

1. POPOV, V. M., Engr., SHABAROV, A. M., Engr., GUSHCHIN, A. I., Engr.
2. SSSR (600)
4. Furnaces
7. Experience in operating muffle burners in shaftmill furnaces.  
Rab. energ. 2 No. 2. 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

GUSHCHIN, A.I.: POPOV, V.M.: SHABAROV, A.M.

Dust Explosion

Measures for preventing explosions of peat dust at electric power stations. Elek.  
sta. 23 no. 2, 1952. Inzh.

SO: Monthly List of Russian Accessions, Library of Congress, April

52

1953, Uncl.

A. I. Lunichkin, A. B. Dubinskii, V. M. Popov, and A. I. Shaburov, Опыт эксплуатации  
дробленого торфяного электротоплива (Experience in Burning Shredded Peat in Thermal-Electric  
Power Plants), Moscow, 1953.

The brochure explains advanced experience in effectively burning shredded peat in the  
Shaburov electric power plant near Leningrad.

The brochure is intended for the operating personnel of electric power plants using peat  
as fuel.

SO: Sovetskaya Kniga (Soviet Books), No. 133, 1953, Moscow, (U-6472)

POPOV, Viktor Mikhaylovich.; SHABAROV, Aleksandr Mikhaylovich.; GARTUNG,  
S.V., red.; VORONIN, K.P., tekhn. red.

[Burning peat in boiler furnaces] Szhiganie torfa v topkakh kotlov.  
Moskva, Gos. energ. izd-vo, 1958. 86 p. (MIRA 11:12  
(Peat)  
(Boilers)

SHABAROV, I.A.

Effect of ionizing radiation on the development of immunity against tetanus and typhoid fever. Zhur.mikrobiol.epid. i immun. 28 no.11:125-129 N '57. (MIRA 11:3)

1. Iz kafedry mikrobiologii Voenno-meditsinskoy akademii.  
(ROENTGEN RAYS, effects,  
on tetanus & typhoid fever immunol. reactions in animals (Rus)  
(TETANUS, immunology,  
vacc., eff. of x-rays in animals (Rus)  
(TYPHOID FEVER, immunology,  
same)

1.9600

S/032/61/027/001/030/037  
B017/B054

AUTHORS: Bezborod'ko, M. D., Shabarov, L. I., Podol'skiy, Yu. Ya.,  
and Vinogradov, G. V.

TITLE: Device for Testing the Wear Resistance and Antifriction  
Properties of Plastic Materials

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 104-106

TEXT: A device was developed for testing the wear resistance and anti-  
friction properties of plastic materials. The plastic material is applied  
to one of the end surfaces of a thin-walled cylindrical tube, and its  
friction is determined with a metal surface. The moment of friction is  
determined tensometrically. The resistance of caprone and Fluoroplast-4  
to wear by 40X (40Kh) steel was established by determining the friction  
coefficients. Results showed that the friction coefficients increased with  
time, then slowly dropped, and finally remained constant. This course of  
change can be explained by an increase in temperature of the contact  
surfaces. There are 3 figures and 3 Soviet references. X

Card 1/1

3501  
S/191/62/000/005/010/012  
B11C/B101

15 D200

AUTHORS: Bezborod'ko, M. D., Vinogradov, G. V., Shabarov, L. I.

TITLE: Friction and wear of plastics at high contact pressures

PERIODICAL: Plasticheskiye massy, no. 5, 1962, 53-57

TEXT: Friction was studied at point contact of 19.05 mm diameter balls made from: (1) phenol-formaldehyde resin, (2) glass plastic АП-4 (AG-4) on the basis of phenol-formaldehyde resins (~60% glass fiber of 5-7 μ diameter), (3) phenol-formaldehyde resin with ~60% sulfite cellulose, (4) metal balls from УХ-6 (ShKh-6) steel with 62 R<sub>c</sub> hardness. Under 5-100 kg loads the following lubricants were used: (1) the nonpolar naphthene paraffin fraction of НТЭ-МС-20 (NPF-MS-20) oil, both pure and with 2% by weight admixtures of tributyl phosphite and "khloref 40"; (2) castor oil and molten stearic acid; (3) cumene; (4) water and aqueous solutions of high heat capacity and thermal conductivity, (5) glycols and multivalent alcohols. The minimum load giving rise to irreversible deformations, served as a criterion for lubricant efficiency. Only a slight effect of the lubricants was found for the pair plastic-plastic. ✓

Card 1/2

Friction and wear of plastics at ...

S/191/62/000/005/010/012  
B110/B101

For the pair steel-plastic, intensive wear and surface destruction were observed when using the following lubricants: water; aqueous 5% solution of tartaric acid, citric acid, pentaerithrite, trimethylol ethane; phenol melt and alcoholic solution of formaldehyde resin. Corrugation of the smooth surface was found for lubricant ЦИАТИМ-201 (TsIATIM-201), Hrc MC-20 (Npf MS-20), Npf MS-20 + 2% khloref 40, Npf MS-20 + 2% tributyl phosphite, castor oil, ethylene glycol, diethylene glycol and glycerin. Here glycerin proved best, since the diameter of the depression did not increase and the surface of the plastic balls remained smooth over the total load range, even for 5-6 hr. The anti-wear and anti-friction properties of glycerin for the pair steel-plastic may be ascribed to modification of the steel surface (regeneration of the oxide layers and formation of ferrous glycerates). There are 6 figures and 1 table.

Card 2/2



S/683/62/000/000/008/020  
E194/E155

AUTHORS: Bezborod'ko, M.D., Vinogradov, G.V.,  
Podol'skiy, Yu.Ya., and Shabarov, L.I.

TITLE: Four-ball friction machines and modifications of them  
for studying the anti-frictional properties and wear  
resistance of plastics

SOURCE: Metody ispytaniya na iznashivaniye; trudy soveshchaniya,  
sostoyavshegosya 7-10 dek. 1960. Ed. by  
M.M. Khrushchov. Moscow, Izd-vo AN SSSR, 1962. 81-88

TEXT: Plastic parts are now being extensively used under  
conditions of sliding with a wide range of loads and speeds. They  
differ from metals in that their thermal conductivity is low, in  
that they tend to be of uniform structure throughout, and in that  
lubricant additives may not act on them in the same way as they do  
on metals. The sliding properties of plastics should be studied on  
various materials and with various kinds of lubrication. Four-ball  
machines can be used, or fixtures adapted for testing two hollow  
cylindrical specimens in edge contact which can be fitted either in  
a four-ball machine or in a normal drilling machine. A detailed  
Card 1/2

Four-ball friction machines and ...

S/883/62/000/000/008/020  
E194/E155

description is given of the fixture for making friction tests between two hollow cylinders. The test specimen being insulated from the machine shaft and from the frame, it is possible to study electrical effects in friction, or the influence of electric current on friction between plastic and metal. The frictional torque is measured by a strain gauge arrangement. In testing, it is important to ensure that the quality of surface finish and contacting of the specimens throughout the surface is uniform. Surface finish is examined with a binocular microscope and plastic specimens may be polished by running-in against a lubricated metal specimen. With the equipment described it was possible to test thermoplastic and thermosetting materials, including reinforced plastics at specific pressures in the range 2.5 to 300 kg/cm<sup>2</sup> for flat specimens and up to 8000 kg/cm<sup>2</sup> in the case of plastic balls at sliding speeds ranging from 0.1 to 20 m/sec. The frictional systems could be operated at temperatures up to 200 °C by circulating a heat-transfer medium. Test results obtained with various combinations of plastics, metals and lubricants are described and it is shown that the anti-frictional properties and wear-resistance of plastics sliding on metals depend very greatly on the nature of the lubricant.

Card 2/2                      There are 6 figures.

L 27339-66 EWT(m)/EWP(w)/EWA(d)/EWF(j)/I/EWP(t) IJP(c) JD/DJ/GS/RM

ACC NR: AT6008939

(A)

SOURCE CODE: UR/0000/65/000/000/0006/0014

AUTHORS: Bezborod'ko, M. D.; Shabarov, L. I.

45  
B+1

ORG: none

TITLE: Peculiarities of friction of metals along plastics in lubricating media

SOURCE: Moscow. Institut mashinovedeniya. Plastmassy v podshipnikakh skol'zheniya; issledovaniya, opyt primeneniya (Plastics in friction bearings; research and experiment in application). Moscow, Izd-vo Nauka, 1965, 6-14 15

TOPIC TAGS: lubricant, friction, friction coefficient, mineral oil, polyamide, material testing, plastic, glycerine, steel, caprone/ 40Kh steel, AK-7 polyamide, P6 polyamide, MS-20 mineral oil, AU mineral oil

ABSTRACT: Experiments on the frictional characteristics of plastics and metals were performed. The object of the investigations was to determine the conditions leading to softening, deformation, and destruction of the plastics. The tests were also aimed at the development of an approach to the resolution of the questions of fixing limits of serviceability of plastics and of selecting lubricating materials. The experiments were conducted on a machine which provided friction between the planar surface of a steel cylindrical ring on the planar surface of a plastic specimen. Metal specimens were prepared from 40Kh steel; plastic materials were caprone, polyamides P-6 and AK-7, organic glass, and ebonite. Lubrication of

Card 1/3

L 27339-66

ACC NR: AT6008939

rubbing surfaces was provided by mineral oils; MS-20, AU oil, solidol, and, in certain tests, glycerin and water. The first series of tests was performed without lubrication, and the results are shown in Fig. 1. In general, these tests bear out

