

LUKINA, M. Yu. M. Yu.

KAZANSKIY, B.A.; LUKINA, MYu.; NAKHAPETYAN, L.A.; ALEKSANYAN, V.T.;
STERIN, Kh.Ye.

Isomerization of isopropenylcyclobutane over silica gel catalysts
in the conditions of adsorption chromatographic analysis. Izv.AN
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Lukina, M. Yu.

1
 Synthesis of 2-cyclobutylbutene and 3-cyclobutylpentane.
 B. A. Kazanski, M. Yu. Lukina, and L. A. Kabanovyan
 (N. D. Zelinski Inst. Org. Chem. Moscow). *Izv. Akad.
 Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 692-6. — Passage
 of 64 g. cyclobutanecarboxylic acid (I) and 1 vol. AcOH at
 410° over fresh MnO gave 63.2% Me cyclobutyl ketone, *b_m*
 134-8°, *n_D²⁰* 1.4320, *d₄²⁰* 0.9013. This with EtMgBr gave
 83% methylcyclobutylcarbinol, *b_m* 164-5°, 1.4620,
 0.8870, which heated with a little H₂SO₄ in a diatn. app. gave
 80.4% olefin, *b_m* 110-32°, sepd. into 3-5° fractions which
 hydrogenated over Pt-C yielded the same product, 2-cyclo-
 butylbutane, *b_m* 123°, 1.4207, 0.7812. Azeotropic esterifi-
 cation of I with EtOH in C₆H₆ with H₂SO₄ catalyst gave
 97% Et ester, *b_m* 147.5-9°, 1.4263, 0.9549, yielding with
 EtMgBr 92.3% diethylcyclobutylcarbinol, *b_m* 85-5.8°, *b_m*
 167-8°, 1.4567, 0.9001, dehydrated as above to an olefin
 mixt., *b_m* 146-65°, 1.4544, 0.8075, and hydrogenated as
 above to 3-cyclobutylpentane, *b_m* 148.7°, 1.4308, 0.7815.
 G. M. Kozlovoff

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LUKINA, M.YU.

KAZANSKIY, B.A., akademik; LIBERMAN, A.L.; LUKINA, M.Yu.; GOSTUNSKAYA, I.V.

Catalytic conversion of hydrocarbons. Khim. nauka i prom. 2 no.2:
172-180 '57. (MLRA 10:6)

(Hydrocarbons)

Lukina, M. Yu.

AUTHORS: Kazanskiy, B. A., Lukina, M. Yu.,
Sal'nikova, L. G.

62-11-21/29

TITLE: Catalytic Hydrogenation of the Methylcyclopropylketone
(Kataliticheskoye gidrirovaniye metiltsiklopropilketona).

PERIODICAL: Izvestiya AN SSSR, Otdelenie Khimicheskikh Nauk, 1957,
Nr 11, pp. 1401-1403 (USSR)

ABSTRACT: Here under easy conditions the catalytic hydrogenation of the methylcyclopropylketone, a compound, in which the threemembered ring is linked to the carbonyl group, is investigated. It is shown that at room temperature the association of the hydrogen with the methylcyclopropylketone takes place very slowly in the alcohol-medium under presence of platinum black and that it practically stops after the connection of ~ 1.3 mols hydrogen, although a part of the ketone remains unchanged. The hydrogenation products were: methylcyclopropylcarbinol and pentanol-2. The formation of these carbinols can be explained by the binding of the hydrogen to the ketone in all possible directions of the linked system. The hydrogenation with palladium black was different. The reaction took place much

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Catalytic Hydrogenation of the Methylcyclopropylketone.

62-11-21/29

faster than in the case of platinum and after the absorption of one hydrogen mol stops entirely. It is shown that under presence of palladium black the threemembered ring of the methylcyclopropylketone at room temperature opened entirely, whereby the hydrogenation only took place according to the cycle and did not touch the carbonyl group. This experiment again underlines the particularity of the palladium as catalyst in the hydrogenation of a threemembered cycle which is linked to an unsaturated grouping. There are 2 tables, and 12 references, 3 of which are Slavic.

ASSOCIATION: Institute for Organic Chemistry imeni N. D. Zelinskiy of the AN USSR (Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR).

SUBMITTED: June 25, 1957.

AVAILABLE: Library of Congress

Card 2/2

AUTHORS: Lukina, M. Yu., Zotova, S. V., Kazanskiy, B. A. 20-114-4-31/63
Member, Academy of Sciences, USSR

TITLE: Catalytic Transformations of 1,1,2-Trimethylcyclopropane in
the Presence of Palladium Coated or Activated Charcoal (Ka-
taliticheskiye prevrashcheniya 1,1,2-trimetiltsiklopropana
v prisutstviy palladirovannogo uglya i aktivirovannogo uglya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 792-795
(USSR)

ABSTRACT: It has been pointed out several times that cyclopropane and its
homologues are capable of undergoing an isomerization into ole-
fines in the presence of some catalysts (aluminumoxide, silica
gel, platinum black). The hydrocarbons obtained were not in all
cases identified with sufficient clearness. Furthermore, oper-
ative data of the reactions are often contradictory. The authors
were determined to find out whether the palladium-coated and
planished charcoal is capable of effecting the isomerization of
a 3-part cycle. The object of the examination was 1,1,2-tri-
methylcyclopropane. The reaction took place in a nitrogen current
at 220°C. It was found that the palladium coated charcoal under
these conditions causes the isomerization of the said substance
into mixture of olefines. It proceeds with about 55%. Above

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Catalytic Transformations of 1,1,2-Trimethylcyclopropane in 20-114-4-31/63
the Presence of Palladium Coated or Activated Charcoal

all the linkage between the strongest and weakest hydrogenated carbon atoms of the ring is broken up; to a lower degree another linkage which lies close to the quaternary carbon atom. The linkage between the two strongest hydrogenated carbon atoms, which is broken up in hydrolysis, remains unaffected in isomerization. The diagram drawn and the comparison with the reaction of the hydrolysis of 1,1,2-trimethyl cyclopropane in the presence of the platinum coated charcoal enabled the authors to draw the following conclusions: 1. In the case of the catalytic linking of hydrogen to the alkylcyclopropanes two processes may be followed: hydrogenolysis of the 3-part cycle with a break-up of the ring, and the isomerization reaction into olefines with a subsequent hydrogenation. 2. The hydrolysis of the alkylcyclopropanes does not undergo any intermediate isomerization into olefines; in the opposite case the final products of both reactions would be identical. 3. The activated charcoal can not only catalyze the isomerization reaction of the alkylcyclopropanes, but also the hydrogenation reaction of the thus produced olefine-hydrocarbons. The experimental part gives methods, yields, constants, etc. of the

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Catalytic Transformations of 1,1,2-Trimethylcyclopropane in the Presence of Palladium Coated or Activated Charcoal 20 114-4-31/63

substances discussed. There are 1 figure, 5 tables, and 11 references, 8 of which are Soviet.

ASSOCIATION: Institute for Organic Chemistry imeni N. D. Zelinskiy, AS USSR
(Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: January 31, 1957

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LUKINA, M.YU.

20-2-29/62

AUTHOR KAZANSKIY, B.A., Member of the Academy, LUKINA, M.Yu., and SAL'NIKOVA, L.G.

TITLE The Hydration of Vinylcyclopropane and 1-Methyl-1-Isohexanyl Cyclopropane in the Presence of Platinum and Palladium

PERIODICAL (Gidrirovaniye viniltsiklopropana i 1-metil-1-izogekseniltsiklopropana v prisutsvii platiny i palladiya. Russian)

ABSTRACT Doklady Akademii Nauk SSSR, 1957, Vol 115, Nr 2, pp 301 - 403 (U.S.S.R.)

