 % Pt/Al_2O_3, 0.5 % Pd/Al_2O_3, 0.5 % Pt/gumbrin, and 0.5 % Pd/gumbrin. The experiments were carried out in a flow of H_2 at 450°C and 30 atm. It was found that under these conditions cyclization and isomerization occur, resulting in the formation of products with higher calorific values (+30-990 kcal/kg) and lower solidification points (16-48.5°C lower). Starting with C_{16}-C_{17}, in the presence of 0.5 % Pt/gumbrin or 0.5 % Pd/gumbrin, normal alkanes undergo partial hydro-cracking, as well as polycyclization

Card 1/2

Motor fuel properties of...

S/081/62/000/013/038/054
B156/B101

and polycyclic aromatics are formed. It is proved that the 0.5 % Pt/gumbrin and 0.5 % Pd/gumbrin catalysts are more active in dehydrocyclization, hydro-cracking and hydrogenolysis reactions than 0.5%Pt/Al_2O_3 or 0.5 % Pd/Al_2O_3. A method of forming aromatic hydrocarbons during the catalytic transformations of normal alkanes is proposed. [Abstracter's note: Complete translation.]

Card 2/2

BEKAURI, N.G.

46

PHASE I BOOK EXPLOITATION SOV/6195

Nauchnaya konferentsiya institutov khimii Akademiy nauk Azerbaydshanskoy, Armyanskoy i Gruzinskoy SSR. Yerevan, 1957.

Materialy nauchnoy konferentsii institutov khimii Akademiy nauk Azerbaydzhanskoy, Armyanskoy i Gruzinskoy SSR (Materials of the Scientific Conference of the Chemical Institutes of the Academies of Sciences of the Azerbaydzhan, Armenian, and Georgian SSR) Yerevan, Izd-vo AN Armyanskoy SSR, 1962. 396 p. 1100 copies printed.

Sponsoring Agency: Akademiya nauk Armyanskoy SSR. Institut organicheskoy khimii.

Resp. Ed.: L. Ye. Ter-Minasyan; Ed. of Publishing House: A. G. Sikuni; Tech. Ed.: G. S. Sarkisyan.

PURPOSE: This book is intended for chemists and chemical engineers, and may be useful to graduate students engaged in chemical research.

COVERAGE: The book contains the results of research in physical, inorganic, organic, and analytical chemistry, and in chemical engineering, presented at the Scientific Conference held in Yerevan, 20 through 23 November 1957. Three reports of particular interest are reviewed below. No personalities are mentioned. References accompany individual articles.

petroleum fraction contained 9.6 and 2.5% of normal paraffins and 17.5 and 26.8% of isoparaffins, respectively. The study showed the possibility of using urea to separate normal alkanes when their content is 2.5% in hydrocarbon mixtures. The method is important in dewaxing petroleum and in detemining the exact content of alkanes and isoalkanes in hydrocarbon mixtures since branched paraffins are extremely desirable components of gasoline and ligroin-kerosene fractions used in jet engines.

Bekauri, N. G., N. I. Shuykin, and T. S. Shakarashvili. The Problem of Enriching Motor Fuel By Catalytic-Contact Conversion of Normal Alkanes of The Kerosene-Gas Petroleum Fraction of Oil. (Institut khimii Akademiya nauk Gruzinskoy SSR) 306

Conditions for the isomerization of n-alkanes $C_{11}H_{24}$ - $C_{20}H_{42}$ in the kerosene-gas petroleum fraction of oil boiling at 190-350°C, and the properties of "gumbrin" (a local

BEKAURI, N.O.,

Catalytic polycyclisation of higher alkanes

Report to be sumitted for the Sixth World Petroleum Congress, Frankfurt, 16-26 June 63

BEKAURI, N.G.

JUN 25 1963

50

PHASE I BOOK EXPLOITATION SOV/6195

Nauchnaya konferentsiya institutov khimii Akademiy nauk Azerbaydzhanskoy, Armyanskoy i Gruzinskoy SSR. Yerevan, 1957.

Materialy nauchnoy konferentsii institutov khimii Akademiy nauk Azerbaydzhanskoy, Armyanskoy i Gruzinskoy SSR (Materials of the Scientific Conference of the Chemical Institutes of the Academies of Sciences of the Azerbaydzhan, Armenian, and Georgian SSR) Yerevan, Izd-vo AN Armyanskoy SSR, 1962. 396 p. 1100 copies printed.

Sponsoring Agency: Akademiya nauk Armyanskoy SSR. Institut organicheskoy khimii.