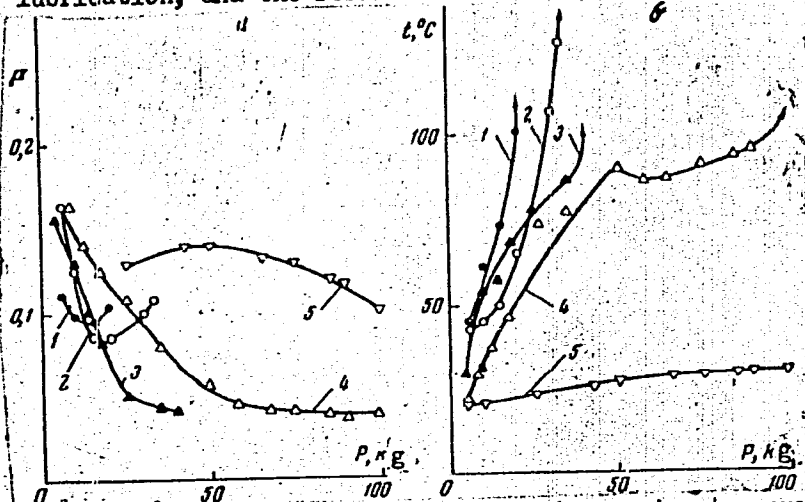


Fig. 1. Friction of steel on plastics without lubrication. a - variation of friction coefficient with loading; b - variation of the temperature of surface friction with loading; 1 - polyamide AK-7 (v = 0.73 m/sec); 2 - caprone (v = 0.73 m/sec); 3 - 5 - organic glass (v = 0.012 m/sec).

the fact that increasing loads cause increasing temperatures and diminishing friction coefficient in the "dry" condition. Later tests compare the friction characteristics which occur for various combinations of materials, loading, and selections of

Card 2/3

L 27339-66

ACC NR: AT6008939

lubricants. The tests led to the following conclusions: 1) heating of rubbing surfaces is critical in determining serviceability. The degree of plastic surface heating must be less than the temperature of vitrification; 2) the serviceability limits are greatly increased through surface lubrication and improved heat exchange. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 31Jul65/ ORIG REF: 006

Card 3/3

L. 8919-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/EWP(q)/EWP(b) Pc-l/Pq-l/Pr-l/Ps-l JD/  
ACCESSION NR: AP4045021 WW/DJ/RM/WH 8/0191/64/000/009/0026/0032

AUTHOR: Bezborod'ko, M. D.; Shabarov, L. I.

TITLE: Friction of steel on plastics B

SOURCE: Plasticheskiye massy\*, no. 9, 1964, 26-32

TOPIC TAGS: steel plastic friction, friction coefficient, sliding velocity, glass reinforced plastics, thermoplastics, ebonite, methylmethacrylate, glass transition temperature

ABSTRACT: Because there is always a temperature increase observed on the metal-plastic friction surface, it is necessary to study this phenomenon in order to select correct working conditions and to evaluate the role of the lubricant. Therefore, the friction was studied at varying loads for the butt face of a hollow cylinder (made of 40Kh stainless steel) and glass-reinforced plastics having an AG-4 phenol-formaldehyde resin base, which contains 2% polyamide resin (P-75) and 33-18 glass-reinforced plastics with epoxide resin. All the glass-reinforced plastics contained 60% glass fibers. The friction of steel with thermoplasts was studied using polymethacrylate and ebonite which were chosen because of their low glass-transition temperature. The

Card 1/3

L 8919-65

ACCESSION NR: AP405021

friction study was conducted on dry surfaces, in the presence of water, glycerine, and high-quality MS-20 oil (naphtheneparaffin fraction), and at a sliding velocity range of 0.0122 to 1.17 m/sec. The friction was measured at transitions from small to large loads without changing the sample and on a surface area of 78 mm<sup>2</sup>. The dependence of the coefficient of friction and the temperature on time, the dependence of the friction surface heating and the coefficient of friction on load P, the dependence of the friction surface heating on the sliding velocity, and the effect of the sliding velocity on the heating of steel were studied for glass-reinforced plastics and thermoplastic resins. It was found that at low sliding velocities the lubricant has little influence on the friction between steel and plastics. An increase in the sliding velocity in the absence of lubricants leads to a decrease in the coefficients of friction, brought about as a result of melting of the plastic in the zone of contact with metal. Lowering of friction in the presence of a lubricant is accomplished by a softening of the thermoplastic and chemical modification of the contact surface during friction between the steel and the glass-reinforced plastic. In all cases, the decomposition of thermoplastics was a result of heating of the friction surface above the glass-transition temperature and softening of the contact surface. Orig. art. has: 11 figures.

Card 2/3

L 8919-65

ACCESSION NR: AP40<sup>4</sup>5021

ASSOCIATION: none

SUBMITTED: 00

ATD PRESS: 3110

ENCL: 00

SUB CODE: ME, FP

NO REF SOV: 006

OTHER: 000

Card 3/3



GRUSHEVOY, V.G.; IVANOV, A.A.; KUREK, N.N.; LIBROVICH, L.S.; MOROZENKO,  
N.K.; NEKHOROSHEV, V.P.; RUSANOV, B.S.; SHABAROV, N.V.; SEMENOVA,  
M.V., red.izd-va; GORDIYENKO, Ye.B., tekhn.red.

[Instructions and conventional symbols for making mineral map  
of the U.S.S.R. on a 1:1000000 scale] Instruktsiia i usloviya  
oboznacheniiia dlia sostavleniia karty poleznykh iskopaemykh  
SSSR mashtaba 1:1000000. Moskva, Gos.nauchno-tekhn.izd-vo  
lit-ry po geol. i okhrane neдр, 1955. 16 p. (MIRA 12:10)

Leningrad, Vsesoyuznyy geologicheskiiy institut.  
(Mines and mineral resources--Maps)

BOCH, S.G.; GRUSHEVOY, V.G.; DZEVANOVSKIY, Yu.K.; ZORICHEVA, A.I., IVANOV, A.A.; KUREK, N.N.; LIBROVICH, L.S.; MOROZENKO, N.K.; NEKHOROSHEV, V.P.; RUSANOV, B.S.; SPIZHARSKIY, T.N.; SHABAROV, N.V.; SHATALOV, Ye.T., redaktor; DZEVANOVSKIY, Yu.K.; redaktor; KRASHNIKOV, V.I., redaktor; MIRLIN, G.A., redaktor; RUSANOV, B.S., redaktor; SEMENOVA, M.V., redaktor; GUROVA, O.A., tekhnicheskii redaktor.

[Instruction for compiling and preparing for publication the state geological map of the U.S.S.R., and the map of the mineral resources of the U.S.S.R. Scale 1:1000000] Instruktsiia po sostavleniiu i podgotovke k izdaniu gosudarstvennoi geologicheskoi karty SSSR i karty poleznykh iskopaemykh SSSR. Mashtaba 1:1000000. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geologii i okhrane neдр, 1955. 52 p., tables of symbols, maps [Microfilm] (MLRA 9:6)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany neдр.  
(Geology--Maps)

KRISHTOFOVICH, A.N., redaktor [deceased] SPIZHARSKIY, T.N., redaktor;  
BELYAYEVSKIY, N.A., redaktor; VADRANYANTS, L.A., redaktor;  
ZAITSEV, I.K., redaktor; KRASNOV, I.I., redaktor; KULIKOV, M.V.  
redaktor; LABAZIN, G.S., redaktor; LIBROVICH, L.S., redaktor;  
LUR'YE, M.L., redaktor; MALINOVSKIY, F.M., redaktor; NESTEROV,  
L.Ya., redaktor; NEKHOROSHEV, V.P., redaktor; SERGIYEVSKIY, V.M  
redaktor; TALDYKIN, S.I., redaktor; KHABAKOV, A.V., redaktor;  
SHABAROV, N.V., redaktor; SKVORTSOV, V.P., redaktor; KISELEVA,  
A.A., tekhnicheskii redaktor GUROVA, O.A., tekhnicheskii redaktor.

[Geological dictionary] Geologicheskii slovar'. Moskva, Gos.  
nauchno-tekhn.izd-vo lit-ry po geologii i okhrane nedr.Vol.1  
A-L 1955.402 p. (MLRA 8:10)  
(Geology--Dictionaries)

GINZBURG, Anna Il'ichna; IVANOVA, Antonina Ivanovna; SHABAROV, N.V., red.;  
ROSSOVA, S.M., red.izdatel'stva; GUROVA, O.A., tekhn.red.

[Conditions of sediment accumulation and coal formation in the  
eastern Fergana (Uzgen) coal basin] Usloviia osadkonakopleniia i  
ugleobrazovaniia v Vostochnoferganskom (Uzgenskom) ugol'nom basseine.  
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geologii i okhrane nedr.  
1956. 146 p. (Leningrad. Vsesoiuznyi geologicheskii institut. Trudy,  
vol.14) (MIRA 10:10)

(Fergana--Coal geology)

15-57-8-10394

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 8,  
p 3 (USSR)

AUTHOR: Shabarov, N. V.

TITLE: Vasiliy Ivanovich Yavorskiy (On the Seventieth Anniversary of his Birth) [Vasiliy Ivanovich Yavorskiy (K vos'midesyatiletiyu so dnya rozhdeniya)]

PERIODICAL: Inform. sb. Vses. n.-i. geol. in-t, 1956, Nr 4,  
pp 160-163

ABSTRACT: V. I. Yavorskiy was born in 1875. He worked as a miner in the coal mines of the Dombrov Basin from 1893 to 1905, at which time he entered upon a course of study at the Petersburg Mining Institute. In 1909, while still a student, he began to work for the Geology Committee. There, under the supervision of L. I. Lutugin, he took part in compiling a detailed geological map of the Donets Coal Basin. In 1914 Yavorskiy began his investigations in Kuzbass. In 1927 his monograph, "The Kuznets Basin", summarized the results

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15-57-8-10394

Vasiliy Ivanovich Yavorskiy (Cont.)

of extensive geological studies carried out in Kuzbass by Lutugin's group, much of which work had been done by Yavorskiy himself. Yavorskiy was concerned with questions on the stratigraphy, structural geology, and coal deposits of the Kuznets Basin. He was thus able to play an important part in deciding questions on the Basin development and on its utilization for industry. As a consultant, he selected the sections of the Basin best suited for mining developments. Yavorskiy published more than 160 articles dealing with different problems of coal geology, surveying and industrial utilization of the Kuznets, Donets, and other coal basins of the USSR. He was the author of a series of articles on paleontology and was the sole USSR specialist in stromatology.

Card 2/2

D. I. Gordeyev

SHABAROV, N.V.; TYZHNOV, A.V.

Coal resources of the U.S.S.R. Sov. geol. no.60:105-117 '57.  
(MIRA 11:3)

1. Ministerstvo geologii i okhrany nedr SSSR.  
(Coal mines and mining)

SHABAROV, N.V., red.; TYZHNOV, A.V., red.; VERSTAK, G.V., red.izd-va;  
AVERKIYEVA, T.A., tekhn.red.