It was recently found that isopropenylcyclopropane at room temperature in the presence of palladium black absorbs 2 hydrogen molecules and forms 2-methylpentane. The reaction takes place with an intermediate formation of 2-methylpentane-1 and -2. A scheme is given. Isopropylcyclopropane does not form at all under these conditions. This peculiar behavior of isopropenyl cyclopropane gives rise to the supposition that the double bond existing in the side-chain weakens the stability of the C-C bonds of the three-member ring which lie near the substituent against their reactions of splitting and addition to hydrogen. This apparently takes place thanks to a peculiar conjugation between the cyclopropane ring and the double bond. The hydration of the mentioned substance in the presence of platinum black takes place in a different manner: 1,3 mol. of hydrogen are absorbed and a mixture of 70 % isopropylcyclopropane and 30 % 2-methylpentane develops. In this case, therefore, the splitting of the three-member cycle under addition of hydrogen according to the palladium scheme takes place slower than

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The Hydration of Vinylcyclopropane and 1-Methyl-1-Isohexanyl Cyclopropane in the Presence of Platinum and Palladium

the addition of hydrogen to the double bond with retention of the cyclopropane ring. In the first reaction 0,6 mol., for the second one 0,7 mol. of hydrogen are consumed. The present work studied the addition of hydrogen, in the presence of the blacks of both metals, to two other hydrocarbons of the cyclopropane series which contain a double bond in the side chain (see title). With palladium black (at +2°C) vinylcyclopropane readily absorbs 2 hydrogen molecules and forms n-pentane. That means that here the three-member ring, under addition of hydrogen, is split just as easily as in the case of isopropenyl cyclopropane, the double bond of the side chain being hydrated in this connection. If the hydration is interrupted and only 1 H-molecule is permitted to add, a complex mixture develops which is not yet thoroughly investigated. At room temperature with platinum black or at 100 °C with a copper-chromium catalyst and up to 130 at. superpressure 1-methyl-isohexanyl-cyclopropane is converted to 1-methyl-1-isohexylcyclopropane which was hitherto not described in publications. In the presence of palladium black 1-methyl-1-isohexanyl-cyclopropane absorbs about 1.6 mol. of hydrogen and is converted, as far as can be judged from the hydra-

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The Hydration of Vinylcyclopropane and 1-Methyl-1-Isohexanyl Cyclopropane in the Presence of Platinum and Palladium

tion products, to a mixture of 1-methyl-1-isohexylcyclopropane and 2,6-dimethyloctane. The following explanation is given for that: Part of the added hydrogen is consumed in the hydration of the double bond in the side chain; the rest is used for the addition to the isomeric hydrocarbon in which the double bond, under the influence of palladium black, had shifted into a conjugate position with the cyclopropane ring. 1-methyl-isohexanyl-cyclopropane, produced due to isomerization, with a conjugate position of the double bond in relation to the cyclopropane ring apparently should behave analogously to vinylcyclopropane and isopropenylcyclopropane in the presence of palladium and hydrogen. Namely it should absorb 2 hydrogen molecules and be converted to 2,6-dimethyloctane. In the presence of platinum black the double bond does not shift. Therefore the hydration result is only 1-methyl-1-isohexylcyclopropane. At 180°C this latter is converted to 2,2,6-trimethylheptane in the gas phase and in the presence of platinum-plated charcoal under addition of hydrogen. Therefore the hydrogenolysis of the 3-member ring here occurs in the same manner as in the case of other alkylcyclopropanes, namely under a splitting of the C—C bond lying opposite to the substituent. Experimental part with the usual data. (3 tables,

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The Hydration of Vinylcyclopropane and 1-Methyl-1-Isobutyl Cyclopropane in the Presence of Platinum and Palladium

(6 Slavic references).

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Card 4/4

. LUKINA, M. Yu.

20-5-20/48

AUTHORS: Lukina, M. Yu. , Zotova, S. V. and Kazanskiy, B. A. , Academician

TITLE: Hydrogenation of Ethylcyclobutane and 1,1,2-Trimethylcyclopropane in Presence of Palladium Charcoal (Gidrirovaniye etiltsiklobutana i 1,1,2-trimetiltsiklopropana v prisutsvii palladirovannogo uglya)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 5, pp. 793 - 796 (USSR)

ABSTRACT: The cyclopentane-, cyclobutane-, and cyclopropane hydrocarbons are able to absorb hydrogen in presence of platinized charcoal under comparatively mild conditions and under a cycle fission (hydrogenolysis). Except this reaction common for all lower cycloparaffins, alkylcyclopropanes are able to suffer a second hydration reaction with a simultaneous begin of a cycle. It leads through an intermediate isomerization of the alkylcyclopropanes to olefins which then can be hydrated to paraffins. The final products of these two reactions are (as it is explained by means of the scheme), different. The hydration on platinized charcoal takes place only in the direction of the hydrogenolysis. Since platinum is for this purpose especially active, the velocity of this reaction exceeds by far that of the isomerization, so that the latter does not take

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Hydrogenation of Ethylcyclobutane and 1,1,2-Trimethylcyclopropane in Presence of Palladium Charcoal

place at all. It was proved already earlier by Kazanskiy and his assistants that palladium charcoal cannot catalyze the hydrogenolysis of the cyclopentane (reference 6) and its homologues (reference 7). The data for alkylcyclobutanes lack. Cyclopropane was more able to bind hydrogen to palladium on pumice at higher temperatures than to platinum. The results obtained in present paper (and in the title) are easily to be compared to those on platinized coal. The experiments have shown that ethylcyclobutane can be hydrogenolyzed on palladium charcoal at a somewhat higher temperature than on platinized charcoal. Here also the two possible bindings of the 4-part cycle were cracked, however, a branched isomer was produced in a somewhat greater quantity (60%). Considerable differences from the platinized charcoal were found in the case of 1,1,2-trimethylcyclopropane. It was proved that at 100 and 120° both possible reactions of hydration took place: hydrogenolysis as well as isomerization with a subsequent hydration. Thus the catalyzate contained all 3 possible products of the fission of the 3-part cycle. At 220° the secondary reaction took place to a greater extent, and the mixture of 2,3-dimethylbutane and 2-methylpentane amounted to already 40 % of the total mixture. The obtained results show

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Hydrogenation of Ethylcyclobutane and 1,1,2-Trimethylcyclopropane in Presence of Palladium Charcoal

that palladium charcoal is no catalyzer specific to such an extent of the hydrogenolysis of lower cycloparaffins than platinized charcoal. The results of the hydration reactions in presence of these two catalyzers are only with respect to alkylcyclobutane approximated to each other. The experimental part with the usual data follows. There are 2 figures, 4 tables, and 11 references, 9 of which are Slavic.

ASSOCIATION: Institute for Organic Chemistry imeni N. D. Zelinskiy AN USSR
(Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: July 1, 1957

AVAILABLE: Library of Congress

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LUKINA, M. Yu.

AUTHORS: Kazanskiy, B. A., Lukina, M. Yu., Safonova, I.L., 62-1-19/29

TITLE: Hydrogenation of Phenylcyclopropane in Presence of Palladium- and Platinum Black (Gidrirovaniye Feniltsiklopropana v prisutstvii palladiyevoy i platinovoy cherni)

PERIODICAL: Izvestiya AN SSSR, Otdeleniye Khimicheskikh Nauk, 1958
Nr 1, pp. 102 - 104 (USSR)

ABSTRACT: Formerly it was shown by the authors that systems which contain a three-membered ring and a double binding (C-C or C=O) in combined state can be easily hydrolyzed by the aperture of the cycle in cold (references 1-4). In present paper the authors describe the hydration of the phenylcyclopropane in which the three-membered cycle is connected with the aromatic system of the double bindings. It was found that in the presence of palladium hydrogen combines with phenylcyclopropane with a velocity of 30 ml/min. The obtained catalysate boils in the interval of 0,10 and was a separate substance (according to the constants). (tables 1 and 2). Even with great quantities of the catalyst the hydration took place 90 times slower than with palladium. It was assumed that the catalyst contained propylcyclohexane (perhaps also cyclohexylcyclopropane) which the constants of which have

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Hydrogenation of Phenylcyclopropane in Presence of Palladium- and
Platinum Black

62-1-19/29

not yet been described in literature. There are 1 figure, 2
tables, 7 references, 5 of which are Slavic.