Resp. Ed.: L. Ye. Ter-Minasyan; Ed. of Publishing House: A. G. Sikuni; Tech. Ed.: G. S. Sarkisyan.

PURPOSE: This book is intended for chemists and chemical engineers, and may be useful to graduate students engaged in chemical research.

Card 1/11

COVERAGE: The book contains the results of research in physical, inorganic, organic, and analytical chemistry, and in chemical engineering, presented at the Scientific Conference held in Yerevan, 20 through 23 November 1957. Three reports of particular interest are reviewed below. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

PHYSICAL CHEMISTRY

petroleum fraction contained 9.6 and 2.5% of normal paraffins and 17.5 and 26.8% of isoparaffins, respectively. The study showed the possibility of using urea to separate normal alkanes when their content is 2.5% in hydrocarbon mixtures. The method is important in dewaxing petroleum and in detemining the exact content of alkanes and isoalkanes in hydrocarbon mixtures since branched paraffins are extremely desirable components of gasoline and ligroin-kerosene fractions used in jet engines.

Bekauri, N. G., N. I. Shuykin, and T. S. Shakarashvili. The Problem of Enriching Motor Fuel By Catalytic-Contact Conversion of Normal Alkanes of The Kerosene-Gas Petroleum Fraction of Oil. (Institut khimii Akademiya nauk Gruzinskoy SSR) 306

Conditions for the isomerization of n-alkanes $C_{11}H_{24}$ - $C_{20}H_{42}$ in the kerosene-gas petroleum fraction of oil boiling at 190-350°C, and the properties of "gumbrin" (a local

BEKAURI, N.G.; SHAKARASHVILI, T.S.

Catalytic isomerization and aromatization of higher alkanes.
Trudy Inst.khim.AN Gruz.SSR 16:57-65 '62. (MIRA 16:4)
(Paraffins) (Aromatization) (Isomerization)

BEKAURI, N.G.; TOPURIDZE, L.F.

Possibility of replacing platinum by some metallic oxide catalysts. Trudy Inst.khim.AN Gruz.SSR 16:51-56 '62. (MIRA 16:4)
(Catalysts) (Metallic oxides)

BEKAURI, N.G.; DZHASHIASHVILI, T.K.; GAPRINDASHVILI, R.T.; KVACHADZE, N.I.

Hydrogenation of phenol in the presence of new catalysts.
Soob. AN Gruz. SSR 34 no.1:89 Ap '64 (MIRA 17:7)

SHAKARASHVILI, T.S.; BEKAURI, N.G.

Synthesis of alkyl aromatic hydrocarbons. Soob. AN Gruz. SSR 35 no.2: 315-318 Ag '64. (MIRA 17:12)

1. Gruzinskiy politekhnicheskiy institut imeni V.I.Lenina, Tbilisi.
Submitted April 16, 1964.

SHAKARASHVILI, T.Sh.; BEKAURI, N.G.

Contact-catalytic conversions of normal octylbenzene and β-butylnaphthalene. Soob. AN Gruz. SSR 40 no.1:81-88 O '65. (MIRA 18:12)

1. Submitted February 24, 1965.

KHUDOROKHEVA, A.; IL'INA, A.; BEKAURI, H.; YANKOVSKAYA, T .