[Reserves of coal and oil shale in the U.S.S.R.; a brief summary  
of calculations made in 1956] Zapasy uglei i goruchnikh slantsev  
SSSR; kratkaia svodka rezul'tatov podscheta 1956 g. Pod red. N.V.  
Shabarova i A.V.Tyzhnova. Moskva, Gos. nauchno-tekhn. izd-vo lit-  
ry po geol. i okhrane neдр, 1958. 178 p. (MIRA 11:5)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany neдр.  
(Coal) (Oil shales)



IVANOV, Grigoriy Aleksandrovich; SKROBOV, S.A., zam.glavnogo red.;  
SHABAROV, N.V., zam.glavnogo red.; IVANOVA, A.G., tekhn.red.

[Genetic classification of coal-bearing formations] Gene-  
ticheskaja klassifikatsija uglenosnykh formatsii. Moskva,  
M-vo geol. i okhrany neдр SSSR, 1959. 30 p. (MIRA 12:8)  
(Coal geology)

AMMOSEV, I.I., red.; BURTSEV, D.N., red.; GORYUNOV, S.V., red.;  
GUSEV, A.I., red.; KOROTKOV, G.V., red.; KOTLUKOV, V.A.,  
red.; KUZNETSOV, I.A., red.; MIRONOV, K.V., red.;  
MOLCHANOV, I.I., red.; NEKIPELOV, V.Ye., red.; PONOMAREV,  
T.N., red.; POPOV, V.P., red.; PROKHOROV, S.P., red.;  
SKROBOV, S.A., red.; TYZHNOV, A.V., red.; SHABAROV, N.V.,  
red.; YAVORSKIY, V.I., red.; BOBRYSEV, A.T., red. toma;  
VINOGRADOV, B.G., red. toma; VOLKOV, K.Yu., zam. red. toma;  
LUGOVOY, G.I., zam. red. toma; OGARKOV, V.S., red. toma;  
SIMONOV, A.V., red. toma; IZRAILEVA, G.A., red.izd-va;  
IVANOVA, A.G., tekhn. red.

[Geology of coal and combustible shale deposits in the  
U.S.S.R.]Geologiya mestorozhdenii uglia i goriuchikh slan-  
tsev SSSR. Glav.red.I.I.Ammosov i dr. Moskva, Gosgeoltekh-  
izdat. Vol.2. [Moscow Basin and other coal deposits in  
central and eastern provinces of the European part of the  
U.S.S.R.]Podmoskovnyi bassein i drugie mestorozhdenia uglia  
tsentral'nykh i vostochnykh oblastei Evropeiskoi chasti  
RSFSR. 1962. 569 p. maps. (MIRA 15:9)

1. Russia (1923- U.S.S.R.)Ministerstvo geologii i okhrany  
nedr.

(Coal geology)

SHABAROV, V.V., zasluzhennyy zootekhnik RSFSR

Fattening swine on state farms of Ivanovo Province. Zhivotnovod-  
stvo 21 no.1:26-28 Ja '59. (MIRA 12:2)  
(Ivanovo Province--Swine--Feeding and feeding stuffs)

SHABAROV, V.V.; PECHISHCHEV, M.I.

Effect of wire resistance on the sensitivity of a bridge circuit  
and its calibration. Izv.tekh. no.3:18-20 Mr '63.

(MIRA 16:4)

(Bridge circuits)

L 27298-66 EWP(h)/EWT(d)/EWP(1)

ACC NR: AM6000298

Monograph

UR/

23

B+1

Zvyagin, Aleksandr Dmitriyevich; Shabarov, Vladimir Vasil'yevich

Testing the stability and vibration of hydrofoil boats (Ispytaniya prochnosti i vibratsii sudov na podvodnykh kryl'yakh) Leningrad, Izd-vo "Sudostroyeniye," 1965. 211 p. illus., biblio., tables. Errata slip inserted. 1900 copies printed.

TOPIC TAGS: shipbuilding engineering, marine engineering, hydrofoil, static test, vibration test, strength test, strain gage

PURPOSE AND COVERAGE: This book is intended for engineers and technicians studying problems connected with the actual testing of vessels and is recommended for use by students in shipbuilding institutes. In the book, methods for the experimental investigation of strength and vibration in hydrofoil craft are presented. Since the book has practical value, particular attention has been paid to the technique of conducting tests and the processing of their results. The authors acknowledge assistance rendered them by Professor, Doctor of Technical Sciences, N. V. Mattes, and Engineers M. I. Pechishchev, N. M. Sadov, and G. V. Shkanov.

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UDC: 629.12.017.001.4:539.4

L 27298-66

ACC NR: AM6000298

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ACC NR: AM6000298

0

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PART THREE

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Appendix I. The results of strength and vibration tests performed on the "Vikhr'" ocean-going hydrofoil -- 189

SUB CODE: 13, 14/ SUBM DATE: 03Jul65/ ORIG REF: 048/ OTH REF: 010

Card 3/3

cc

ZVYAGIN, Aleksandr Dmitriyevich; SHABAROV, Vladimir Vasil'yevich;  
KRUPITSKIY, E.Z., inzh., retsenzent; CHUVIKOVSKIY, G.S., inzh.  
retsenzent; BOCHKOV, B.F., kand. tekhn. nauk, nauchn. red.;  
VLASOVA, Z.V., red.

[Testing the strength and vibrations of ships on underwater  
wings] Ispytaniia prochnosti i vibratsii sudov na podvod-  
nykh kryl'iakh. Leningrad, Sudostroenie, 1965. 211 p.  
(MIRA 18:11)



L 10922-67 EWT(d)/EWP(w)/EWP(h)/EWP(l) IJP(c) WW/BK  
ACC NR: ARG034806 (N) SOURCE CODE: UR/0398/66/000/008/A024/A024

22

AUTHOR: Shabarov, V. V.

TITLE: Preparing and conducting motion strength tests of hydrofoil boats

SOURCE: Ref. zh. Vodnyy transport, Abs. 8A141

REF SOURCE: Tr. Gor'kovsk. politekhn. in-ta, v. 21, no. 1, 1965, 88-94

TOPIC TAGS: hydrofoil, motion stability, strength test

ABSTRACT: A procedure is described for preparing and conducting strength tests of hydrofoil boats. Particular attention is paid to test errors. For measuring the deformation of the hull joints, resistance tensometers, connected by a bridge circuit, are used. The tests indicate that during the hydrofoil motion on the sea swell at a speed of 60—100 km/hr, the total duration of stress recording must constitute 300—600 sec at each angle of approach of the hydrofoil motion. Factors are analyzed which affect the operation of the bridge measuring circuit, including atmospheric humidity, temperature of the surrounding medium, coding inaccuracy from pasting the tensometers, nature of the field of deformation, and the length of connecting gears. Bibliography of 3 titles. [Translation of abstract]

Card 1/1 SUB CODE: 13/ UDC: 629.12.001.4

CA

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Synthesis of hydrocarbons. VIII. Reaction of 1,4-dichloro-2-butyne with organomagnesium compounds. R. Ya. Levina, Yu. S. Shaburov, and V. R. Skvarenko (Lenin State Univ., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) **20**, 204-9 (1950); cf. *C.A.* **44**, 1037a. Addn. of 130 ml.  $\text{SOCl}_2$  to 65 g. ( $\text{HOCH}_2\text{C}\equiv\text{C}$ ); in 110 ml. pyridine over 5-6 hrs. with cooling, followed by standing overnight, gave 70% 1,4-dichloro-2-butyne,  $b_m$  80°,  $n_D^{20}$  1.5045,  $d_4^{20}$  1.2575. This (50 g.) in 2 vols.  $\text{Et}_2\text{O}$  added at  $-10^\circ$  in 30 min. to  $\text{MeMgBr}$  (from 150 g.  $\text{MeBr}$ ) in 200 ml.  $\text{Et}_2\text{O}$ , stirred 1 hr., and decompd. on the next day with dil.  $\text{AcOH}$  gave 54% hydrocarbon fraction,  $b_m$  80-85°, and 2.5 g. high-boiling material, b. 112-24°. At higher temps. the yield drops, while the presence of a little pyrogallol gives a somewhat better yield. The high-boiling fraction consists of reactive unsatd. halides, since on further reaction with  $\text{MeMgBr}$  addnl. amts. of a hydrocarbon fraction identical with the above are obtained. The unsatd. halides could not be satisfactorily identified, as polymerization set in on standing. After fractionation over Na the hydrocarbon fraction yielded 3-hexyne,  $b_m$  80-80.5°,  $n_D^{20}$  1.4108,  $d_4^{20}$  0.7268, and 2,3-dimethyl-1,3-butadiene,  $b_m$  69-0.5°,  $n_D^{20}$  1.4333,  $d_4^{20}$  0.7285.

G. M. Kosolapoff

CA

10

Synthesis of hydrocarbons. VIII. Reaction of 1,4-dichloro-2-butyne with organomagnesium. R. Ya. Levina, Yu. S. Shabatov, and V. R. Skvurchenko (Moscow State Univ.). *J. Gen. Chem. U.S.S.R.* 20, 313 (1950) (Engl. translation). See *C.I.* 44, 6835k. R. M. S.

SHABANOV, Yu. S.

"1,4-Dichlorobutynes-2 and Its Homologs in the Synthesis of Alkynes  
With a Centrally Located Triple Bond." Sub 2 Nov 51, Moscow Order of  
Lenin State U imeni M. V. Lomonosov.

Dissertations presented for science and engineering degrees in  
Moscow during 1951.

SO: Sun. No. 480; 9 May 55

1952. 4. 4.; ANNA. 1. 11. 2.

Alkynes

A new method for the synthesis of alkynes of iso-structure with a triple bond in central position: di-(secondary-alkyl)-acetylenes. Dokl. AN SSSR, No. 4, 1952.

Monthly List of Russian Accessions. Library of Congress, October 1952. UNCLASSIFIED.