ASSOCIATION: Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR
(Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR)

SUBMITTED: July 12, 1957

AVAILABLE: Library of Congress

1. Phenylcyclopropane-Hydrogenation
2. Palladium catalyst-Applications
3. Platinum oxide catalyst-Applications

Card 2/2

AUTHORS: Lukina, M. Yu., Zotova, S. V., Kazanskiy, B. A. 62-58-3-7/30

TITLE: The Isomerization of 1,1,2-Trimethylcyclopropane in the Presence of Palladium- and Platinum-Charcoal (Izomerizatsiya 1,1,2-trimetiltsiklopropana v prisutstvii palladirovannogo i platinirovannogo uglya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 3, pp. 300-304 (USSR)

ABSTRACT: Dealing with the investigation of the hydrogenolysis of alkylcyclopropanes in the presence of platinum- and palladium-catalysts it was of interest for the authors to investigate the isomerizing action of the catalysts upon the three-membered carbon cycle. The object of investigation in this case was 1,1,2-dimethylcyclopropane. The above-mentioned palladium- and platinum-charcoal served as catalysts. The investigation performed in this manner showed that palladium-plated and nonpalladium-plated charcoal at a temperature above 200° C causes a marked isomerization of 1,1,2-dimethylcyclopropane to olefins. This isomerization occurs more actively on a rise of temperature to 250° C and its depth remains constant on a further rise of

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The Isomerization of 1,1,2-Trimethylcyclopropane in the Presence
of Palladium- and Platinum-Charcoal

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temperature to 280° C. An analysis of the product of catalysis showed that the isomerization in the presence of both catalysts approximately occurs with a 60% yield. On that occasion the linkage between the carbon atoms of the cycle which were hydrogenized least and those which were hydrogenized most strongly breaks, which is in agreement with experience. But the authors also could determine another direction of the occurring tear at the expense of the bond at the tertiary carbon atom. A scheme on the reaction of the isomerization is given on page 301. There are 4 tables and 10 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute for Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: October 19, 1956

Card 2/2

AUTHORS: Kazanskiy, B. A., Lukina, M. Yu., ~~SOV/62-58-10-24/25~~
Safonova, I. L., ~~Aleksanyan, V. T., Sterin, Kh. Ye.~~

TITLE: Letter to the Editor (Pis'ma redaktoru)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 10, pp 1280 - 1280 (USSR)

ABSTRACT: The authors succeeded for the first time to distribute
1,2-diphenyl cyclopropane and 1-phenyl-2-cyclopropyl
cyclopropane to stereoisomers. The properties were:
1,2-diphenyl cyclopropane (cis-form); boiling point 131,
6-131, 7°, (4,8mm); melting point 36,7°; n_D^{20} 1,5887;
 d_4^{20} 1,0290. The trans-form: Boiling point 144,1-144,2°
(5,2 mm); melting point 15,3°; n_D^{20} 1,5997; d_4^{20} 1,0346;
1-phenyl-2-cyclopropyl cyclopropane: cis-form:boiling
point 100,2-100,5 (11 mm); n_D^{20} 1,5330; d_4^{20} 0,9574; trans-
form: Boiling point 111,3-111,5° (13,8 mm); n_D^{20} 1,5371;
Card 1/2 d_4^{20} 0,9585. The spectra of the combination dispersion

Letter to the Editor

SOV/62-58-10-24/25

of both stereoisomer pairs were investigated and a considerable increase of the integral intensities of the characteristic bands of the benzene ring were found. This effect proves the presence of a considerable linkage of the phenyl nuclei with the 3-membered nucleus. This linkage is less intense in the spectra of the isomers with low boiling point. The authors explain this phenomenon by the presence of steric hinderances that disturb the situation favorable to the phenyl nuclei. There are 2 references, which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR i Komissiya po spektroskopii pri Otdelenii fiziko-matematicheskikh nauk Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy AS USSR and the Commission for Spectroscopy at the Department of Physical Mathematical Sciences AS USSR)

SUBMITTED: July 19, 1958
Card 2/2

5(3,2)

AUTHORS:

Lukina, M. Yu., Zotova, S. V.,
Kazanskiy, B. A., Academician

SOV/20-123-1-28/56

TITLE:

Effect of the Nature of the Carrier Exerted on the Direction of Catalytic Hydrogenation of Hydrocarbons of the Cyclopropane Series (Vliyaniye prirody nositeley na napravleniye reaktsii kataliticheskogo gidrirovaniya uglevodorodov ryada tsiklopropana)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 1,
pp 105-108 (USSR)

ABSTRACT:

The authors have already previously reported (Ref 1) that in the literature on the mentioned problem many opposing views are presented. They concern the direction of cleavage of the 3-membered ring. Most of the authors assume that the linkage between the two most hydrogenized carbon atoms (Refs 1-6) is being cleaved under a hydrogen affiliation (I). But there are also cases described of a ring cleavage in other directions (II) (Refs 7-9). Ya. M. Slobodin and coworkers (Ref 9) conclude that an intermediate stage of isomerization of the alkyl cyclopropane to an olefin is interpolated; the olefin afterwards being hydrogenated. The existence of an olefin in the products

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Effect of the Nature of the Carrier Exerted on the Direction of Catalytic Hydrogenation of Hydrocarbons of the Cyclopropane Series

SOV/20-123-1-28/56

of an incomplete hydrogenation was proved by the Raman spectra. Reference 9 does not present any definite causes of the various cleavage directions of the 3-membered cycle. There is, however, one important factor which is capable of affecting the mentioned direction of cleavage, viz. the carrier of the hydrogenating metal, in so far as the employed catalysts are mostly used on carriers. As was previously proved by B. A. Kazanskiy (Refs 10, 11), silica gel and activated charcoal are able to catalyze the isomerization of cyclopropane hydrocarbons to olefins. It was but natural to assume that the hydrogenating metals, if they are applied on carriers which are able to cause isomerization resembling the two just mentioned cases, will lead under suitable conditions to different cleavage direction of the ring than this would be the case with inert carriers. Actually, in the first case that olefin is hydrogenated which is formed in the isomerization of alkyl cyclopropane (equation III); in the second case, the cyclopropane hydrocarbon itself will be hydrogenated (equation I). The relative isomerizing activity of such catalysts on carriers will thus determine the cleavage direction of the 3-membered ring.

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Effect of the Nature of the Carrier Exerted on the Direction of Catalytic Hydrogenation of Hydrocarbons of the Cyclopropane Series SOV/20-123-1-28/56

In the present paper the authors describe tests concerning the isomerization of cyclopropane hydrocarbons to olefins in the presence of: aluminum silicate, kieselguhr and pumice. On aluminum silicates, ethyl cyclopropane was nearly completely isomerized to a mixture of olefins of normal structure already at 50°; on kieselguhr, to 75 % at 120°, on pumice at 120° no isomerization occurred, only at 170°- 20 % were obtained, then at 220° - 45 %. Thus, the influence of a carrier being active as regards isomerization exerted upon the direction of the hydrolysis of the 3-membered ring is unquestionable. There are 5 figures and 15 references, 6 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)

Card 3/4

5(3)

AUTHORS:

Kazanskiy, B. A., Lukina, M. Yu.,
Cherkashina, L. G.

SOV/62-59-3-29/37

TITLE:

Isomerization of Vinyl Cyclopropane in the Presence of Kieselguhr (Izomerizatsiya viniltsiklopropana v prisutstvii kizel'gura)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 553-554 (USSR)

ABSTRACT:

This is a brief communication on the experiment to determine the influence exercised by the conjugated double bond on the stability of the three-membered cycle during the isomerization. It is known that alkyl cyclopropanes isomerize relatively easily under the action of a series of catalysts and pass into an olefin mixture (Refs 3-5). The authors used kieselguhr for their investigation because in its presence ethyl cyclopropane is isomerized almost completely at 120° (Ref 5). The experiments carried out with vinyl cyclopropane under the same conditions have shown that quite unexpectedly no piperylene was present in the catalyst. With the exception of the first few drops the catalyzate showed constants of the initial hydrocarbon and produced no adduct with maleic anhydride. At 150° not more than

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Isomerization of Vinyl Cyclopropane in the Presence of SOV/62-59-3-29/37
Kieselguhr

10 % of diene were observed in the catalyzate. It was obvious to assume that vinyl cyclopropane is more reaction-resistant than ethyl cyclopropane. This was, however, refuted in the course of further experiments. It was found that the three-membered cycle which is conjugated with a double bond may be isomerized in the presence of kieselguhr. The degree of stability of the cycle in this case cannot be determined according to the amount of the forming piperylene since the latter completely poisons the catalyst. There are 3 tables and 6 Soviet references.