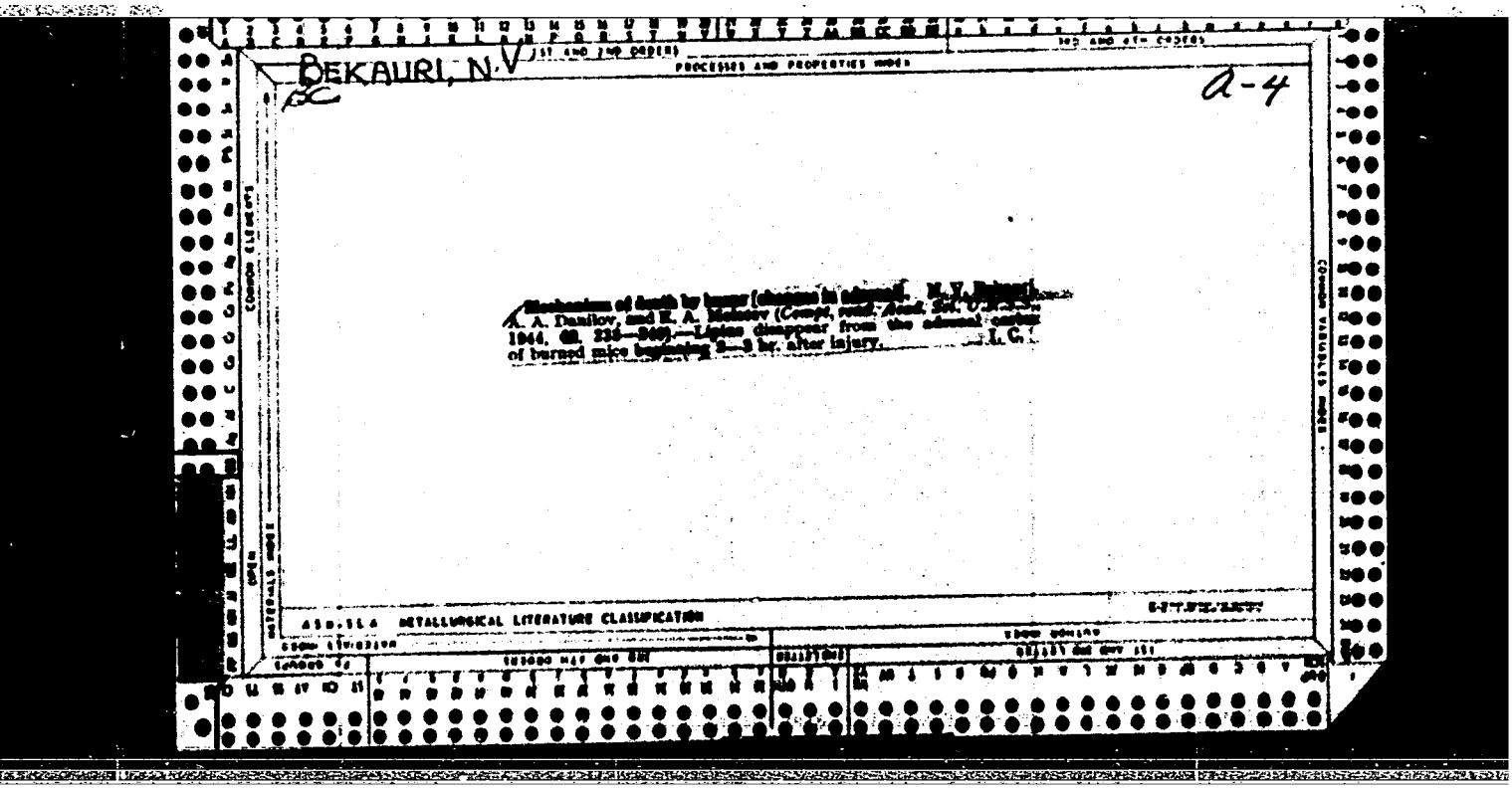
70th anniversary of birth of Anna Vasil'evna Tonkikh. Fiziol.zhur. 42 no.3:327-329 Mr '56. (MLRA 9:7)

(BIOGRAPHIES,
Tonkikh, Anna V.(Rus))

BEKAURI, N. V.

"On the Question as to the Mechanism of Death Caused by Burns,"
Dok. AN, 42, No. 5, 1943

Inst Physiology I. P. Pavlov, USSR Acad. Sci. 1943



BARYSHNIKOV, I.A.; BEKAURI, N.V.; MOISEYEV, Ye.A.

Influence of the vagus and sympathetic nerves and the carotid sinus on coronary blood circulation. Trudy fiziol. inst. 4:211-220 '49.
(NERVOUS SYSTEM, SYMPATHETIC) (MLRA 9:5)
(VAGUS NERVE)
(BLOOD--CIRCULATION)
(CAROTID SINUS)

BEKAURI, N. V.

"Tropic Effect of the Nervous System and Neuroparalytic 'kerati'," Dok. AN , 70, No 4, 1950

Inst of Physiology I.P. Pavlov, USSR Acad. Sci.

BEKAURI, N.V.

Local trophic disorders and prolonged tissue anesthesia. Vop. neirokhir. 18 no.5:37-42 S-O '54. (MLRA 7:11)

1. Iz laboratorii nervnoy trofiki Instituta fiziologii imeni I.P.Pavlova Akademii nauk SSSR.

(PROCAINE, anesthesia and analgesia,
eff. on exper. trophic disord. in tissue)
(ATROPHY, experimental,
eff. of procaine anesth. on local trophic disord.)
(ANESTHESIA, LOCAL,
procaine, eff. on exper. local trophic disord.)