USSR/Chemistry - Organometallic Compounds

21 May 52

"The Reaction of 1,4-Dichlorobutene-2 With Organomagnesium Compounds -- Synthesis of Alkynes With the Central Position of the Triple Bond," R. Ya. Levina, Yu. S. Shabarov

"Dok Ak Nauk SSSR" Vol LXXXIV, No 3, pp 509-512

The reaction between methylmagnesiumbromide and acetylene dichloride (of the propargyl type, e.g., 1,4-dichlorobutene-2) was utilized for the synthesis of acetylene hydrocarbons of normal structure with a centrally placed triple bond, like octyne-4, decyne-5

225713

and dodecyne-6. This reaction is shown by:

$\text{ClCH}_2\text{-C-C-CH}_2\text{Cl} + 2\text{RMgBr} \rightarrow \text{R-CH}_2\text{-C-C-CH}_2\text{R}$ , where R equals  $\text{C}_2\text{H}_5$ ,  $\text{C}_3\text{H}_7$  and  $\text{C}_4\text{H}_9$ . The simplicity with which the reaction proceeded shows that it may lend itself to the synthesis of less readily accessible alkynes with a central triple bond. Presented by Acad. A. N. Nesmeyanov 26 Mar 52.

SHABAROV, YU. S.

225713

232T4

SH/BAROV, Yu. S.

USSR/Chemistry - Acetylene Derivatives 1 Jun 52

"A New Method of Synthesizing Iso-Alkynes With a Central Triple Bond - Di-(Sec-Alkyl)-Acetylenes," R. Ya. Levina, Yu. S. Shabarov

"Dok Ak Nauk SSSR" Vol 84, No 4, pp 709-712

In previous work, it was shown that Grignard reagents act on di-primary acetylenes. The same reaction is now applied to di-sec-acetylenic 1,4-dichlorides with the chlorine atoms being substituted by the alkyl group of the Grignard reagent. The secondary dichlorides used as starting

232T4

materials are easily obtained by the action of thionyl chloride on the corresponding acetylenic gamma-glycols which in turn are easily prep'd by the Iotseich reaction. In this manner (glycol-dichloride-dialkyl-acetylene) many products which are otherwise difficult to prep were synthesized, such as 2,5-dimethylhexyne-3, 3,6-dimethyldecyne-4, and 4,7-dimethyldecyne-5. Presented by Acad A. N. Nesmeyanov 26 Mar 52.

232T4

SHABAROV, Yu. S.

## USSR.

The synthesis of hydrocarbons. XXXIV. The reaction of tertiary acetylenic 1,4-dichlorides with organomagnesium compounds. R. Ya. Levina and Yu. S. Shabarov (Moscow State Univ.). *Vestnik Moskov. Univ. B, No. 2, Ser. 76-Mat. i Estestven. Nauk* No. 1, 77-82 (1953); cf. *C.A.* 47, 6333f, 7448g. — Attempts to prep. the biquaternary acetylenic hydrocarbons by the reaction of MeHgBr (I) with 2,5-dimethyl-2,5-dichloro-3-hexyne (II) failed (Hennion and Banigan, *C.A.* 40, 5694<sup>7</sup>). Instead of effecting condensation I eliminated HCl from II and gave probably 2,5-dimethyl-1,5-hexadien-3-yne and 1-chloro-2,5-dimethyl-5-hexen-3-yne. II was prepd. mixed with the 3,4-dichloro-2,5-dimethyl-2,4-hexadiene (III), by the action of HCl (d. 1.19) on  $[i\text{-CC}(\text{OH})\text{Me}]_2$  (Babayau, *C.A.* 40, 3994<sup>7</sup>). Of the two isomers the lower-boiling (b. 65-7°) is II, because it was isomerized by heating (48 hrs. at 50-60°) with  $\text{NH}_4\text{Cl}$  and  $\text{Cu}_2\text{Cl}_2$  to III (*C.A.* 38, 1478<sup>6</sup>). III does not react by long heating with I. I and II mixed at -16°, and stirred 2 hrs. with cooling and 2 hrs. at room temp. yielded, after the usual hydrolytic treatment and distn., a 13-g. fraction, b. 120-45°,  $n_D^{20}$  1.4050, which in a short time polymerized, plus a high-boiling residue. A. Semakov



СИНТЕЗЫ

4

USSR .

Synthesis of hydrocarbons. XXXV. Reaction of 1,4-diphenoxy-2-butyne with organomagnesium compounds. R. Ya. Levina and Yu. S. Shubarov. *Vestnik Mosk. Univ.* 8, No. 3 Ser. Fiz.-Mat. i Estestv. Nauk No. 2, 115-18(1953); cf. *C.A.* 47, 7448c, 12210d; 48, 4422f; preceding abstr.—1,4-Diphenoxy-2-butyne whose O—C bond is equally activated by its Ph and ethynyl groups, is cleaved under the action of MeMgBr to form BrMgOPh under conditions considerably milder (temp. 110-15° in di-Bu ether) than anisole, phenetole or other alkyl phenyl ethers whose bonds are activated only by the 1 Ph group. G. Aulinger

AA  
BZ

LEVINA, R.Ya.; YERSHOV, V.V.; SHABAROV, Yu.S.

Synthesis of hydrocarbons. Part 41. Diisobutylacetylene and diisooamyl  
acetylene. *Zhur.ob.khim.* 23 no.7:1124-1128 J1 '53. (MLBA 6:7)  
(Acetylene derivatives)

SHABAROV, Yu.S.

ELDERFIELD, R.; KOCHETKOV, N.K.[translator]; LUTSENKO, I.F.[translator];  
KONDRAT'YEVA, G.Ya.[translator]; YUR'YEV, Yu.K., professor, redaktor;  
SHABAROV, Yu.S., redaktor; GERASIMOVA, Ye.S., tekhnicheskiy redaktor

[Heterocyclic compounds. Translated from the English] Geterotsikli-  
cheskie soedineniia. Pod red. R.El'derfilda. Perevod s angliiskogo  
N.K.Kochetkova, I.F.Lutsenko, G.IA.Kondrat'evoi. Pod red. IU.K.  
IUr'eva. Moskva, Izd-vo inostranoi lit-ry. Vol.3. 1954. 357 p.  
(Heterocyclic compounds) (MIRA 8:4)

SUMMARY, T.O. 3.

USSR/Chemistry

FD-1246

Card 1/1 : Pub. 129-8/25

Author : Levina, R. Ya; Shabarov, Yu. S.; Skvarchenko, V. R.

Title : Hydrocarbon synthesis XLIV. Formation of alkanes resulting from the reaction of magnesium-organic compounds with un-saturated 1, 4-dichlorides.

Periodical : Vest. Mosk. un., Ser. fizikommat. i yest. nauk, 9, No 1, 63-67, Feb 1954

Abstract : Established that the formation of paraffin hydrocarbons from the reaction of a Grignard Reagent with ethylenic and with acetylenic 1, 4-dichlorides is similar. The yield is dependent on the structure of the radical in the Grignard Reagent, the normal type giving a greater yield than those of the iso structure. One table; equations, thirteen references, four foreign.

Institution : Chair of Organic Chemistry

Submitted : July 7, 1953

ELDERFIELD, Robert C.; REUTOV, O.A., [translator]; LUTSENKO, I.F.  
[translator]; KOCHNETKOV, N.K. [translator]; KONDRAT'YEVA, G.Ya.  
[translator]; YUR'YEV, Yu.K., professor, redaktor; SHABAROV, Yu.S.  
redaktor; OGANDZHANOVA, N.A., redaktor; GERASIMOVA, Ye.S.,  
takhnicheskiy redaktor.

[Heterocyclic compounds. Translated from the English] Geterotsi-  
klicheskie soedineniya. Perevod s angliiskogo O.A.Reutova, i dr.  
Pod red. Iu.K.Iur'eva. Moskva, Izd-vo inostrannoi lit-ry, Vol.  
4. 1955. 538 p. (MLRA 8:11)  
(Heterocyclic compounds)

SHABAROV, Yu. S.

✓ Synthesis of hydrocarbons. III. Pyrolysis of diacetates  
of saturated 1,4-diacetates. R. Ya. Levina, Yu. S. Shabarov,  
 and G. B. Guziev. Vestnik Mosk. Univ. 16, No. 12,  
 Ser. Fiz. Mat. i Estestven. Nauk No. 8, 98-101 (1956); cf.  
 C.A. 50, 7732i. — The following diacetates were pyrolyzed  
 in a quartz tube filled with glass wool at 490-515°. 2,5-  
 Hexanediol diacetate gave 28.5% C<sub>6</sub>H<sub>6</sub>. 2,5-Dimethyl-2,5-  
 hexanediol diacetate gave 10% MePh and some p-xylene.  
 Diallyl gave a very little conversion to some low-boiling  
 materials. Dipropenyl gave a similar result. Cyclohex-  
 anol acetate gave cyclohexene. Pyrolysis of mixed cyclo-  
 hexene and AcOH gave unchanged cyclohexene. Cyclohexa-  
 diene gave 46% C<sub>6</sub>H<sub>6</sub>. Numerous unidentified by-products  
 formed in the above examples, along with gas.

G. M. Kosolapoff

Chem 3

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56-56

SHABAROV, YU. S.