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)

SUBMITTED: July 18, 1958

Card 2/2

SOV/51-7-2-6/34

AUTHORS: Aleksanyan, V.T., Sterin, Kh.Ye., Lukina, M.Yu., Safonova, I.L. and Kazanskiy, B.A.

TITLE: A Spectroscopic Investigation of the Effect of Mutual Orientation of Cyclopropane and Phenyl Rings on their Conjugation (Spektroskopicheskoye issledovaniye vliyaniya vzaimnoy orientatsii tsiklopropanovykh i fenil'nykh kolets na ikh sopryazheniye)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 2, pp 178-186 (USSR)

ABSTRACT: The paper describes results of the study of Raman spectra of stereoisomers of 1,2-diphenylcyclopropane and 1-phenyl-2-cyclopropylcyclopropane. These hydrocarbons were prepared following the technique described by Kishner (Ref 4) and Smith and Rogier (Ref 16). Stereoisomers were separated out by fractional distillation under vacuo. The Raman spectra were recorded by means of a spectrograph ISP-51. The frequencies and intensities were measured following a technique described earlier (Ref 17). The frequency scatter did not exceed $\pm 1 \text{ cm}^{-1}$ and the intensity scatter was $\pm 10\%$. The integral intensities were determined by direct microphotometry of the line shape. The 802 cm^{-1} line in the spectrum of cyclohexane was used as a standard and its molar integral intensity was taken to be 500. The

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SOV/51-7-2-6/34

A Spectroscopic Investigation of the Effect of Mutual Orientation of Cyclopropane and Phenyl Rings on Their Conjugation

results obtained are tabulated on pp 180-1. The intensities of the lines at ~ 1200 and ~ 1800 cm^{-1} of the two compounds studied were stronger than those of alkyl benzenes; this indicates a strong conjugation of cyclopropane and phenyl rings. The conjugation is shown less clearly in the spectra of stereoisomers with lower boiling points. This is due to steric obstacles which prevent the most favourable arrangement of the phenyl rings with respect to the cyclopropane ring. Such steric obstacles exist only in cis-isomers. This circumstance was used to identify the cis- and trans-isomers of both hydrocarbons. For 1,2-diphenylcyclopropane the isomer with a boiling point of 131.6 - 131.7°C (4.8 mm Hg) and a freezing point of 36.7°C was identified as the cis-form, while the isomer with a boiling point of 144.1 - 144.2°C (5.2 mm Hg) and a freezing point of 15.3°C had the trans-form. The cis-isomer of 1-phenyl-2-cyclopropylcyclopropane had a boiling point of 100.2 - 100.5°C (at 11 mm Hg) and the trans-isomer

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SOV/51-7-2-6/34

A Spectroscopic Investigation of the Effect of Mutual Orientation of Cyclopropane and Phenyl Rings on Their Conjugation

boiled at 111.3-111.5°C (at 13.8 mm Hg). There are 2 figures, 2 tables and 21 references, 9 of which are Soviet, 8 English, 1 French, 1 German, 1 translation from English into Russian and 1 from an international journal.

SUBMITTED: September 23, 1958

Card 3/3

5 (3)

AUTHORS:

Lukina, M. Yu., Zotova, S. V.;
~~Kazanskiy, B. A.~~, Academician

SOV/20-127-2-29/70

TITLE:

Catalytic Transformation of Alkyl Cyclopropanes in the Presence
of Platinum and Palladium Applied to Ashless Activated Charcoal

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 341-344 (USSR)

ABSTRACT:

The authors showed recently (Ref 1) that the hydration of alkyl cyclopropanes in the presence of platinized charcoal differs from the hydration in the presence of palladium applied to charcoal (see Scheme). In the first case and at 120° as well as at 220° only the hydrogenolysis of the three-membered ring takes place, in the second case, however, the isomerization of the alkyl cyclopropane to olefines with a subsequent hydrogen addition to the latter proceeds besides the above-mentioned reaction. The quantity of the products of the side reaction increases up to 40 % with the temperature rise up to 220°. This side reaction proceeds either on the account of palladium or charcoal, if palladium is able to cause an isomerization of the three-membered ring in contrast to platinum (first case). The second case is as well possible, since the charcoal does not remain inert (according to Ref 2) in this reaction. If this last assumption is right, it

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Catalytic Transformation of Alkyl Cyclopropanes in the SOV/20-127-2-29/70
Presence of Platinum and Palladium Applied to Ashless Activated Charcoal

cannot be explained why these properties of the charcoal do not appear in the case of the platinum catalyst; or it is a consequence of the lower palladium activity in the hydrogenolysis reaction, as the authors assumed earlier (Ref 1). Thus it was the authors' object to investigate and compare the properties of these two metals themselves. This should be the case in the isomerization and hydrogenolysis of the alkyl cyclopropanes under elimination of the effect of the carrier. The charcoal mentioned in the title was used since the platinum- and palladium blackness did not cause at all an alkyl cyclopropane analysis at 120°. The charcoal was produced by the carbonization of sugar. The cyclopropanes were not subjected to any changes in the case of a passage through such a charcoal at 220°. Pt- and Pd-catalysts of 20 % were produced on the basis of this charcoal. The isomerization (in the absence of hydrogen) was carried out at 220°. This temperature was assumed as optimum temperature in the previous papers of the authors (Refs 1-3). Now neither the properties of the alkyl cyclopropanes were changed nor the catalysates contained unsaturated compounds. Thus it was proved that neither Pt nor Pd isomerize under these conditions the three-membered ring.

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Catalytic Transformation of Alkyl Cyclopropanes in the Presence of Platinum and Palladium Applied to Ashless Activated Charcoal SOV/20-127-2-29/70

1,1,2-trimethyl-cyclopropane was used for experiments in the presence of hydrogen. The hydration on the mentioned catalyst is not complete at 120°. This makes possible a comparison of their activity. It was found that no isomerization had occurred. The hydrogenolysis proceeded on platinum with 65 %, on palladium with 50 %. Thus the latter turned out to be less active. Thus it was confirmed that in the case of palladium the isomerization is caused by the carrier, not by the metal. The differences in the effect of the two metals in the hydration depend on their individual activity. The hydrogenolysis rate surpasses in the case of the more active metal that of the isomerization caused by the carrier to such an extent that the influence of the latter is not expressed at all. The two reaction rates compete with each other in the case of the less active metal and the side reaction caused by the carrier proceeds besides the hydrogenolysis. There are 1 figure, 3 tables, and 5 references, 4 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)

Card 3/4

5(3)

SOV/20-127-3-24/71

AUTHORS:

Lukina, M. Yu., Nakhapetyan, L. A., Ovodova, V. A., Kazanskiy, B. A., Academician

TITLE:

Catalytic Isomerization of Hydrocarbons in the Cyclobutane Series

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 567 - 570 (USSR)

ABSTRACT:

Up to now only few papers have existed on the subject mentioned in the title (Refs 1-6). The mentioned papers neither give an exhausting idea of the conditions necessary for the isomerization of a cycle with 4 links, nor of the reaction products. This fact made the authors start a systematic investigation of the mentioned field. They investigated the hydrocarbons mentioned in the title, in the presence of catalysts which usually isomerize a cycle with 3 links, under conditions which allow a comparison of the resistances of carbon cycles with 3 and 4 links. Already in former investigations the authors faced an interesting phenomenon: alkyl-cyclobutanes (Ref 7) in contrast to alkyl-cyclopropanes (Ref 8), experienced no isomerization with a chromatographic adsorption on silica gel, iso-propenyl-cyclobutane, however,

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Catalytic Isomerization of Hydrocarbons in the
Cyclobutane Series

