APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

S/030/60/000/05/22/056
B015/B008

AUTHOR: Plate, A. F., Doctor of Chemical Sciences

TITLE: Rumanian-Soviet Conference on Problems of the Chemistry of Hydrocarbons

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, No. 5, pp. 81-82

TEXT: The Conference was held in Bucharest from December 3 to 4, 1959, and was convened by the Rumanian-Soviet Institute and the Department of Chemical Sciences of the Academy of the Rumanian People's Republic. The Soviet scientists A. N. Bashkirov, A. B. Nalbandyan, A. F. Plate and A. P. Ballod were present. The Conference was convened because of the tremendous development of the Rumanian petroleum- and natural gas industry. Gigantic kombinats for the production of aromatic hydrocarbons, synthetic fibers and various synthetic materials are being set up. Delegates from scientific research- and branch institutes, as well as from colleges participated in the activities of the Conference. K. Nenicescu delivered the opening address and underlined the necessity of a close cooperation

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ZELINSKIY, Nikolay Dmitriyevich, akademik [1861-1953]; KAVERZNEVA, Ye.D., doktor khim.nauk, otv.red.; PLATE, A.F., doktor khim.nauk, red.; RUBINSHTEYN, A.M., doktor khim.nauk, red.; KYDUS, Ya.T., doktor khim.nauk, red.; BRUSOV, I.I., red.izd-va; TIKHOMIROVA, S.G., tekhn.red.

[Collected works] Sobranie trudov. Moskva, Izd-vo Akad.nauk SSSR. Vol.4. 1960. 598 p. [Author and subject index] Imennoi i predmetnyi ukazateli. 26 p. (MIRA 14:2)
(Zelinskii, Nikolai Dmitrievich, 1861-1953)
(Chemistry, Organic)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, Al'fred Feliksovich; KONDRASHKOVA, S.F., red.; YERMAKOV, M.S., tekhn.red.

[Handbook of practical methods used in the study of petroleum chemistry] Kratkoe rukovodstvo k praktikumu po khimii nefti. Moskva, Izd-vo Mosk.univ., 1960. 94 p. (MIRA 14:1)

(Petroleum--Analysis) (Hydrocarbons)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A.F., otv.red.; GOSTUNSKAYA, I.V., red.; TITS-SKVORTSOVA, I.N., red.; ERIVANSKAYA, L.A., red.; KONDRASHKOVA, S.F., red.; YERMAKOV, M.S., tekhn.red.

[Transactions of the Interuniversity Conference on Petroleum Chemistry] Sbornik trudov Mezhvuzovskogo soveshchaniia po khimii nefti. Moskva, Izd-vo Mosk.univ., 1960. 313 p. (MIRA 13:12)

1. Mezhvuzovskoye soveshchaniye po khimii nefti. Moscow, 1956. (Petroleum--Congresses)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Dehydration of 1-Alkyl Cyclopentanols SOV/79-29-4-5/77

with oxalic acid for 4 hours, that, however, ethylidene cyclopentane isomerized into 1-ethyl cyclopentene-1 (11.5%). The properties of two hydrocarbons hitherto unknown, i.e. propylidene cyclopentane and butylidene cyclopentane, are given. A certain amount of cyclopentanol was found to be formed during the Grignard synthesis of 1-n.-propyl cyclopentanol-1 on the reduction of cyclopentanone which cannot be easily removed from the alcohol obtained; on the dehydration of this alcohol, together with the added cyclopentanol, and subsequent distillation of the reaction products 1-n.-propyl cyclopentene-1 together with cyclopentanol forms an azeotropic mixture of the composition 73.7 : 26.3 in wt%. This mixture was previously regarded as a pure hydrocarbon. There are 4 figures, 3 tables, and 29 references, 12 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: March 24, 1958

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

SOV/79-29-4-5/77

5(3)

AUTHORS: Plate, A. F., Mel'nikov, A. A.