Card 1/1 Pub 33-6/29

Author : Bekauri, N. V. Il'ina, A. I., and Tonkikh, A. V.

Title : Physiology of pulmonary blood circulation

Periodical : Fiziol. zhur. 40, 295-301, May/Jun 1954

Abstract : The flow of blood in veins is usually uniform and pulsation in veins is less pronounced than in arteries. When cardiac activity slackens the blood flow stops first in veins, while in arteries the flow of blood continues even though at slow pace. The number of visible arterioles and capillaries in lungs is not constant: their number may fluctuate depending on changes in the conditions under which experiments are conducted. "Spontaneous" fluctuations in a number of visible arterioles and capillaries have not been observed. A specially manufactured condenser number 1 (OS-1) was used and all observations were conducted on warm-blooded animals (cats and rabbits). Photograph of OS-1. Nine non-Soviet references.

Institution : Laboratory of Nervous Trophicity, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

Submitted : October 28, 1952

BEKAURI, N.V.

Role of sectioning, anemization, and removal of the spinal cord of rabbits in developing trophic tissue disorders. Nauch. soob. Inst. fiziol. AN SSSR no.1:115-116 '59. (MIRA 14:10)

1. Laboratoriya nervnoy trofiki (zav. - A.V.Tonkikh) Instituta fiziologii imeni Pavlova AN SSSR.
(SPINAL CORD--SURGERY) (TISSUES)

BEKAURI, N.V.; VOLKOVA, M.I.

Treatment of the severe form of iridocyclitis using alcohol-novocaine retrobulbar anesthesia of the eye. Sov.med. 25 no.12: 133-134 D '61. (MIRA 15:2)

1. Iz laboratorii nervnoy trofiki Instituta fiziologii imeni Pavlova AN SSSR (zav. laboratoriyey - zasluzhennyy deyatel' nauki prof. A.V.Tonkikh) i glaznoy kliniki I Leningradskogo meditsinskogo instituta imeni I.P.Pavrola (zav. - prof. E.E.Andreyev).
(IRITIS) (LOCAL ANESTHESIA)

BEKAURI, N.V.; KOROLEV, V.I.; STEPOCHKINA, N.A.; RUSAKOVA, K.G.

Effect of pilocarpine and atropin on the size of the pupil and intraocular pressure in rabbits in normal conditions and in disorders of the innervation of the eye. Fiziol. zhur. 47 no.7:821-825 Jl '61. (MIRA 14:7)

1. From the Laboratory of Trophic Innervation, I.P.Pavlov Institute of Physiology, Leningrad.

(ALKALOIDS--PHYSIOLOGICAL EFFECT)
(PUPIL (EYE)) (INTRAOCULAR PRESSURE) (EYE--INNERVATION)

BEKAURI, N.V.; BABENKO, Z.I.; ZHUKOVA, G.N.; MOISEYEVA, Ye.I.

Effect of an interruption of the central pathways of the sensory innervation of the eye on the secretory activity of the ciliary body. Fiziol.zhur. 51 no.3:325-329 Mr '65. (MIRA 18:5)

1. Laboratoriya fiziologii vegetativnoy nervnoy sistemy i nervnoy trofiki Instituta fiziologii imeni Pavlova AN SSSR, Leningrad.

KEVANISHVILI, G.Sh.; KVAVADZE, D.K.; BEKAURI, P.I.

Diffraction of a plane electromagnetic wave on a lattice consisting of rectangular plates. Radiotekh. i elektron. 11 no.1:136-139 Ja '66. (MIRA 19:1)

1. Tbilisskiy gosudarstvennyy universitet. Submitted March 8, 1965.

BEKAVAC, L.

Preparation and renovation of elements on topographic maps, p. 67.

VOJNIK GLASNIK (Jugoslavenska narodna armija) Beograd, Yugoslavia.
Vol. 13, no. 1, Jan. 1959

Monthly List of East European Accessions EEAI LC, Vol. 8, no. 6, June 1959
Uncla.

BEKAYA, G.L.

Pessimum of the tonic component of skeletal muscles. Soob. AN Gruz. SSR 20 no.1:99-103 Ja '58. (MIRA 11:6)

1.Institut fiziologii im. akademika I.S. Beritashvili AN GruzSSR, Tbilisi. Predstavleno akademikom I.S. Beritashvili.
(MUSCLE)

BEKAYA, G. L.