SOV/20-127-3-24/71

was completely isomerized with an expansion of the cycle to 5 links (Ref 9). The behavior of alkyl-cyclobutanes thus differed already from that of an alkenyl-cyclobutane which even proved less resistant than alkyl-cyclopropanes. In this connection the authors investigated the behavior of saturated hydrocarbons: ethyl- and iso-propyl-cyclobutane, also with acid catalysts (such as silica gel), furthermore with unsaturated hydrocarbons of the same series with a different position of the double linkage in the substituent, i. e. isopropenyl-cyclobutane and isopropylidene-cyclobutane. In doing so they found that aluminosilicate can completely isomerize alkyl-cyclopropane at 50° (Ref 10), and does not cause a noticeable isomerization of iso-propyl-cyclobutane, not even at 250°. Siliceous earth which completely isomerizes alkyl-cyclopropane at 150° (Ref. 10), does not influence alkyl-cyclobutane between 150° and 400°; only at 500° the catalyzed product obtained differed considerably from the initial hydrocarbon, as far as its constant is concerned. A fact which can also be explained by the high temperature. Thus it was

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Catalytic Isomerization of Hydrocarbons in the
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proved that alkyl-cyclobutanes, in contrast to alkyl-cyclopropanes are enough resistant under the conditions of isomerization. Also here the unsaturated hydrocarbons of the cyclobutane series behaved in quite a different way: isopropenyl-cyclobutane was completely isomerized in the presence of siliceous earth, already at a temperature of 200° , with an extension of its cycle to 5 links. In the Raman spectrum the hydrated isomerization product appeared as a mixture of 1,2-dimethyl-cyclopentane with traces of 1,1-dimethyl-cyclopentane. Isopropylidene-cyclobutane developed a similar isomerization product. Thus it was proved that unsaturated hydrocarbons of the cyclobutane series could easily be isomerized independently of the position of the double linkage in the substituent. They developed the same products under conditions which could not effect the alkyl-cyclobutanes. The catalysts investigated are able to cause a displacement of the double linkage (Ref 11). This is explained by the scheme. There are 1 table and 11 references, 9 of which are Soviet.

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Catalytic Isomerization of Hydrocarbons in the
Cyclobutane Series

SOV/20-127-3-24/71

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N. D. Ze-
linskiy of the Academy of Sciences, USSR.)

SUBMITTED: April 27, 1959

Card 4/4

5.3300

78069
SOV/62-60-1-15/37

AUTHORS: Aleksanyan, V. T., Sterin, Kh. Ye., Liberman, A. L.,
Lukina, M. Yu., Tayts, G. S., Tarasova, G. A., Terent'eva,
Ye. M.

TITLE: Investigation of Hydrocarbons by Optical Method. XII.
Raman Spectra of Some Hydrocarbons of Various Series

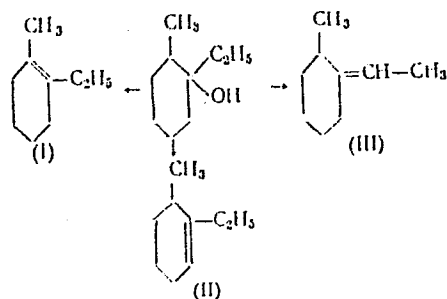
PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
nauk, 1960, Nr 1, pp 84-89 (USSR)

ABSTRACT: The Raman spectra of the following hydrocarbons were
studied: n-dodecane; 5,5-dimethylundecane; 1,1,2-tri-
methylcyclopropane; sec-butylcyclopentane, 2-cyclopentyl-
octane, n-propylcyclohexane, 1-methyl-2-ethylcyclo-
hex-1-ene. Combination of the chemical and spectro-
scopic data confirm that 1,2-dialkylcyclohexan-1-ol
on dehydration yields 1,2-dialkylcyclohexenes with
double bond predominantly in position (I).

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Investigation of Hydrocarbons by
Optical Method. XII

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SOV/62-60-1-15/37



There are 26 references, 16 Soviet, 6 U.S., 4 German.
The 5 most recent U.S. references are: Mosher,
W. A., J. Am. Chem. Soc., 62, 552 (1940); Fenske, M. R.,
Anal. Chem., 19, 700 (1947); Signalgo, F. K., Cramer,
P. L., J. Am. Chem. Soc., 55, 3326 (1933); Foehr,
F. G., Fenske, M. R., Industr. and Engng. Chem., 41,
1956 (1949); Kelso, R. G., Greenlee, K. W., Derfer,
J. M., Boord, C. E., J. Am. Chem. Soc., 74, 287 (1952).

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Investigation of Hydrocarbons by
Optical Method. XII

78069
SOV/62-60-1-15/37

ASSOCIATION: N. D. Zelinskii Institute of Organic Chemistry of the
Academy of Sciences of the USSR (Institut organicheskoy
khimii imeni N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: May 30, 1958

Card 3/3

67566

5.3300

5(3)

SOV/20-130-2-21/69

AUTHORS: Kazanskiy, B. A., Academician, Lukina, M. Yu., Safonova,
I. L.

TITLE: Synthesis and Catalytic Hydrogenation¹ of Diphenylcyclopro-
panes¹

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 2,
pp 322 - 325 (USSR)

ABSTRACT: From the standpoint of modern theory, the structure of the cyclopropane ring has not been fully clarified as yet. According to several papers (Refs 1-3), the carbon atoms in cyclopropane have the same electron configuration as the C-atoms in ethylene. Various explanations of the interaction of the 6 orbits (3 sp^2 and 3 p) assume that one valence of each carbon represents an almost pure p-orbit. Thus, this valence is similar to the orbits forming the π -bond. From this point of view, the presence of a π -electron cloud in the cyclopropane ring may be assumed. According to the theory, it lies on the perimeter in the plane of the triangle (Fig 1). This cloud must make possible the conjugation of the 3-membered ring with unsaturated

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Synthesis and Catalytic Hydrogenation of Diphenyl-
cyclopropanes

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groups such as the carbon-carbon double bond, the carbonyl group or the phenyl ring. As the conjugation can only occur if the axes of the ring and of the substituent are parallel or nearly parallel, it is evident that the steric position of several substituents decides on the higher or lower occurrence of the conjugation. It was proved recently (Refs 7,8) that the conjugation effect is differently high with two stereoisomers. The investigation of the steric models of the stereoisomers of these hydrocarbons showed that in the cis-isomers one or both of these groups are partly displaced from a position favorable to conjugation due to the close position of two substituting groups. For this reason, a cis-configuration may be ascribed to the stereoisomers with lower conjugation. Thus, it may be assumed that no conjugation must occur in 1,1-diphenylcyclopropane since both phenyl groups can only have a steric position which excludes the parallel position of the axes of their π -clouds with respect to the plane of the 3-membered ring. This assumption was confirmed experimentally by Raman spectra. In the present paper, the authors studied the reactivity of cis- and trans-

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Synthesis and Catalytic Hydrogenation of Diphenyl-⁶⁷⁵⁶⁶ SOV/20-130-2-21/69
cyclopropanes

1,2-diphenylcyclopropane and of 1,1-diphenylcyclopropane on the example of hydrogenation in the presence of palladium black (Refs 9-12). The data obtained are in full agreement with the results of the Raman spectra. Thus, the behavior of 1,1-diphenylcyclopropane in this reaction is quite similar to that of a nonconjugated hydrocarbon. It does not absorb any hydrogen. In cis- and trans-1,2-diphenylcyclopropane, hydrogen is absorbed by two low-hydrogenized carbons of the ring. 1,3-diphenylpropane develops here (see Scheme). Steric factors also influence the rate of hydrogenation. Thus, it was proved that the reactivity of diphenylcyclopropanes depends on the steric position of the substituents. The Raman spectrum of 1,1-diphenylcyclopropane will be published shortly. There are 1 figure, 3 tables, and 16 references, 10 of which are Soviet. 4

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni K. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: September 30, 1959
Card 3/3

LUKINA, M.Yu., kand.khim.nauk; SMOL'NIKOV, V.P., kand.med.nauk (Moskva)

Cyclopropane. Priroda 50 no.11:100-102 N '61. (MIRA 14:10)
(Cyclopropane) (Anesthetics)

KOZINA, M.P.; LUKINA, M.Yu.; ZUBAREVA, N.D.; SAFONOVA, I.L.; SKURATOV, S.M.;
KAZANSKIY, B.A., akademik

Heat of combustion of some phenylcyclopropanes. Dokl.AN SSSR 138
no.4:843-845 Je '61. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova i
Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Benzene) (Heat of combustion)

LUKINA, M. Yu.; ZOTOVA, S.V.; MARKOV, M.A.; OVODOVA, V.A.; KAZANSKIY, B.A.,
akademik

Transformations of isopropenylcyclopropane in the presence of
kieselguhr. Dokl. AN SSSR 139 no.2:381-384 J1 '61. (MIRA 14:7)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Propene) (Kieselguhr)

LUKINA, M. Yu.