Chem

✓ Synthesis of hydrocarbons. LV. Diacetates of saturated 1,4-diols. R. Ya. Lavina and Yu. S. Shabarov. *Vestnik Moskov. Univ.* 11, No. 6, Ser. Fiz.-Mat. Estestv. Nauk No. 4, 61-6 (1956); cf. *C.A.* 50, 14800b. — Diacetates of 2,5-hexanediol and 3,6-octanediol were prepd. Thus, 0.43 mole diol was added slowly to 0.9 mole  $BtMgBr$  in ether and stirred on a steam bath 2 hrs.; 0.9 mole  $AcCl$  was added and the mixt. heated 3 hrs. more, dild. with  $H_2O$  after standing overnight, extd. with ether and the ext. dried over  $CaCl_2$ , evapd., and vacuum distd. 2,5-Dimethyl-2,5-hexanediol (I) diacetate was prepd. in 4-g. yield by slowly adding 7.5 g.  $Ac_2O$  and 0.5 g.  $H_3PO_4$  in 4.5 g.  $Ac_2O$  to 5 g. I in ether, heating 1 hr. at  $50^\circ$ , and keeping overnight, washing the ether soln. with water, drying, evapg., and vacuum distg. Diacetates of 4-octyne-3,6-diol (II), 3,6-dimethyl-4-octyne-3,6-diol (III), and 5-decyn-4,7-diol (IV) were prepd. Thus, 1 g. 10%  $H_3PO_4$  in  $Ac_2O$  was added to 0.05 mole diol in 0.15 mole  $Ac_2O$ , stirred 3 hrs. below  $35^\circ$ , neutralized with 2N  $NaOH$ , extd. with ether, and the ext. washed with water, dried, evapd., and vacuum distd. It passed through II diacetate in cold alc. contg. Pt. black gave 3,6-octanediol (V) diacetate; other homologs react similarly. The diacetates of I-V had the following b.p.s.,  $n_D^{20}$ ,  $d_4^{20}$ ,  $M_p$ , and % yield: I,  $117-18^\circ$  (19 mm.), 1.4316, 0.9303, 60.83, 50; II,  $121-3^\circ$  (8 mm.), 1.4470, 1.0023, 60.43, 85; III,  $128-30^\circ$  (22 mm.), 1.4431, 0.9803, 63.79, 78; IV,  $138-0^\circ$  (10 mm.), 1.4475, 0.9852, 69.04, 82; V,  $133-5^\circ$  (20 mm.), 1.4350, 0.9261, —, 32. Other diacetates are discussed.

Malcolm Anderson

DM

SHABAROV, Y. S.

~~Spirobarbituric acid~~; Methylsuccinimide ester in the  
 dimer synthesis Spirobarbituric acids. R. Ya. Levina,  
 Y. B. Shabarov, and L. A. Chernyeva (State Univ.  
 of Kazan, Kazan, *Doklady Akad. Nauk SSSR*, 1968, 177, 10924).  
 C.A. 51, 7379g. Solid polymer (26.2 g.) of  $CH_2(CO_2Et)_2$   
 was depolymerized in N at 220-40° by distn. of the  
 monomer (25 g.) into a flask contg. 15 ml. dry  $C_6H_6$ . To  
 this was added 10.2 g. 1,1'-dicyclopentenyl and the mixt.  
 refluxed 6 hrs. yielding 64% 6,6-dicarboxy-5,7-cyclo-  
 pentano- $\Delta^{10}$ -tetrahydroindan (I), b<sub>p</sub> 183-4°, n<sub>D</sub><sup>20</sup> 1.4930, d<sub>4</sub>  
 1.0924. This refluxed 3 hrs. with alc. KOH, concd., and  
 acidified gave 83% 5,5-dicarboxy-6,7-cyclopentano- $\Delta^{10}$ -tetra-  
 hydroindan, decomp. 187-9° (from aq. EtOH). I (7.4 g.)  
 refluxed 6 hrs. with 1.4 g. Na in 25 ml. dry EtOH and 8 g.  
 CO(NH<sub>2</sub>)<sub>2</sub>, evapd., and treated with 1:1 HCl gave 25%  
 corresponding spirobarbituric acid, decomp. 185-6° (from  
 EtOH). Similar condensation using 1,1'-dicyclohexenyl  
 gave 74% 9,9-dicarboxy- $\Delta^{10}$ -dodecahydrophenanthrene  
 (II), b<sub>p</sub> 182-4°, m. 66-7° (from EtOH), which hydrolyzed  
 as above gave 9-carboxy- $\Delta^{10}$ -dodecahydrophenanthrene, m.  
 147.5-8.5° (cf. Bergmann, *et al.*, C.A. 47, 9950h). II and  
 CO(NH<sub>2</sub>)<sub>2</sub> condensed in the presence of EtONa-EtOH as  
 above gave 7.5% corresponding spirobarbituric acid, de-  
 comp. 267-3° (from EtOH). G. M. Koslapoff

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LEVINA, R.Ya.; KUZ'MIN, M.G.; SHABAROV, Yu.S.

A new method for the synthesis of cyclobutane hydrocarbons.  
Vest.Mosk.un. 12 no.1:170-171 '57. (MLRA 10:8)

1.Moskovskiy universitet, Kafedra organicheskoy khimii.  
(Alicyclic compounds)

LEVINA, R.Ya.; SHABAROV, Yu.S.; SHANAZAROV, K.S.; TRESHCHOVA, Ye.G.

Synthesis of hydrocarbons. Part 63: Arylcyclopropanes. Vest. Mosk.  
un. Ser. mat., mekh., astron., fiz. khim., 12 no.5:145-150 '57.

(MIRA 11:9)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.  
(Cyclopropane)

SHABAROV, Yu. S.

20-6-20/59

**AUTHOR:** LEVINA, R.Ya., SHABAROV, Yu. S., DAUKSHAS, V.K. and TRASHCHKOVA, Ye.G.  
**TITLE:** 2,4-Dimethylpentadien-1,3 in the Synthesis of Alkanes with Two Quaternary Carbon Atoms Separated by a  $\text{CH}_2$ -Group (Ditertiary Alkylmethanes).  
2,4-dimetilpentadien-1,3 v sinteze alkanov s dvumya chetvertichnymi atomami ugleroda, razdelennymi  $\text{CH}_2$ -gruppy (ditretichnoalkilmetanov. Russian).  
**PERIODICAL:** Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 6, pp 1286 - 1289 (U.S.S.R.)  
**ABSTRACT:** In earlier reports the authors described the method of synthesis of ethylene-hydrocarbons with a quaternary carbon atom. It consists of a reaction between alkylmagnesiumbromides and unsaturated tertiary bromides of the allyle-type; the latter are easily produced by means of hydrobromization of dien-hydrocarbons of a ramified structure with a conjugated system of double bindings. E.g. hydrobromide of 2,4-dimethylpentadien-1,3 served as initial substance for the synthesis of 2,4-trimethylalkenes. In this paper the authors worked out a new and easy synthe for the production of the rather hard obtainable paraffinhydrocarbons with four quaternary carbon atoms which are separated by a  $\text{CH}_2$ -group, that is of the ditertiary alkylmethanes. Here the same initial substance was used. The reaction mentioned is the first stage of this synthesis, where

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20-6-28/59

2,4-Dimethylpentadien-1,3 in the Synthesis of Alkanes with Two Quaternary Carbon Atoms Separated by a  $\text{CH}_2$ -Group (Ditertiary Alkylmethanes).

the yield could be increased from 30 to 45 %. Furthermore, the alkenes which had already a quaternary carbon atom were transformed by the action of hydrochloric acid into saturated tertiary chloride 2-chlorine-2,4-trimethylalkanes (yield 90%). The latter were then introduced into the reaction with magnesiumorganic compounds with sublimate as a catalyzer; the products of this last stage of the synthesis were alkanes with two quaternary carbon atoms separated by a  $\text{CH}_2$ -group. In the case of an interaction with magnesiumorganic compounds the saturated tertiary alkanes split off also hydrochloric acid and, with a yield of 50% form the initial alkanes. The latter were used for alkane-synthesis. The alkanes and alkenes were easily separated by distillation. The alkane yield amounted to from 15 - 25 % calculated according to the tertiary chloride introduced into the reaction, and to from 30 - 50 % according to that not utilized. Reactions with yields, methods, and spectroscopic constants are described. (3 tables, 6 Slavic references).

Card 2/3

20-6-28/59

2,4-Dimethylpentadien-1,3 in the Synthesis of Alkanes with Two  
Quaternary Carbon Atoms Separated by a  $\text{CH}_2$ -Group (Ditertiary Al-  
kylmethanes.)

ASSOCIATION: Not given  
PRESENTED BY: NESMEYANOV, A.N. , Member of the Academy.  
SUBMITTED: 15 December 1956  
AVAILABLE: Library of Congress

Card 3/3

AUTHORS: Levina, R. Ya, Shabarov, Yu. S., and Daukshas, V. K. SOV/55-58-1-25/33

TITLE: Synthesis of Hydrocarbons. 64. The 2,4 Dimethylpentadien - 1,3 in the Synthesis of the Alkanes With Neighboring Quaternary and Tertiary Atoms of Carbon (Sintez uglevodorodov. 64. 2,4 - dimetil-pentadien - 1,3 v sinteze alkanov s sosednimi chetvertichnym i tretichnym atomami ugleroda)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, Nr 1, pp 187-191 (USSR)

ABSTRACT: The authors used a method developed some times ago (synthesis of hydrocarbons with quaternary atoms of carbon by reciprocal action of the hydrochloride of 2,4 - dimethylpentadien - 1,3 and the organic combinations containing magnesium) in order to obtain the following combinations: 2,4,4,5 - tetramethylheptene - 2; 2,4,4,5 - teramethyloctene - 2 and 2,4,4 - trimethyl - 5 - ethyl-hepten - 2. By hydrogenation of these stuffs the authors obtained: 2,4,4,5 - tetramethylheptan; 2,4,4,5 - tetramethyloctane; 2,4,4 - trimethyl - 5 ethyl heptan. There are 10 references, 7 of which are Soviet, and 3 American.

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: April 20, 1957

Card 1/1

LEVINA, R.Ya.; SHABAROV, Yu.S.; POTAPOV, V.K.

Cyclopropanes and cyclobutanes. Part 4: Method for purification of arylcyclopropanes, produced by the Kishner reaction. Vest.Mosk.un. Ser.mat.,mekh.,astron.,fiz.,khim. 13 no.5:201-203 '58.

(MIRA 12:4)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Cyclopropane)

SOV/79-28-8-11/66

AUTHORS: Levina, R. Ya., Shabarov, Yu. S., Saukshas, V. E.

TITLE: Synthesis of the Hydrocarbons (Sintez uglevodorodov)  
LXV. Di-Tert.-Alkylmethane From 2,4-Dimethylpentadiene-1,3  
(LXV. Di-tret.-alkilmetany iz 2,4-dimetilpentadiyena-1,3)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp.2049-2055(11)

ABSTRACT: In connection with a previous publication (Ref 1) the authors present the following results in this paper: a method of synthesizing two alkanes which have quarternaries separated by  $\text{CH}_2$  groups has been worked out using 2,4-dimethylpentadiene-1,3 as the starting material. This is a difficult synthesis, and these two compounds were previously almost unknown. The method consists of 4 reactions: 1) preparation of a tertiary unsaturated allyl chloride by hydrochlorinating the 2,4-dimethylpentadiene-1,3; 2) the decomposition of this product with alkyl magnesium bromide to give alkenes with a quarternary carbon atom (45 - 65 % yield); 3) the hydrochlorination of this product; 4) reaction of the resulting tertiary chloride (maximum yield: 90 %) with alkyl magnesium bromide in the

Card 1/2



Synthesis of the Hydrocarbons.