Law of propagated excitation in tetanic and tonic neuromotor units. Sooh.AN Gruz.SSR 21 no.5:593-598 N '58. (MIRA 12:5)

1. AN GruzSSR, Institut fiziologii, Tbilisi. Predstavleno akademikom I.S.Beritashvili.

(MUSCLE) (NERVOUS SYSTEM)

BEKAYA, G. L., Candidate of Biol Sci (diss) -- "On the functional aspects of tetanic and tonic neuromotor units". Tbilisi, 1959, published by the Acad Sci Georgian SSR. 13 pp (Tbilisi State U im Stalin), 160 copies (KL, No 21, 1959, 113)

BARITASHVILI, I.S., akademik, red.; BEKAYA, G.L., red.; DZIDZISHVILI, N.N., red.; ROYTBAK, A.I., red.; NINUA, K.V., red.izd-va

[Gagra Symposium] Gagrskie besedy. Tbilisi, Izd-vo AN Gruz.SSR. Vol.4. [Structural and functional characteristics of the cortical neurons] Strukturnye i funktsional'nye osobennosti korkovykh neironov. Pod obshchei red. I.S. Beritashvili. Tbilisi, Izd-vo AN Gruz.SSR. 1963. 405 p. (MIRA 17:4)

BEKAYA, G.L.; MONIAVA, E.S.

Projection of the cerebellum to the paleocortex. Trudy Inst. fiziol. AN Gruz. SSR 13:89-94 '63.

Paths connecting the cerebellum with the neocortex. Ibid.:95-101 (MIRA 17:6)

ONIANI, Tengiz Nestorovich; BEKAYA, G.L., red.

[Problems of comparative physiology of the neuromuscular apparatus] Voprosy sravnitel'noi fiziologii nervno-myshechnogo apparata. Tbilisi, Metsniereba, 1964. 273 p.
(MIRA 17:12)

L 22213-66

ACC NR: AT5024229 SOURCE CODE: UR/3167/65/014/000/0101/0106

AUTHOR: Bekaya, G. L. 2 B+/

ORG: none

TITLE: Changes in electrical activity of the sensory motor system during stimulation of the tactile area of the cerebellum

SOURCE: AN GruzSSR. Institut fiziologii. Trudy, v. 14, 1965. Sovremennyye problemy deyatel'nosti i stroyeniya tsentral'noy nervnoy sistemy (Present problems of the activity and structure of the central nervous system), 101-106

TOPIC TAGS: cortical activity, CNS activity, cerebral cortex, tactile area stimulation, cerebellar stimulation, recruiting response

ABSTRACT: Changes in the electrical activity of the sensory motor cortex during stimulation of the tactile area of the cerebellum was studied in nembutal-narcotized cats and in curarized cats. It was found that widely spaced stimulation of the paramedial region of the cerebellum evoked potentials both in the sensorimotor cortex and in the thalamic relay nucleus. More frequent stimulation (7 to 12 shocks/sec) elicited recruiting responses in the cortex, and high-frequency stimulation produced desynchronization. Stimulation of the cerebellum produced various responses in the cortex depending on the functional state of the animal. It was concluded on the basis of these and