Structure and reactivity of cyclopropane and its derivatives.
Usp.khim. 31 no.8:901-939 Ag '62. (MIRA 15:8)

1. Institut organicheskiy khimii AN SSSR imeni N.D.Zelinskogo.
(Cyclopropane)

LUKINA, M. YU.

Dissertation defended for the degree of Doctor of Chemical Sciences at the Institute of Elemento-organic Compounds in 1962:

"Investigation of Hydrocarbons with Small Cycles."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

LUKINA, M.I. [Lukina, M.Yu.]

Structure and reactivity of cyclopropane and its derivatives.
Analele chimie 18 no.3:77-122 JI-S '63.

LUKINA, M. Yu.

Syntheses and conversions in the cyclobutane series. Usp.khim 32
no.12:1425-1457 D '63. (MIRA 17:2)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

NESMEYANOVA, O.A.; LUKINA, M.Yu.; KAZANSKIY, B.A., akademik

Comparative reactivity of hydrocarbons of the cyclopropane series. Dokl. AN SSSR 153 no.1:114-117 N '63.

(MIRA 17:1)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

NESMEYANOVA, O.A.; LUKINA, M.Yu.; KAZANSKIY, B.A., akademik

Reactivity of cyclopropane hydrocarbons as dependent on their
structure. Dokl. AN SSSR 153 no.2:357-359 N '63. (MIRA 16:12)

NAKHAPETYAN, L.A.; NESMEYANOVA, O.A.; SAFONOVA, I.L.; LOZA, G.V.; OVODOVA,
V.A.; DIKINA, M.Yu.

Preparation of trimethylene chlorobromide. Zhur. prikl. khim.
37 no.8:1808-1811 Ag '64. (MIRA 17:11)

LUKINA, M.Yu.; NESMEYANOVA, O.A.; KHOTIMSKAYA, G.A.; OVONINA, V.A.; KAZANSKIY, B.A., akademik

Reactivity of alkylcyclopropane of various structure measured by the bromometric method. Dokl. AN SSSR 158 no.3:652-655 (1961). (MIRA 17:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

KAZANSKIY, B.A., akademik; SOBOLEV, Ye.V.; ALEKSANYAN, V.T.; NAKHAPETYAN,
L.A.; LUKINA, M. Yu.

Certain properties of spiro-[2,4]-hepta-1,3-diene. Dokl. AN SSSR
159 no.4:839-842 D '64 (MIRA 18:1)

1. Institut organicheskoy khimii im. N.D. Zelinskogo i Komissiya
po spektroskopii AN SSSR.

ZOTOVA, S.V.; LAZA, G.V.; LUKINA, M.Yu.

Synthesis and catalytic hydrogenation of 2-phenylethylenimine.
Dokl. AN SSSR 164 no.6:1303-1306 0 '65.

(MIRA 18:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
Submitted March 30, 1965.

NESMEYANOVA, O.A.; RUDASHEVSKAYA, T.Yu.; LUKINA, M.Yu.

Reactions of 1,3,3-trimethylcyclopropene with ethyl magnesium bromide and cuprous oxide salts. Izv. AN SSSR. Ser. khim. no.8:1510 '65. (MIRA 18:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

SOKOLOV, H.M.; NAKHAPETYAN, L.A.; FOMICHEV, A.V.; LIVSHITS, S.Ya.;
CHIRTSOV, V.I.; KASIMOV, R.G.; LUKINA, M.Yu.; ZHAVORONKOV, N.M.

Experimental industrial production of pharmacopoeial cyclopropane.
Khim. prom. 42 no.9:662-663 S '65. (MIRA 18:9)

ZOTOVA, S.V.; LOKA, G.V.; LUKINA, M.Yu.

Easy ethylenimine ring opening under conditions of catalytic
hydrogenation. Izv. AN SSSR, Ser. khim. no.11:2057-2059
163. (MIRA 18:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

(A) L 12140-66 EWT(m) RM

ACC NR: AP6000455

SOURCE CODE: UR/0064/65/000/009/0022/0023

AUTHOR: Sokolov, N. M.; Nakhapetyan, L. A.; Fomichev, A. V.; Livshits, S. Ya.;
Chirtsov, V. I.; Kasimov, R. G.; Lukina, M. Yu.; Zhavoronkov, N. M.

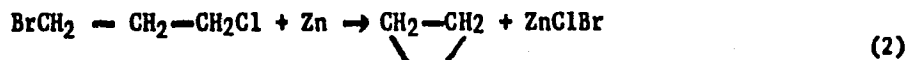
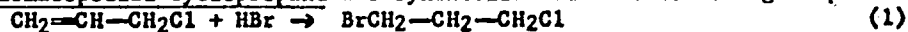
ORG: None

TITLE: Experimental industrial preparation of pharmacopoeial cyclopropane

SOURCE: Khimicheskaya promyshlennost', no. 9, 1965, 22-23

TOPIC TAGS: cyclopropane, organic synthetic process, cyclic group, pharmaceutical, propane

ABSTRACT: Pharmacopoeial cyclopropane was synthesized via the following steps:



$$\begin{array}{c} \diagup \\ \text{CH}_2 \\ \diagdown \end{array}$$

In the third step, propylene and other impurities are removed by distillation in a packed tower. The operation of the experimental industrial assembly used in this process is described and its diagram is given. The reactor for the synthesis of cyclopropane is also illustrated. The propylene content of cyclopropane was

Card 1/2 UDC: 661.715.4:547.512

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ACC NR: AP6000455

determined by gas-liquid chromatography with a thermal conductivity detector, and the cyclopropane obtained was found to meet the specified requirements. The study permitted the refinement of certain parameters of the process by which cyclopropane is produced at the various stages, and improved the flowsheet of the synthesis considerably. Orig. art. has: 3 figures.

SUB CODE: 07 / SUBM DATE: 00 / ORIG REF: 005

HW
Card 2/2

LUKINA, N.K.; RAZZAKOV, A.A.

Long-range forecasting of the average water discharge during the
vegetation period in rivers flowing from the southeastern slope of
the Fergana Range. Trudy Sred.-Az.nauch.-issl.gidrometeor.inst.no. 17:
74-83 '64. (MIRA 17:9)

LUKINA, N.K.

LUKINA, N.K.

A method for short-term forecasting of diurnal levels and streamflow
in the upper reaches of the Syr Darya River. Trudy Tashk.geofiz.
observed no. 15:122-130 '57. (MIRA 10:11)
(Syr Darya River--Hydrology)

LUKINA , N.K.

Method of forecasting mean decadal discharge of water in the upper
course of the Syr Darya River. Trudy Sred.-Az. nauch.-issl. gidro-
meteor. inst. no.3:45-51 '60. (MIRA 14:9)
(Syr Darya River--Hydrology)

LUKINA, N.K.; MASHUKOV, P.M.

Analysis of critical water levels in the Amu Darya River. Trudy
Sred.-Az. nauch.-issl. gidrometeor. inst. no.3:61-64 '60.
(MIRA 14:9)

(Amu Darya River--Hydrology)

DOROSHEK, S.I.; TSEYTLIN, A.M.; Primali uchastiye: ZHULAY, A.A., inzh.;
LUKINA, N.P., inzh.; LOSEV, O.I., inzh.