SOV/79-28-8-11/66

LXV. Di-Tert.-Alkylmethane From 2,4-Dimethylpentadiene-1,3

presence of mercurious chloride. Di-tert.-alkylmethanes of symmetrical and unsymmetrical structure were synthesized, and some of these contained both quarternary and tertiary carbon atoms. The yield was 3 - 20 % calculated on the basis of the tertiary chloride, and 6 - 40 % calculated on the basis of the product of reaction 1). Descriptions are given for the first time of a few tertiary monochlorides which have a quarternary carbon in the chain. By hydrochlorinating the 2,4-dimethylpentadiene-1,3 a mono- and dihydrochloride were also prepared. There are 3 tables and 12 references, 10 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet  
(Moscow State University)

SUBMITTED: July 1, 1957

Card 2/2

AUTHORS: Levina, R. Ya., Shabarov, Yu. S., Kuzmin, M. G., Vasil'yev, N. I., Treshchova, Ye. G. SOV/20-121-2-30/53

TITLE: A New Method of the Production of Cyclobutane Hydrocarbons (Novyy metod sinteza tsiklobutanovykh uglevodorodov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 2, pp. 303 - 306 (USSR)

ABSTRACT: Shortly the authors wrote about the possibility of a synthesis as mentioned in the title by means of the decomposition of tetra-hydro-pyridazine (Ref 1). In the present paper they investigate this reaction by means of some examples. The last mentioned initial substances are 6-membered analogs of pyrazolines. In the case of their heating in the presence of caustic potash and platinum they decompose under the separation of nitrogen and a formation of cyclobutane hydrocarbons. It showed that the biradicals III forming as intermediates not only do not cyclize but even cleave under the formation of ethylene hydrocarbons. The quantitative ratio between the aryl-cyclobutane formed and the corresponding styrene can be

Card 1/3

SOV/20-121-2-30/53

A New Method of the Production of Cyclobutane Hydrocarbons

classified according to the ratio between the quantity of nitrogen and that of ethylene separated in the decomposition of the initial monoaryl-tetra-hydro-pyridazine (IIa in IIb). Thus the authors were the first to succeed in extending the range of application of the classical Kizhner reaction which hitherto has been regarded only of use in the synthesis of cyclopropane hydrocarbons. This way the authors synthesized the hitherto not described p-tolyl cyclobutane and 1,2-diphenyl cyclobutane. In an earlier paper (Ref 3) the authors proved that in phenyl cyclopropane there exists a conjugation between the benzene nucleus and the 3-membered cycle. The comparison of the intensities of some of the most intensive frequencies (characteristic of the benzene ring) in the spectra of the combination dispersion of phenyl cyclobutane with the intensities of corresponding frequencies in the spectra of the propenyl benzene, phenyl cyclopropane on the one hand and alkyl benzenes on the other hand proved that the monosubstituted aromatic hydrocarbons are arranged in a series as follows: propenyl benzene > phenyl cyclopropane > phenyl cyclobutane > isopropyl benzene (Table 1). The same frequencies in the spectrum of p-tolyl cyclobutane

Card 2/3

SOV/20-121-2-30/53

A New Method of the Production of Cyclobutane Hydrocarbons

have far higher intensities than in the spectrum of p-methyl-ethyl benzene. This fact proves the existing conjugation between the benzene ring and the 4-membered nucleus. There are 1 table and 12 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 27, 1958, by A. N. Nesmeyanov, Member, Academy of Sciences, USSR

SUBMITTED: February 26, 1958

Card 3/3

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SOV/55-59-3-25/32

5(3)  
AUTHOR:

Levina, R. Ya., Shabarov, Yu. S.

TITLE:

Cyclopropanes and Cyclobutanes

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 3, pp 201 - 202 (USSR)

ABSTRACT:

The authors report that they recently synthesized several acryl cyclopropanes (together with V. K. Potapov) and acryl cyclobutanes (together with M. G. Kuz'min, N. I. Vasil'yev, and S. I. Pokraka) which had not yet been described in publications, and (together with Ye. G. Treshchova) determined their Raman spectra as well as their ultraviolet absorption spectra (Table). In an earlier paper, in collaboration with B. A. Kazanskiy et al., they proved the connection of the three-membered ring with the aromatic ring on phenylcyclopropane, tolylcyclopropane, p-anisylcyclopropane, 1,1-diphenylcyclopropane, and 1,2-diphenylcyclopropane. In continuation of this work, also a connection of the four-membered ring with the benzene ring was found together with

Card 1/2

Cyclopropanes and Cyclobutanes

68054  
S07/55-59-3-25/32

M. G. Kuz'min, N. I. Vasil'yev and Ye. G. Treshchova on phenylcyclobutane and p-tolylcyclobutane on the basis of the higher intensities of the characteristic frequencies in the Raman spectrum, which, however, is not so strong as in the case of acrylcyclopropanes. There are 1 table and 4 Soviet references. ✓

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: December 24, 1958

Card 2/2

LEVIN, P.Ya.; SHABAROV, Yu.S.

Cyclopropanes and cyclobutanes. Vest.Mosk.un.Ser.mat., mekh.,  
astron., fiz., khim. 14 no.3:201-202 '59.

(MIRA 13:5)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo  
universiteta.

(Cyclopropane) (Cyclobutane)

## AUTHORS:

Levina, R. Ya., Shabarov, Yu. S.,  
Shanazarova, I. M.

SOV/79-29-1-10/74

## TITLE:

Cyclopropanes and Cyclobutanes (Tsiklopropany i tsiklobutany)  
V. Aryl Cyclopropane in the Alkylation Reaction (V.  
Ariltsiklopropany v reaktsii alkilirovaniya)

## PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 44-48 (USSR)

## ABSTRACT:

In the present paper the behavior of phenyl cyclopropane was investigated in the alkylation reaction of benzene, toluene and anisole as well as that of p-tolyl- and p-anisyl cyclopropanes in the alkylation reaction of benzene. From the publication data on the alkylation of the aromatic hydrocarbons with alkyl cyclopropanes (Refs 7-12) it follows that  $AlCl_3$  does not cause a preliminary isomerization of cyclopropanes into alkenes (Refs 8,12). The same catalyst was also applied to this case. In the case of alkylation of benzene with phenyl cyclopropane 1,1-diphenyl propane (yield 52%) was obtained, (Scheme 1) the structure of which was confirmed by the reduction of 1,1-diphenyl propene-1 with sodium in butyl alcohol (Schemes 2 and 3). Thus the alkyla-

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Cyclopropanes and Cyclobutanes. V. Aryl  
Cyclopropane in the Alkylation Reaction

SOV/79-29-1-10/74

tion of benzene with phenyl cyclopropane in the presence of  $AlCl_3$  leads to 1,1-diphenyl propane in the same way as it is the case in the reaction of benzene with styrene which leads to 1,1-diphenyl ethene (Refs 13,14). In the case of the above-mentioned alkylation reaction of benzene, toluene, and anisole an opening of the three-membered ring takes place under the formation of 1-phenyl- 1-aryl propanes (with a yield of 52;61.5;72.5%). It was found that toluene and anisole are alkylated with phenyl cyclopropane in para-position. The alkylation of benzene with p-tolyl- and p-anisyl cyclopropanes proceeds less smoothly than in the case of phenyl cyclopropane as the former polymerize considerably in the presence of  $AlCl_3$ . There are 16 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 2, 1957

Card 2/2

5 (2)

AUTHORS:

Levina, R. Ya., Shabarov, Yu. S.,  
Kuz'min, M. G.

SOV/20-127-1-29/65

TITLE:

Cyclopropanes and Cyclobutanes (Tsiklopropany i tsiklobutany).  
On the Decomposition of Alkyl-tetrahydropyridazines (O razlozhenii alkiltetragidropiridazinov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 111 - 114  
(USSR)

ABSTRACT:

The authors continue here their investigations of the synthesis of aryl-cyclobutanes (Refs 1,2) by the decomposition of aryl-tetrahydropyridazines and try to use this method for the synthesis of alkyl-cyclobutanes. 3-methyl-tetrahydropyridazine was produced by the hydrolysis of the adduct of azo-dicarboxylic ester with piperylene. The latter contains 2 NH-groups, which indicates that the double bond does not shift towards the nitrogen in the hydrolysis as is the case with the azo-dicarboxylic esters with aryl-butadienes (Refs 2,3), but remains in position 4 (see Scheme). Though the authors failed to produce 3-methyl- $\Delta^2$ -tetrahydropyridazine by hydrolysis, it could be expected that the above-mentioned double bond shifts nevertheless

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Cyclopropanes and Cyclobutanes. On the Decomposition SOV/20-127-1-29/65  
of Alkyl-tetrahydropyridazines

towards the nitrogen under the difficult conditions of the decomposition and that the compound mentioned is produced. The latter could then be caused to decompose into methyl-cyclobutane and nitrogen (similarly to 3-phenyl- $\Delta^2$ -tetrahydropyridazine) (Refs 1,2). This failed, however; 3-methyl- $\Delta^4$ -tetrahydropyridazine decomposed with (at 200-250<sup>o</sup>) or without catalysts (at 300-350<sup>o</sup>) only into piperylene, nitrogen, and hydrogen (see Scheme). Two reaction ways can be assumed: (a) The biradical I, which is produced as an intermediate, is transformed only into diene. (b) The initial substance decomposes into piperylene and diimide NH=NH which decomposes immediately into N and H. The decomposition of the initial substance into N and piperylene itself in the case of the effect of weak oxidizing agents speaks in favor of the assumption (a). This decomposition confirms the remaining of the double bond in position 4. Similar results were obtained in the decomposition of 3,4,5,6-bis-cyclopentane- and 3,4,5,6-bis-cyclohexane- $\Delta^4$ -tetrahydropyridazines which contain 2 NH-groups each. They form dicyclopentenyl and dicyclohexenyl besides other reaction pro-

Card 2/4

Cyclopropanes and Cyclobutanes. On the Decomposition SOV/20-127-1-29/65  
of Alkyl-tetrahydropyridazines

ducts mentioned here. It was thus found that it is impossible to obtain cyclobutane-hydrocarbons in two stages (hydrolysis and subsequent decomposition) from adducts of the azo-dicarboxylic ester with alkyl-butadiene or their cyclic analogs. Therefore, the authors applied another method: they synthesized 3-methyl-tetrahydropyridazine, which, however, turned out to be the isomer of the expected compound with one NH-group. An isomerization of the azo form into a hydrazone form apparently takes place here. Experiments with other substances do not lead to the expected result: either the initial substances were not transformed, or a resinification took place. Thus, alkyl- $\Delta^2$ -tetrahydropyridazines cannot be decomposed in the presence of catalysts in the case of heating under the precipitation of N and formation of four-membered cyclic hydrocarbons, in contrast to aryl- $\Delta^2$ -tetrahydropyridazines and pyrazolines. There are 11 references, 8 of which are Soviet.