2

Card 1/2

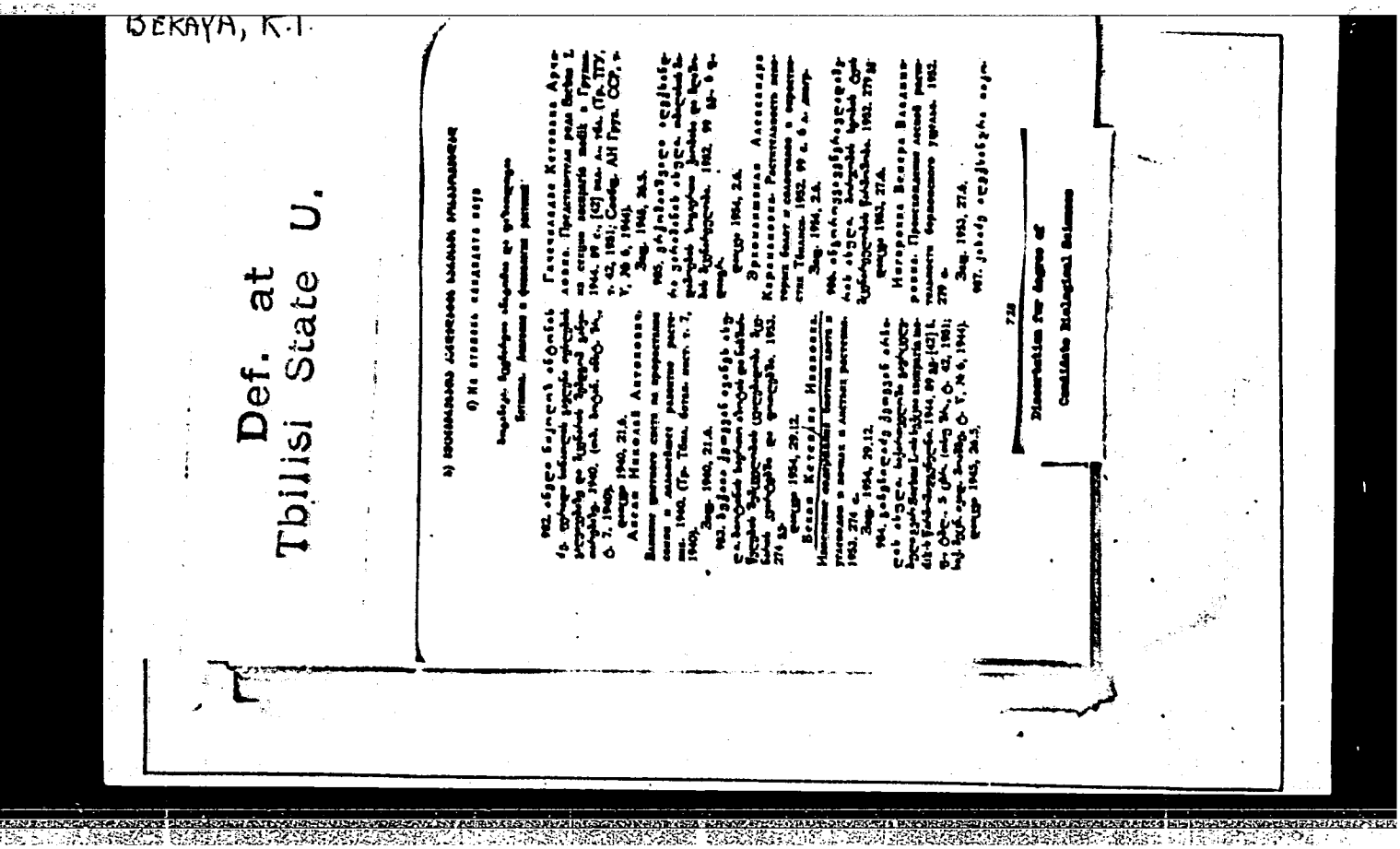
L 22213-66

ACC NR: AT5024229

earlier observations that the neocerebellum (paramedian lobule) has both local and diffuse effects on the cerebral cortex and that these effects are exercised by different pathways. [DP]

SUB CODE: 06/ SUBM DATE: none/ OTH REF: 011/ SOV REF: 007/

Card 2/2 nst



BEKAYA, K. L.

"Changes in the Biotine, Total Nitrogen, and Carbohydrate Volume in Buds and Leaves." Cand Biol Sci, Tbilisi State U imeni I. V. Stalin, Tbilisi, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

BE[illegible]AYA, V.

BE[illegible]AYA, V. and [illegible]HACHIKHVIL[illegible], V. "The chemical composition of the peanut of western Georgia," Trudy Tbilis. gos. un-ta im. Stalina, Vol XXXIIIa, 1949, p. 61-65, (In Georgian, resume in Russian)

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

BEKBASOV, A.

BEKBASOV, A. -- "The Problem of the Psychology of Initial Mastery of the Russian Language by Kara-Kalpak Students." Academy of Pedagogical Sciences RSFSR. Inst of Psychology. Moscow, 1956. (Dissertation for the Degree of Candidate in Pedagogical Sciences).

So.: Knizhnaya Letopis', No. 6, 1956.

KALININ, Sergey Ksenofontovich; MARZUVANOV, Vasiliy Leonidovich; BEKBAULOVA, Tursun Baygazinovna; SOKOLOV, A.G., red.; PROKHOROV, V.P., tekhn. red.

[Atlas of spectrol lines; region from 2095 to 1840 Å] Atlas spektral'nykh linii; oblast' 2095-1840 Å. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1960. 27 p. + Supplement: 10 plates (in porftfolio)
(MIRA 14:9)

(Spectrum analysis)

BEKBOTAYEV, A.T.

Potassium sodium feldspars in the alkali rocks of the Borsuksay Massif. Trudy Inst. geol. nauk AN Kazakh. SSR 12:133-141 '65.
(MIRA 18:9)