TITLE: Dehydration of 1-Alkyl Cyclopentanols (Degidratatsiya 1-alkiltsiklopentanolov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1064-1072 (USSR)

ABSTRACT: There are nearly no data available on the dehydration of tertiary alkyl cycloalkanols with a hydroxyl group in the ring which leads to unsaturated cyclic hydrocarbons. This question arose because the authors tried to obtain 1-ethyl cyclopentene-1,1-n.-propyl cyclopentene-1 and 1-n.-butyl cyclopentene-1 in absolutely pure state, without impurities in the form of isomers, and with a different position of the double bond, for syntheses to be carried out later. The dehydration of the alcohols in acid medium probably takes place according to scheme 1 and 2. The authors investigated the dehydration of 1-ethyl-, 1-n.-propyl-, and 1-n.-butyl cyclopentanol-1 in the presence of a saturated oxalic acid solution. Under the conditions investigated the formation of unsaturated hydrocarbons takes place both with the double bond in the ring and with the semicyclic double bond. It was found that 1-ethyl cyclopentene-1 does not change on boiling

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MAKARENKOV, V.V.; MESHCHERYAKOV, A.P.; PANCHENKOV, G.M.; PLATE, A.F.; SHUYKIN, N.I.; YAKOVLEVSKIY, V.V.

Effect of the structure of individual hydrocarbons and ethers on their combustion rate. Izv. vys. ucheb. zav.; neft' i gaz 2 no.4: 71-78 '59. (MIRA 12:10)

1.Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. I.M. Gubkina.
(Hydrocarbons) (Ethers) (Combustion)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

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PLATE, A.F.

5 (4)

AUTHORS: Kazanskiy, B. A., Landsberg, G.S. (Deceased), SOV/62-59-9-15/40
Aleksanyan, V. T., Bulanova, T. A., Liberman, A. L., Mikhaylova, Ye. A., Plate, A. F., Sterin, M.Ye., Ukholin, S. A.

TITLE: Investigation of the Composition of the Fraction With a Boiling Point Between 150 and 250° of the Emba Crude Petroleum

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 9, pp 1612 - 1622 (USSR)

ABSTRACT: An attempt is being made to apply the combined investigation method for benzines (Ref 1) to the investigation of the petroleum fraction with a boiling point between 150 and 250° of the Emba crude petroleum. The petroleum investigated came from the Koschagylskoye deposit. It was proved that this fraction contains 12.6% of aromatic and 13.0% of hexahydroaromatic hydrocarbons. In the aromatic fraction 29 different hydrocarbons were identified. The quantitative division in groups of the aromatic hydrocarbons boiling in this range was carried out with characterization of the arrangement of the side-chains on the benzene ring or the corresponding cyclohexane ring and that for the multicyclic according to the arrangement of the rings. By this method

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the authors succeeded in establishing the composition of the aromatic compounds up to 70% and that of the hydroaromatic compounds up to 46%. In the paraffin-naphthene part of the fraction the presence of naphthene with two different substituents in the same carbon atom of the cyclohexane could be established (mixed substitution). The limiting into narrower fractions was possible at the paraffin-naphthenes by investigating the specific gravities, the refractive index and the aniline point of these fractions. In figures 1 and 2 the paraffin-naphthene fractions are identified and tables 1-6 contain the results of the analysis. Table 7 gives the results of the distillation of the paraffin-cyclopentane fraction of the Ligroin applying the coefficient proposed by P. S. Maslov (Ref 11). There are 2 figures, 7 tables, and 11 references, 10 of which are Soviet.

Card 2/3

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), Komissiya po spektroskopii Akademii nauk SSSR (Committee of Spectroscopy of the Academy of Sciences, USSR)

SUBMITTED: January 4, 1958

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Optical Method of Investigation of Hydrocarbons. Communication 11. Raman Spectra of Dicyclopentyl and Dicyclopentyl Alkanes

SOV/62-59-7-18/39

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences, USSR). 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: November 1, 1957

Card 4/4

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Optical Method of Investigation of Hydrocarbons. SOV/62-58-7-18/36
Communication 11. Raman Spectra of Dicyclopentyl and
Dicyclopentyl Alkanes

1,5-dicyclopentylpentane, 1,1-dicyclopentylethane, and 1,2-dicyclopentylpropane are given in brief. The following conclusions were drawn from the results (only the spectrum of the dicyclopentyl is known in the publications): the most intensive line at ~895 $cm^{-1}$ found in all spectra was ascribed to the fully symmetrical oscillation of the five-membered ring as its characteristic. Table 2 gives the values of the integral intensity of this line of all 8 substances investigated, the mean value is at 340. The integral intensity of a compound with one ring only amounts to only the half. The intensities for the different low frequencies are represented in table 3. Lines are found here which correspond to the oscillations of the $CH_2$-group. The intensity of these lines increases with the increase of the chain between the two five-membered rings. The most intensive line at 600 $cm^{-1}$ is reduced with the increase of the distance between the rings. The lines of the frequencies of 200 - 600 $cm^{-1}$ were characteristic of the individual hydrocarbons. There are 3 tables and 26 references, 21 of which are Soviet.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Optical Method of Investigation of Hydrocarbons. Communication 11. Raman Spectra of Dicyclopentyl and Dicyclopentyl Alkanes