Card 3/4

Cyclopropanes and Cyclobutanes. On the Decomposition SOV/20-127-1-29/65  
of Alkyl-tetrahydropyridazines

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 18, 1959, by A. N. Nesmeyanov, Academician

SUBMITTED: February 14, 1959

Card 4/4

Shabarov, Yu.S.

2

S-3100

69840

S/051/60/008/03/015/038

2201/E191

AUTHORS: Treshcheva, Ye.G., Panchenko, Yu.N., Vasil'yev, M.I.,  
Kus'bin, M.G., Shabarov, Yu.S., and Levina, H.Ya.

TITLE: Raman Spectra of Hydrocarbons of Various Classes. VI.  
The Raman Spectra of Some Arylcyclobutanes

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 3,  
pp 371-375 (USSR)

ABSTRACT: The authors investigated the Raman spectra of phenylcyclobutane and of the following arylcyclobutanes: n-tolylcyclobutane, n-tolylcyclobutane, o-anisylcyclobutane, n-anisylcyclobutane; for the sake of comparison the Raman spectra of phenylcyclopropane and n-tolylcyclopropane were also obtained. The apparatus, the experimental technique and the methods of calculation were the same as in earlier work (Ref 6). The results are given in Tables 2-4, and properties (such as the melting point, refractive index, etc) of the four arylcyclobutanes and of phenylcyclobutane are listed in Table 1. The Raman spectra of all four arylcyclobutanes included frequencies characteristic of the appropriate mono- and dialkylbenzenes and alkylcyclobutanes. The intensity of the Raman lines characteristic of the

Card 1/2

four-member cycle and of the benzene ring (lines in the region  $\sim 1000-1600 \text{ cm}^{-1}$ ) is greater in the spectra of arylcyclobutanes than the intensities of the corresponding lines in spectra of alkylcyclobutanes and alkylbenzenes. This behaviour of the intensities was not observed in the case of lines at  $\sim 600-800 \text{ cm}^{-1}$ , which are characteristic of the benzene ring. There are 4 tables and 7 Soviet references.

Card 2/2

SUBMITTED: July 3, 1959

SHARAROV, Yu.S.; KUZ'NIN, M.G.; LEVINA, R.Ya.

Tetrahydropyridazines and hexahydropyridazines. Zhur.ob.khim. 30  
no.8:2473-2480 Ag '60. (MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet.  
(Pyridazine)

84871

S/079/60/030/010/007/030  
B001/B075

11.12.10

AUTHORS: Shabarov, Yu. S., Levina, R. Ya., Kuz'min, M. G.,  
Vasil'yev, N. I., and Damir, N. A.

TITLE: Cyclopropanes and Cyclobutanes, XI. Methylphenyl  
Cyclobutanes

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10,  
pp. 3210-3214

TEXT: In their investigation (Refs. 1-4) on the catalytic splitting of alkyl- and aryl tetrahydropyridazines, the authors could obtain only aryl cyclobutanes, but no alkyl cyclobutanes (Ref. 4). In the present work, the catalytic splitting of alkyl aryl tetrahydropyridazines has been attempted for the purpose of synthesizing alkyl aryl cyclobutanes. The authors proceeded from 5-methyl- and 6-methyl-3-phenyl tetrahydropyridazines which were obtained by hydrolyzing the adducts of the corresponding dienes with azodicarboxylic acid ester. These initial products proved to be unstable compounds, and were identified from their addition products to phenyl isothiocyanate. The presence of an NH group in the initial products was also proved (Ref. 3). The catalytic splitting of the  
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84871

Cyclopropanes and Cyclobutanes. XI. Methylphenyl  
Cyclobutanes

5/079/60/030/010/007/030  
B001/B075

7  
two initial pyridazines was carried out in the same way as that of aryl tetrahydropyridazines described in Refs. 1-3. Thus, a gas composed of nitrogen and propylene evolved under the formation of a mixture of the corresponding methyl-phenyl cyclobutane and styrene. Consequently, the decomposition of alkyl aryl tetrahydropyridazines is similar to that of aryl- $\Delta^2$ -tetrahydropyridazines: While nitrogen is produced, the biradical is formed as an intermediate which yields cyclobutane and two ethylene hydrocarbons. The molar ratio between the yield of methyl-phenyl cyclobutane and styrene proved to depend on the position of the methyl group in the tetrahydropyridazine ring. Vacuum distillation (cf. experimental part) of the resulting cyclobutane showed that 1-methyl-2-phenyl cyclobutane consisted of a mixture of cis- and trans-isomers (1:1), whereas 1-methyl-3-phenyl cyclobutane contained 80% of the trans-form. Raman spectra showed the absence of olefins in the separated hydrocarbons (Ref. 5). The characteristic frequencies  $912-950\text{ cm}^{-1}$  confirmed the presence of a four-membered ring. There are 1 table and 12 references: 9 Soviet, 2 German, and 1 French.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet  
(Moscow State University)

SUBMITTED: December 7, 1959

Card 2/2

87525

S/079/60/030/012/005/027  
B001/3064

5 5500

AUTHORS: Shabarov, Yu. S., Levina, R. Ya., Potapov, V. K.,  
Osipov, A. M., and Treshchova, Ye. G.

TITLE: Cyclopropanes and Cyclobutanes. XIV. Phenyl Cyclopropanes  
With Substituents in the Para Position of the Benzene Cycle

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 12,  
pp. 3874-3876

TEXT: In previous papers (Refs. 1-4) the authors reported on the effect of the nature of aryl radicals upon the reactivity of the three-membered cycle linked with it. Thus, it was found that polymerizability strongly increases under the action of  $AlCl_3$  in the following order: phenyl cyclopropane < p-tolyl cyclopropane < p-anisyl cyclopropane (Ref. 2). The three-membered cycle which opens readily in phenyl cyclopropane (Ref. 3), p-tolyl cyclopropane, p-anisyl cyclopropane (Ref. 4) under the action of mercury salts, is stable in p-nitrophenyl cyclopropane (Ref. 1). To render these observations more complete, it is necessary to develop a method of synthesizing phenyl cyclopropane with various substituents in the benzene cycle. p-aminophenyl cyclopropane which could be easily obtained by

Card 1/3

X

87525

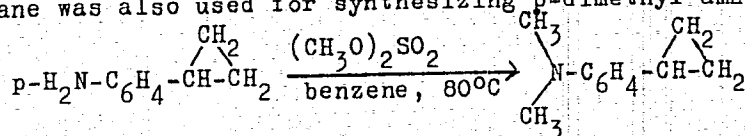
Cyclopropanes and Cyclobutanes. XIV. Phenyl  
Cyclopropanes With Substituents in the Para  
Position of the Benzene Cycle

S/079/60/030/012/005/027  
B001/B064

nitration phenyl cyclopropane, with subsequent reduction of the nitro group to the amino group (Ref. 1), served as the initial product. The replacement of the latter in p-amino phenyl cyclopropane by other substituents was carried out by diazotization. Thus, p-hydroxy-p-chloro- and p-bromophenyl cyclopropane results:

$p\text{-H}_2\text{N-C}_6\text{H}_4\text{-CH(CH}_2\text{)-CH}_2 \longrightarrow p\text{-X-C}_6\text{H}_4\text{-CH(CH}_2\text{)-CH}_2$  (X = OH, Cl, Br). p-amino-

phenyl cyclopropane was also used for synthesizing p-dimethyl amino phenyl cyclopropane:



A study of the Raman spectra of the phenyl cyclopropanes obtained showed that no unsaturated compounds had been added; intensive frequencies appeared at  $1600\text{ cm}^{-1}$ , which are characteristic of the aromatic cycle, as well as bands ( $1200\text{-}1260\text{ cm}^{-1}$ ) indicating the presence of the phenyl cyclopropane molecule (Refs. 5, 6). The ultraviolet absorption curves of aryl cyclopropanes (Diagrams 1 and 2) showed the same character as those of p-tolyl  
Card 2/3

87525

Cyclopropanes and Cyclobutanes. XIV. Phenyl  
Cyclopropanes With Substituents in the Para  
Position of the Benzene Cycle S/079/60/030/012/005/027  
B001/B064

cyclopropane (Ref. 5) and p-aminophenyl cyclopropane (Ref. 1). There are  
2 figures and 6 references: 5 Soviet and 1 French.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet  
(Moscow State University)

SUBMITTED: January 14, 1960

X

Card 3/3

5.3610

69998

AUTHORS: Levina, L. Ya., Shabarov, Yu. S.,  
Kuz'min, M. G.