Effect of temper coloring and thermal stabilization on the
properties of spring bands. Stal' 22 no.2:161-162 F '62.

(MIRA 15:2)

1. Ural'skiy nauchno-issledovatel'skiy institut metallov (for
Doroshek, Tseytlin).

(Steel--Heat treatment)

(Springs (Mechanism))

GAL'PERIN, M.I., kandidat tekhnicheskikh nauk; LUKINA, N.T., kandidat tekhnicheskikh nauk.

Cutting foam silicates. Mekh.stroi. 10 no.9:30-31 S '53.

(MLRA 6:8)
(Silicates)

LUKINA, N. V.

"The Agrometeorological Condition for Growing Oaks in the Trans-Volga Steppe Regions." Cand Geog Sci, Central Inst of Weather Forecasting, Main Administration of the Hydrometeorological Service, Moscow, 1953. (RZhBiol, No 2, Sep 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

So: Sum. No. 481, 5 May 55

KAZANSKIY, B.A.; ~~LUKINA, N.Yu.~~; MAKHAPETYAN, L.A.; ZOPOVA, S.V.;
LOZA, G.V.; SHATENSHEV, G.A.; OVODOVA, V.A.; UVAROV, O.V.;
SOKOLOV, N.M.; SMOL'NIKOV, V.P.

Production of high purity cyclopropane. Khim. prom. no. 6:462-
465 S '60. (MIRA 13:11)

(Cyclopropane)

LUKINA, P. G.

Lukina, P. G. - "Congested optic nerve ends in brain tumors", Trudy Astrakh. gos. med. in-ta, Vol. IX, 1948, p. 211-14.

SO: U-3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 8, 1949).

NAUMOV, V.I., ingd.tekh.nauk; PROZANOV, Yu.S., inzh.; LUKINA, F.G., inzh.

Impact resistance of polyester glass plastics used in railroad
car manufacture. Vest.TSNI MPS 21 no.3:34-36 '65.

(MIRA 18:8)

1. Ural'skoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo
instituta zheleznodorozhnogo transporta Ministerstva putey
soobshcheniya.

L 53667-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4/Pt-7
WW/RM

ACCESSION NR: AP5014690

UH/0191/65/000/006/0038/0039

678.674.06--419:677.521.01:539.4:019.32

AUTHOR: Kropanev, Yu. S.; Lukina, P. G.

TITLE: Improving the strength and water repellency of glass-reinforced polyester plastics

SOURCE: Plasticheskiye massy, no. 6, 1965, 38-39

TOPIC TAGS: glass reinforced plastic, glass fabric, polyester resin

ABSTRACT: A method is described for improving the strength and water repellency of glass-fabric-reinforced plastics (GFRP) based on PN¹ (maleic polyester) resins. The method involves preimpregnation of glass fabrics with an acetone solution of TGM-3 resin, pure TGM-3, or mixtures of TGM-3 with cumene hydroperoxide or cobalt naphthenate. Impregnation is followed by molding using a binder containing: PN-1 or PN-3 resin, 100 parts; cumene hydroperoxide, 3 parts; 10% cobalt naphthenate solution, 8 parts. Preimpregnation of the filler increases the strength of the GFRP by 20-25%. This strengthening was attributed to the filling of interfiber cavities (observed on microscopic specimens of nonpreimpregnated material) to bond the fibers into a solid block. This conclusion was confirmed by a considerable lowering of water absorption by GFRP of preimpregnated material. Orig. art. has: 1 table and 1 figure.

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[BO]

L 53667-65
ACCESSION NR: AP5014690

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 009

OTHER: 001

ATD PRESS: 4012

227
Card 2/2

LUKINA, P. G.

25934 Lukina, P. G. Otdalennyye rezul'tay neyrorafiy. V sb:
problemy vosstanovit. Lecheniya invalidov Otechestv. voyny.
Astrakhan', 1948, s 155-57.

SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948

SHAL'NEVA, A.M.; KRUGLIKOV, V.M.; TITROVA, A.I.; LUKINA, R.A.

Exploration of a method for obtaining dry leptospira cultures.
Zhur. mikrobiol., epid. i immn. 42 no.8:144-145 Ag '65.
(MIRA 18:9)

1. Stavropol'skiy institut vaktsin i syvoretok.

LUKINA, R.N.; NEUSTROYEV, V.D.

Effect of residual moisture on the survival of the viruses of
Japanese and tick-borne encephalitis in desiccated preparations.
Vop.virus 7 no.4:116-117 J1-Ag '62. (MIRA 15:8)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.
(ENCEPHALITIS) (VIRUSES)

PODOLYAN, V.Ya.; MILYUTIN, V.N.; GUDIMA, O.S.; LUKINA, R.N. (Moskva)

Morphogenesis of the ornithosis virus. Vop. virus. 9 no.2:208-212
Mr-Apr '64. (MIRA 17:12)

PODOLYAN, V.Ya.; MILYUTIN, V.N., GUDIMA, O.S.; LUKINA, R.N.

L-transformation of viruses and rickettsia in tissue culture.
Report No. 1: L-transformation of psittacosis virus. Vop.virus.
8 no.1:24-27 Ja-F'63. (MIRA 16:6)
(PSITTACOSIS VIRUS) (TISSUE CULTURE)

PODOLYAN, V.Ya.; MILYUTIN, V.N.; GUDIMA, O.S.; LUKINA, R.N.

Ultrastructure of the L-form of ornithosis virus. Vop. virus. 9
no.3:306-309 My-Je '64. (MIRA 18:1)

1. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR, Moskva.

ANDRYUNINA, K.N.; LUKINA, T.A.; GREBENKIN, A.R.

Gluing FK veneer with MFC-1 resin not processed in the vacuum.
Der.prom.5 no.9:19-20 S '56. (MLRA 9:10)

1. Fanernyy zavod "Krasnyy Yankor".
(Veneers and veneering) (Gluing)

LUKINA, T.A. (Leningrad)

Papers and reports on the history of biology. Vop.ist.est.1
tekh. no.10:188-189 '60. (MIRA 14:3)
(Biology)

LUKINA, T.A.

Expedition of the Academician Lapekhin in the 18th century.
Trudy Inst. ist. est. i tekhn. 41:324-352 '61. (MIRA 15:2)

1. Institut istorii yestestvoznaniya i tekhniki.
(Lapekhin, Ivan Ivanovich, 1740-1802)

LUKINA, Tat'yana Arkad'yevna; KANAYEV, I.I., prof., retsenzent;
MIKHAYLOV, V.P., prof., retsenzent; RAYKOV, B.Ye., prof.,
otv. red.; KARPEKINA, L.S., red. izd-va; BOCHEVER, V.T.,
tekh. red.

[A.P.Protasov, Russian academician of the eighteenth century]
A.P.Protasov - russkii akademik XVIII veka. Moskva, Izd-vo
Akad. nauk SSSR, 1962. 186 p. (MIRA 16:1)
(Protasov, Aleksey Protasovich, 1724-1796)

LUKINA, Tat'yana Arkad'yevna; KANAYEV, I.I., prof., retsenzent;
KHYAZEV, G.A., doktor ist. nauk, retsenzent; RAYKOV,
B.Ye., prof., otv. red.

Ivan Ivanovich Lepekhin. Moskva, Nauka, 1965. 202 p.
(MIRA 18:9)

EYLER, Leonard [Euler, Leonhard(1707-1783)]; KLADO, T.N.; KOPELEVICH,
Yu.Kh.; LUKINA, T.A.; SMIRNOV, V.I., akademik, red.;
SUBBOTIN, M.F., red.; RAYKOV, B.Ye., prof, red.;
SUSHKOVA, T.I., red.izd-va; BOCHEVER, V.T., tekhn. red.

[Letters to scientists] Pis'ma k uchenym. Moskva, Izd-vo
Akad. nauk SSSR, 1963. 395 p. (MIRA 16:6)

1. Chlen-korrespondent AN SSSR (for Subbotin).
(Euler, Leonhard, 1707-1783)

LUKINA, T.A.

History of the founding of the Russian Geographical Society;
based on materials from Karl Baer's unpublished correspondence.
Izv. Vses. geog. ob-va 97 no.6:507-517 N-D '65.