SOV/62-59-6-19/39

($I_0$), the integral intensity ($I_\infty$) the line width $\delta$ and the depolarization degree ($\rho$). The frequencies and the intensity maxima were measured by means of the spectrograph ISP-51. The integral intensity was determined by means of a diffraction grating constructed by Sushchinskiy (Ref 12). All results of the integral intensity were expressed on a scale with the integral intensity of the line of cyclohexane of 802 $cm^{-1}$ equal 500. The spectra of the investigated substances consisted of weak and diffuse lines. The mean error of the integral intensity amounted to ~10%. The depolarization degree was measured by means of a Zeiss spectrograph. A special illumination system was constructed for the surveys. The results of the measurements of frequency, intensity, and depolarization degree are given in table 1. The purity of the investigated substances was examined before the survey. The determined frequencies, the production, the physical and chemical properties of the investigated substances: dicyclopentyl-methane, 1,2-dicyclopentylethane, 1,3-dicyclopentylpropane, 1,4-dicyclopentylbutane,

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

5 (3), 24 (7) SOV/62-59-7-19/39

AUTHORS: Markova, S. V., Bazhulin, P. A., Stanko, V. I., Plate, A. F.

TITLE: Optical Method of Investigation of Hydrocarbons (Opticheskiy metod issledovaniya uglevodorodov). Communication 11. Raman Spectra of Dicyclopentyl and Dicyclopentyl Alkanes (Soobshcheniye 11. Spektry kombinatsionnogo rasseyaniya ditsiklopentila i ditsiklopentilalkanov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 7, pp 1280 - 1287 (USSR)

ABSTRACT: The present paper is a continuation of a series of papers (Refs 1-10) on the investigation of the Raman spectra of hydrocarbons carried out in the optical laboratory of the Fizicheskiy institut im. P. N. Lebedeva, AN SSSR (Institute of Physics imeni P. N. Lebedev of the AS USSR) and in the laboratory of the Komissiya po spektroskopii (Committee of Spectroscopy), together with the institute mentioned in the Association. The results of the investigation of the Raman dispersion of 8 hydrocarbons (dicyclopentyl and its alkanes) are given. The following parameters of the Raman lines were determined: the frequency $\Delta\nu$, the intensity in the line maxima

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Synthesis of 1,1-Dicyclopentyl Ethane and 1,2-Dicyclopentyl Propane on the Basis of Cyclopentadiene

pentenyl)-1-cyclopentyl ethane which was obtained by the reaction of Grignard from 1-bromo-1-cyclopentyl ethane and $\Delta^2$-cyclopentenyl chloride; 2) by hydrogenation of cyclopentadi-methyl fulvene which was synthesized from cyclopentadiene and methyl cyclopentyl ketone. In addition, the following compounds were obtained which so far have not been described in publications: di-($\Delta^2$-cyclopentenyl)-methyl carbinol, 1-cyclopentyl ethanol-1, 1-bromo-1-cyclopentyl ethane, 1-($\Delta^2$-cyclopentenyl)-1-cyclopentyl ethane, 2-bromo-1-cyclopropane, 1-($\Delta^2$-cyclopentenyl)-2-cyclopentyl propane. There are 14 references, 7 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)

SUBMITTED: April 3, 1957

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

5(3) SOV/20-123-1-12/55

AUTHORS: Stanko, V. I., Plate, A. F.