S/020/60/131/05/027/069  
B011/B117

TITLE: On the Interaction Between Azodicarboxylic Esters and hem-Dialkyl  
Butadienes ↑

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 5, pp 1080-1083 (USSR)

TEXT: The authors continued their investigations of the decomposition of alkyl tetrahydropyridazine (Ref 1), and made an attempt to synthesize hem-dialkyl tetrahydropyridazines from the adducts of the azodicarboxylic ester with hem-dialkyl butadienes. They could establish for the first time that 1,1-dialkyl butadienes react with the azodicarboxylic ester through mobile hydrogen in the α-position (by substitution addition and not by diene synthesis), and not through the double bonds. It could be further proved by the authors that the adducts of the substances mentioned in the title have no cyclic structure (being no tetrahydropyridazine derivatives), but they are, in reality, mono-substituted hydrazo dicarboxylic esters (see schemes). The structure of the adduct (I) of 2,4-dimethyl pentadiene with an azodicarboxylic ester was established by means of its conversions: when subjected to cold hydrogenation, (I) adds two moles of hydrogen per one mole of (I), and, thus, contains two double bonds in the molecule. Hydrolysis of (I) yields a monosubstituted hydrazine (III). The

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On the Interaction Between Azodicarboxylic Esters  
and hem-Dialkyl Butadienes

S/020/60/131/05/027/069  
B011/B117

latter contains one  $\text{NH}_2$  group which was detected by obtaining the benzylidene derivative (IV) from (III). If the azodicarboxylic ester is reacted with 2,4-dimethyl pentadiene-1,3, two adducts (Va) and (Vb) (in reality their mixture) can be formed, since the mentioned pentadiene contains two types of methyl groups. After hydrogenation, however, both (Va) and (Vb) yield the same substituted hydrodicarboxylic ester (VI). By hydrolysis of (VI), the monosubstituted hydrazine (VII) is formed from which the benzylidene derivative (VIII) can be obtained. In addition, nitrogen is evolved under the action of mercuric oxide, with (VII) being converted to 2,4-dimethyl pentane (which is a reaction characteristic of monoalkyl hydrazines, reference 4). All these reactions are clearly indicative of the acyclic structure of the corresponding adducts. Obviously, the dienes used in this case react with the azodicarboxylic ester through a single methyl group only. An analogous reaction between maleic anhydride and olefines (Ref 8) takes place only at  $200-250^\circ$ , while the much more active azodicarboxylic ester reacts already at  $20-50^\circ$ . There are 9 references, 3 of which are Soviet. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

Card 2/3

69998

On the Interaction Between Azodicarboxylic Esters  
and hem-Dialkyl Butadienes

S/020/60/131/05/027/069  
B011/B117

PRESENTED: December 14, 1959, by A. N. Nesmeyanov, Academician

SUBMITTED: December 12, 1959

Card 3/3

SHABAROV, Yu.S.; VASIL'YEV, N.I.; MAMAYEVA, N.K.; LEVINA, R.Ya.

New method of synthesizing 3-aryl-1,4,5,6-tetrahydropyridazines.

$\beta$ -Diphenylcyclobutane. Dokl. AN SSSR 135 no.4:879-882 '60.

(MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.

Predstavleno akademikom A.N.Nesmeyanovym.

(Cyclobutane)



SHABAROV, Yu.S.; LEVINA, R.Ya.; VISIL'YEV, N.I.; VASILENKO, N.A.

Cyclopropanes and cyclobutanes. Part 16: *p*-chloro- and  
*p*-bromophenylcyclobutanes. Zhur. ob. khim. 31 no. 2:378-382  
F '61, (MIRA 14:2)

1. Moskovskiy gosudarstvennyy universitet.  
(Cyclopropane) (Cyclobutane)

SHABAROV, Yu.S.; LEVINA, R.Ya.; KUZ'MIN, M.G.; VASIL'YEV, N.I.; DAMIR, N.A.

Cyclopropanes and cyclobutanes. Part 11: Methylphenylcyclobutanes.  
Zhur.ob.khim. 30 no.10:3210-3214 0 '61. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.  
(Cyclobutane)

SHABAROV, Yu.S.; VASIL'YEV, N.I.; LEVINA, R.Ya.

Cyclopropanes and cyclobutanes. Part 19: Certain reactions of  
phenylcyclobutane. Zhur.ob.khim. 31 no.6:1812-1816 Je '61.  
(MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.  
(Benzene)

SHABAROV, Yu.S.; VASIL'YEV, N.I.; LEVINA, R.Ya.

Synthesis and catalytic decomposition of 3,4-dihydrophthalazines.  
Zhur.ob.khim. 31 no.8:2478-2482 Ag '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.  
Lomonosova.

(Phthalazine)

SHABAROV, Yu.S.; VASIL'YEV, N.I.; LEVINA, R. Ya.

Cyclopropanes and cyclobutanes. Part 19: Catalytic decomposition of 3-aryltetrahydropyridazines containing nitro-, amino or oxy group in the position para. Zhur.ob.khim. 31 no.8:2482-2487. Ag '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

(Pyridazine)

36282

S/190/62/004/004/004/019

B119/B138

53100  
11.8.600

AUTHORS: Shchetinin, A. A., Topchiyeva, I. N., Shabarov, Yu. S.,  
Levina, R. Ya.

TITLE: Cyclopropanes and cyclobutanes. XXIII. Polymerization of  
aryl cyclopropanes at high pressures and temperatures

PERIODICAL: *Vysokomolekulyarnyye soyedineniya*, v. 4, no. 4, 1962, 499-502

TEXT: The effect of high pressures (500-7500 atm) on phenyl-,  
p-aminophenyl-, p-dimethyl aminophenyl-, p-chlorophenyl, p-hydroxyphenyl-,  
p-methoxyphenyl cyclopropane, and p-methoxyphenyl cyclobutane between  
100 and 200°C was investigated. Of these only p-hydroxy- and  
p-methoxyphenyl cyclopropane undergo polymerization. The latter gives a  
viscous oil at 500 atm and 200°C, a solid polymer at 7500 atm and 200°C.  
With hydroquinone as inhibitor only a viscous liquid is formed at 7500 atm.  
Therefore, polymerization takes place by the free-radical mechanism.  
Only cyclopropane rings participate in the polymerization. The end  
product of the thermal decomposition and the subsequent oxidation of the  
Card 1/2

Cyclopropane and cyclobutanes. ...

S/190/62/004/004/004/019  
B119/B138

polymer is anisic acid. There is 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 6, 1961

Card 2/2

X

SHCHETININ, A.A.; TOPCHIYEVA, I.N.; SHABAROV, Yu.S.; LEVINA, R.Ya.

Cyclopropanes and cyclobutanes. Part 23: Polymerization of  
arylcyclopropanes under the effect of high pressure and temperature.  
Vysokom.soed. 4 no.4:499-502 Ap '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Cyclopropane) (Polymerization)



SHABAROV, Yu.S.; LEVINA, R.Ya.; POTAPOV, V.K.

Cyclopropanes and cyclobutanes. Part 25: Interaction of  
phenylcyclopropane with pyridine sulfotrioxide.  
Zhur.ob.khim. 32 no.10:3184-3188 0 '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Benzene)  
(Pyridinesulfonic acid)

SHABAROV, Yu.S.; VASIL'YEV, N.I.; LEVINA, I.S.; LEVINA, R.Ya.

Azodiaroyls in diene synthesis. Zhur.ob.khim. 32 no.9:2806-2809  
S '62. (MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Azo compounds) (Unsaturated compounds)

S/189/63/000/001/008/008  
D204/D307AUTHORS: Shabarov, Yu. S., Potapov, V. K., Levina, R. Ya. and Treshchova, Ye. G.

TITLE: Cyclopropanes and cyclobutanes. XXVI

PERIODICAL: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 1, 1963, 61-65

TEXT: Stereoisomeric 1-methyl-2 phenylcyclobutanes and 1-methyl-3-phenylcyclobutanes were studied spectroscopically and an attempt was made to determine the cis- and trans-configurations. Raman bands at  $\sim 1200\text{ cm}^{-1}$  of all isomers were slightly higher than the corresponding lines for alkylbenzenes. Cis- and trans-1-methyl-2-phenylcyclobutanes could not be distinguished in the Raman spectra. In the case of 1-methyl-3-phenylcyclobutanes, the higher boiling isomer A exhibited a broad, fairly intense band at  $872\text{ cm}^{-1}$ , whilst the lower-boiling isomer B showed a corresponding band at  $854\text{ cm}^{-1}$ . The  $\sim 1200\text{ cm}^{-1}$  and  $1600\text{ cm}^{-1}$  intensities were also higher

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Cyclopropanes and cyclobutanes ...

S/189/63/000/001/008/008  
D204/D307

in B, a property characteristic of trans-forms. Uv spectra of 1-methyl-2-phenylcyclobutanes in iso-octane showed that isomer A, distinguished by higher physical constants, absorbed more strongly in the 225 - 250 m $\mu$  region than the other isomer, B. The same was true of the A-form of 1-methyl-3-phenylcyclobutane, though to a lesser extent. Control tests with 1,2-diphenylcyclopropanes, whose configurations were established chemically, showed that trans-forms absorbed more strongly in the uv. Configurations of 1-methyl-2-phenylcyclobutanes may thus be assigned only from uv absorption spectra, whilst the configurations of 1-methyl-3-phenyl-cyclobutanes remain unresolved, since Raman and uv spectra gave contradictory indications. L. A. Kazitsyna measured the uv absorption. There are 3 figures and 1 table.

ASSOCIATION: Kafedra organicheskoy khimii (Department of Organic Chemistry)

SUBMITTED: June 28, 1961

Card 2/2

SHABAROV, Yu.S.; POTAPOV, V.K.; LEVINA, R.Ya.; TRESHCHOVA, Ye.G.

Cyclopropanes and cyclobutanes. Part 26: Stereoisomeric  
1,2- and 1,3-methylphenylcyclobutanes. Vest.Mosk.un. Ser.2:Khim.  
18 no.1:61-65 Ja-F '63. (MIRA 16:5)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.  
(Cyclobutane) (Isomers)

VASIL'YEV, N.I.; LEVINA, I.S.; SHABAROV, Yu.S.; LEVINA, R.Ya.

Kinetics of diene synthesis involving azodiacryls.

Zhur.ob.khim. 33 no.3:734-738 Mr '63. (MIRA 16:3)

(Unsaturated compounds) (Azo compounds)

(Chemistry, Organic--Synthesis)

SHABAROV, Yu.S.; VASIL'YEV, M.I.; MAMAYEVA, N.K.; LEVINA, R.Ya.

Reduction of pyridazinones and phthalazones by lithium aluminum hydride.  
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(Pyridazinone) (Phthalazinone) (Lithium aluminum hydride)

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