(MIRA 19:1)

MARINYCH, Dmitriy Fedorovich, brigadir; YEFIMOV, Dmitriy Vasil'yevich,
st. master; LUKINA, Taisiya Dmitriyevna, brigadir;
YURCHENKO, V.I., red.

[Every worker should have a technical and economic plan]
Kazhdomu rabochemu - tekhniko-ekonomicheskii plan.
Rostov-na-Donu, Rostovskoe krizhnoe izd-vo, 1965. 45 p.
(MIRA 18:12)

L 18009-66 EWT(m)/EWP(j)/T WW/RM
ACC NR: AP6004317

SOURCE CODE: UR/0303/65/000/005/0038/0042

AUTHOR: Mogilevich, M. M.; Lukina, T. D.

ORG: none

TITLE: Acceleration of film formation of polyester acrylates and modifications of properties of polyester acrylate films

SOURCE: Lakokrasochnyye materialy i ikh primeneniye, no. 5, 1965, 38-42

TOPIC TAGS: polyester plastic, acrylic plastic, polymerization rate, methacrylate plastic

ABSTRACT: The authors investigated the possibility of reducing the time required for film formation in polyester acrylates in order to improve the conditions of preparation of coatings and widen their applications. It was assumed that film formation by dimethacrylate (bis-ethylene glycol) adipate (MEA) and tetramethacrylate (bis-trimethylolethane) adipate (MTA) could be accelerated by introducing coaccelerators (promoters) into the oxidation-reduction systems employed, or adding a high-molecular substance to the polyester acrylates to raise their viscosity. It was

UDC: 667.612.64 + 667.612.82

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L 18009-66

ACC NR: AP6004317

found that the addition of the coaccelerators dimethylaniline, benzoin, triethanol-amine, acetylacetone, acetoacetic ester, ascorbic acid, and dihydroxymaleic acid retards the polymerization of MTA and MEA in air in the 20-100°C temperature range. Introduction of colloxylin VNV and polymethyl methacrylate into MEA shortens the induction period and increases the polymerization rate, the yield of the three-dimensional polymer, and the hardness of the films. The results are applicable to the production of industrial types of polyester acrylates. Orig. art. has: 5 figures, 3 tables.

SUB CODE: 07.11/

SUBM DATE: 00/

ORIG REF: 013/

OTH REF: 002

Card 2/2 711.95

MOGILEVICH, M.M.; LUKINA, T.D.

Shortening the time for the gelatinization of PE-29 varnish.
Der. proc. 14 no.7:20-22 J1 '65. (MFA 19:1)

RUDEKNO, A.P.; RCDICHEVA, M.F.; LEONT'YEV, Ye.A.; LUKINA, T.V. (Moscow)

"Macromechanism" of carbon formation in the decomposition of
benzene on compressed carbon black. Zhur. fiz. khim. 38 no.3:
616-622 Mr '64. (MIRA 17:7)

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

LuKina, V.A.
LUKINA, V.A.

Lymphoepithelioma of the subglottal space of the trachea. Vest.
oto-rin. 19 no.4:101-102 J1-Ag '57. (MIRA 10:11)

1. Iz kliniki bolezney ukha, gorla i nosa (zav. - dotsent A.Ya. Chebotarev) Stalinskogo instituta usovershenstvovaniya vrachey i 2-y gorodskoy klinicheskoy bol'nitsy Stalinska, Kemerovskoy oblasti.
(TRACHEA, neoplasms
epidermoid carcinoma of subglottal space)
(CARCINOMA, EPIDERMOID, case rep.
trachea, subglottal space)

FOMIN, K.F., dotsent; LUKINA, V.A., assistent

Severe candidamycosis in a child caused by large doses of antibiotics. Kaz.med.zhur. 40 no.1:78-80 Ja-F '59.

(MIRA 12:10)

1. Iz kafedry dermato-venerologii Gosudarstvennogo instituta dlya usovershenstvovaniya vrachey g.Stalinska (i.o.zaveduyushchego kafedroy - dotsent K.F.Fomin).

(MONILIASIS)

(ANTIBIOTICS--TOXICOLOGY)

ENTROVA, A.G.; RAZUMOV, V.S.; SYDAROV, T.K.; Primali uchastiya:
LUKINA, V.A.; MURTAZIN, F.Z.; DUKHARINA, N.F.

Determination of lead in air and in biological materials. Zav.
lab. 30 no.9:1095-1096 '64. (MIRA 18:3)

RAZUMOV, V.A.; AYDAROV, T.K.; Prinsipali uchastiye: MURTAZIN, E.Z.;
LUKINA, V.A.; OMELAYEVA, F.B.

Tetrahydroxy-p-benzoquinone as a selective reagent for lead.
Zhur. anal. khim. 19 no.6:746-748 '64. (MIRA 18:3)

FAVORSKAYA, I.A.; LUKINA, V.I.

Determination of chlorine and bromine in liquid organic compounds by
the Schöniger-Bennewitz micromethod. Vest.LGU 16 no.10:148-151
'61. (MIRA 14:5)

(Chlorine--Analysis) (Bromine--Analysis)

L 50150-88 EWF(V//ETI ISP(C) RDW/JD

ACC NR: AP6018342 SOURCE CODE: GE/0030/66/013/001/K019/K022

44
12
B

AUTHOR: Zhdanova, V. V.; Lukina, V. I.; Novikova, S. I.

ORG: Institute of Semiconductors, Academy of Sciences of the UkrSSR, Leningrad

TITLE: Thermal expansion of the HgSe in the 50—500-K temperature range

v1

SOURCE: Physica status solidi, v. 13, no. 1, 1966, K19-K22

TOPIC TAGS: thermal expansion, polycrystal, thermal acoustic effect, mercury compound, mercury selenide, *SELENIIDE*

ABSTRACT: The thermal expansion coefficient of mercury selenide which crystallizes in the zinc-blende lattice has been measured in the 20—500-K temperature range. A quartz dilatometer, an OP-I type recorder (V. V. Zhdanova, Fiz. tverd. Tele 5, 3341, 1963), and Strelkov's dilatometer (P. G. Strelkov and S. I. Novikova, Prib. Tekhn. Eksper., No.5, 105, 1957) have been used. The results obtained with these devices were in good agreement within the limits of experimental error. Measurements have been carried out on two polycrystalline

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L 36150-66

ACC NR: AP6018342

2

and two monocrystalline HgSe samples. The concentrations of free carriers in the polycrystals and one monocrystal were determined from Hall measurements at the room temperature and were found to be 4×10^{17} — $1 \times 10^{18} \text{cm}^{-3}$. The second monocrystalline sample was doped with Al, and its concentration of free carriers was $4.8 \times 10^{19} \text{cm}^{-3}$. The temperature dependence of the thermal-expansion coefficient of HgSe is characteristic for all substances having a diamond-type lattice. The transition temperature of the thermal-expansion coefficient of HgSe to negative values was found to be very high. Negative values of the thermal-expansion coefficient are caused by the increased role of transverse acoustic vibrations at low temperatures. The behavior of the thermal-expansion coefficient must be taken into consideration when investigating semiconductor characteristics of HgSe. The authors thank S. Aliev and S. S. Shalyt for providing monocrystalline samples. Orig. art. has: 1 figure. [NT]

SUB CODE: 20/ SUBM DATE: 26Nov65/ ORIG REF: 005/ OTH REF: 002

Card

2/2 *lll*

FAVORSKAYA, I.A.; ARTSYBACHEVA, Yu.P.; LUKINA, V.I.

Rapid catalytic micromethod for determining carbon and hydrogen.
Vest. IGU 20 no.4:137-140 '65. (MIRA 18:4)

LUKINA, V.N.

Otogenous abscess of the cerebellum; cure. Vest.oto-rin. 16
no.1:73-74 Ja-F '54. (MLRA 7:3)

1. Iz kliniki bolezney ukha, gorla i nosa (zavednyushchiy -
professor V.G.Yermolayev) Leningradskogo ordena Lenina instituta
dlya usovershenstvovaniya vrachey. (Cerebellum--Abscess)