TITLE: Synthesis of 1,1-Dicyclopentyl Ethane and 1,2-Dicyclopentyl Propane on the Basis of Cyclopentadiene (Sintez 1,1-ditsiklopentiletana i 1,2-ditsiklopentilpropana na osnove tsiklopentadiyena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 1, pp 115 - 120 (USSR)

ABSTRACT: Hydrocarbons of the dicyclopentylalkylmethane series and dicyclopentylalkyl ethane series have not yet been described in publications. In the present paper the authors began investigation on the basis of cyclopentadiene as they had already done earlier. The interaction of $\Delta^2$-cyclopenteryl chloride with ethyl acetate in the presence of magnesium was investigated. It was shown that the condensation of two molecules of $\Delta^2$-cyclopentenyl chloride is the basic direction of the reaction whereby di-($\Delta^2$-cyclopentenyl) is synthesized. The yield of di-($\Delta^2$-cyclopentenyl) methyl carbinol does not exceed 5%. 1,1-dicyclopentyl ethane was obtained in two ways for the first time: 1) by hydrogenation of 1-($\Delta^2$-cyclo-

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PLATE, A. F.

СИНТЕЗ ЭТАЛОННЫХ УГЛЕВОДОРОДОВ
ДЛЯ ИССЛЕДОВАНИЯ ЛИГРОИНО-КЕРОСИНОВЫХ
ФРАКЦИЙ. 1,2-ДИЗАМЕЩЕННЫЕ ЦИКЛОПЕНТАНЫ

А. А. Мельников, А. Ф. Плате

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

abstracts of reports scheduled to be presented at above mentioned congress,
Moscow, 13 March 1959.

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LANDSBERG, Grigoriy Samuilovich, akademik [deceased]; KAZANSKIY, Boris Aleksandrovich, akademik; BAZHULIN, P.A., doktor fiziko-matemat. nauk; BULANOVA, T.F.; LIBERMAN, A.L., MIKHAYLOVA, Ye.A.; PLATE, A.F.; STERIN, Kh.Ue.; SUSHCHINSKIY, M.M.; TARASOVA, G.A.; UKHOLIN, S.A.; BRUSOV, I.I., red.izd-va; KASHINA, P.S., tekhn.red.

[Determination of the individual hydrocarbon composition of straight-run gasolines by the combined method] Opredelenie individual'nogo uglevodorodnogo sostava benzinov priamoi gonki kombinirovannym metodom. Moskva, Izd-vo Akad.nauk SSSR, 1959. 362 p. (MIRA 12:8)

(Gasoline)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

The Synthesis of 1,2-Dialkylcyclopentanes and Their Separation Into Cis- and Trans-Isomers SOV/20-123-6-24/50

according to fraction is given in figure 1. Table 2 shows the constants of the hydrocarbons obtained. The results (Fig 2) confirm and complete those of reference 13. The configurations of the stereoisomeric hydrocarbons ascribed to them by the authors, proved to be correct. There are 2 figures, 2 tables, and 13 references, 9 of which are Soviet.

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

PRESENTED: July 14, 1958, by B. A. Kazanskiy, Academician

SUBMITTED: July 10, 1958

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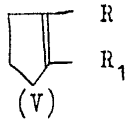
APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6



compounds (V), (VI) and (VII). (The spectra were investigated by V. T. Aleksanyan and Kh. Ye. Sterin in laboratoriya Kommissii po spektroskopii AN SSSR = Laboratory of the Spectroscopy-Commission AS USSR). It is possible to determine the composition of these mixtures from the Raman spectra. It was proved that in the mixtures the structures (V)




(V)

are predominant. As the boiling temperatures of unsaturated hydrocarbons are very close to one another in the dehydration of one and the same alcohol, they were not separated but their mixtures were hydrated. The same hydrocarbon must result from each of those mixtures. For this purpose an alcohol solution at room temperature was used in the presence of platinized carbon (5% Pt) which was activated by palladium chloride (Ref 10). The 1-ethyl-2-n-propyl-cyclopentane, 1-ethyl-2-n-butyl-cyclopentane and 1,2-di-n-butyl-cyclopentane obtained were separated after purification on silicagel in cis- and trans-isomers by distillation in vacuum. The curves of the fractional distillation and the variation of the constants



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5(3)

AUTHORS: Plate, A. F., Mel'nikov, A. A., Zelenko, R. A., Lykova, N. I.

SOV/20-123-6-24/50

TITLE: The Synthesis of 1,2-Dialkylcyclopentanes and Their Separation Into Cis-and Trans-Isomers (Sintez 1,2-dialkiltsiklopentanov i razdeleniye ikh na tsis- i trans-izomery)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 1044 - 1047 (USSR)

ABSTRACT: Ligroin and Diesel oil have become important in recent years as fuel for jets and Diesel motors. Since the nature of the hydrocarbons contained in them is barely known the authors tried to synthesize 1,2-dialkylcyclopentanes with a composition $C_{10}H_{20}$-$C_{13}H_{26}$ and to separate them into trans- and cis-isomers. A survey of publications ensues (Refs 1-8). The authors synthesized 1-ethyl-2-n-propyl-, 1-ethyl-2-n-butyl- and 1,2-di-n-butyl-cyclopentanes according to the given scheme. The constants of the unsaturated hydrocarbons produced (III) are given in table 1. Since the dehydration of the alcohols (II) can proceed in 3 directions, (III) can be a mixture of 3 types of

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SOV/79-28-11-42/75

From the Field of Organic Insecticides. XXXV. On the Reaction of the 1,1-Difluoro-Tetrachloro-Cyclopentadiene With Some Unsaturated Compounds

ASSOCIATION: Nauchnyy institut po udobreniyam i insektofungitsidam i Institut organicheskoy khimii Akademii nauk SSSR (Scientific Institute of Fertilizers and Insecti- and Fungicides, and the Institute of Organic Chemistry, AS USSR)

SUBMITTED: November 1, 1957

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

SOV/79-28-11-42/55

From the Field of Organic Insecticides. XXXV. On the Reaction of the 1,1-Difluoro-Tetrachloro-Cyclopentadiene With Some Unsaturated Compounds

tetrachloro-1o-1o-difluoro-1,4,5,8-diendomethylene-1,4,4a,5,8,8a-hexahydronaphthalene, and 1,2,3,4-tetrachloro-1o,1o-difluoro-1,4,5,8-diendomethylene-1,4,4a,5,6,7,8,8a-octahydronaphthalene. As the next analogs of "aldrine" they are of great interest. Besides, the adducts of the 1,1-difluoro-tetrachloro-cyclopentadiene with cyclopentene, 5-amyl bicyclo-(2,2,1)-heptene-2,5-methyl bicyclo-(2,2,1)-heptene-2-carboxylic acid-5, acryl nitrile and the esters of maleic acid were synthesized (Table). The reaction of the above pentadiene with the mentioned unsaturated compounds takes place easily, the yields are, however, small as it is easily polymerized and transformed into the inert dimer. All synthesized compounds have a weak insecticide effect. Only the difluoro "aldrine" is an exception as its insecticide effect is similar to that of the chloro indan. There are 1 table and 10 references, 7 of which are Soviet.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

SOV/79-28-11-48/55

AUTHORS: Volodkovich, S. D., Mel'nikov, N. N., Plate, A. F., Pryanishnikova, M. A.

TITLE: From the Field of Organic Insecticides (Iz oblasti organicheskikh insektofungitsidov) XXXV. On the Reaction of the 1,1-Difluoro-Tetrachloro-Cyclopentadiene With Some Unsaturated Compounds (XXXV. O vzaimodeystvii 1,1-diftortetrakhlortsiklopentadiyena s nekotorymi nepredel'nymi soyedineniyami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 11, pp 3123-3126 (USSR)

ABSTRACT: In the investigation of the effect of the chlorine containing insecticides of the type of "aldrine", "dildrine", and their analogs as well as the dependence of the fatal effect of these compounds on insects upon the molecular structure it was of some interest to investigate in this respect the hitherto unknown fluorine containing analogs of "aldrine". First the following compounds were synthesized by the reaction of 1,1-difluoro-tetrachloro-cyclopentadiene with bicyclo-(2,2,1)-heptadiene-2,5 and bicyclo-(2,2,1)-heptene-2: 1,2,3,4-

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SOV/74-27-10-1/4

Investigation of the Composition of the Light Fractions of Soviet Crudes

adsorption, the catalytic analytic hydrogenation and dehydrogenation as well as spectrum analysis by means of combined dispersion of light (Refs 108-160). In conclusion the authors are of the opinion that mere geological and geochemical factors are not sufficient for the production of experimentally founded theories on the formation and the change of petroleum under the conditions of migration. A great number of important data are necessary for the solution of the problem of the formation of petroleum, namely the nature, the concentration and the composition of the hydrocarbon components (or the non-hydrocarbon components); i. e., of the organosulfuric, nitrogen and oxygen compounds which belong to the composition of petroleum. There are 160 references, 160 of which are Soviet.

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SOV/74-27-1[illegible]/4

Investigation of the Composition of the Light Fractions of [illegible] Soviet Crudes

work carried out in 1881-83 (Bel'shteyn and Kurbatov). The diverse research institutes of mineralogy which have been established are chronologically mentioned (e. g.: 1924: the first central (Gosudarstvennyy Issledovatel'skiy neftyanoy Institut) State Research Institute of Petroleum in Moscow); 1931: Institut goryuchikh iskopayemykh AN SSSR (Institute of Combustible Minerals AS USSR), diverse chemo-technical laboratories of the GINI (State Research Institute of Petroleum) as well as diverse research institutes in the Republics of the Union: Azerbaydzhanskaya SSR, Uzbekskaya SSR, Turkmenskaya SSR, and others. After World War II methods of group analysis on a higher level were elaborated for the investigation of the petroleum naphtha fractions (with a further differentiation of the hydrocarbon sub-groups). It was necessary to investigate in detail the composition of the hydrocarbons of the light mineral oil fractions because of the rapid development of air plane and automobile motor construction in the USSR. Due to this fact the demands concerning the quality of the motor fuel as well as of the crude oil changed. Especially in 1955 intensive investigations of the individual composition of the hydrocarbons of gasoline produced by cracking were carried out by using the chromatographic distribution of

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SOV/74-27-10-1/4

AUTHORS: Topchiyev, A. V., Kazanskiy, B. A., Musayev, I. A., Gel'pern, G. D., Kusakov, M. M., Plate, A. F. (Moscow)

TITLE: Investigation of the Composition of the Light Fractions of Soviet Crudes (Issledovaniye sostava legkikh fraktsiy sovetskikh neftey)

PERIODICAL: Uspekhi khimii, 1958, Vol 27, Nr 10, pp 1177-1197 (USSR)

ABSTRACT: This paper gives a chronological report on the fundamental publications on the investigation of the composition of the light fractions of the Soviet mineral oils which have hitherto been made. In this connection special attention is payed to those publications which are edited by N. D. Zelinskiy, his collaborators and students (Refs 1-50). As may be seen from the present paper the current investigations of the mineral oil fractions until the years 1937, 1939 were carried out mainly in connection with a chemical characterization of the light benzoin and benzene ligroin fractions of mineral oil. Only in the 1940's methods were elaborated for the intensification of the individual investigation of the light fractions of the Soviet mineral oils. At the beginning of this paper reports are made on the first

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Raman Spectra of Some Unsaturated Cyclic Hydrocarbons SOV/20-22-9-16/

of the hydrocarbons of the first mentioned series are known already from pertinent publications (Refs 13,14). The spectra of cyclopentene and of 1-methyl cyclopentene-1 (Refs 7,14)(1.series) and of methyl cyclopentane (Ref 14) (2.series) represent a substantial supplement to existing information. The characteristic frequencies in the spectra of both series are given in tables 1 and 2. The qualitative considerations given in this respect are without doubt only of a preliminary nature and necessitate a comparison with further experimental and theoretical evidence. There are 3 tables and 24 references, 14 of which are Soviet.

ASSOCIATION: Laboratoriya Komissii po spektroskopii Akademii nauk SSSR (Laboratory of the Committee of Spectroscopy, AS USSR) Kafedra khimii nefti Moskovskogo gos. universiteta imeni M.V.Lomonosova (Chair of Petroleum Chemistry at the Moscow State University imeni M.V.Lomonosov)

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

AUTHORS: Aleksanyan, V. T., Sterin, Kh. Ye., Mel'nikov, A. A., Plate, A F. SOV/48-22-9-16/49

TITLE: Raman Spectra of Some Unsaturated Cyclic Hydrocarbons (Spektry kombinatsionnogo rasseyaniya nekotorykh nepredel'nykh tsiklicheskikh uglevodorodov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1073 - 1078 (USSR)

ABSTRACT: This paper is a report on the investigation of the Raman spectra of hydrocarbons with a double bond in the nucleus: 1-ethyl cyclopentene, 1-n-propyl cyclopentene-1, and 1-n-butyl cyclopentene (1. series), also of such compounds with a semicyclic double binding: ethylidene cyclopentane, n-propylidene cyclopentane and n-butylidene cyclopentane (2. series). It was also attempted to determine the correlation between the characteristic frequency of the C = C binding and the structural features of the olefines. The method which was used in the recording and in the measurement of the spectra were described already earlier (Refs 8,9). The spectra

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ANIKIN, A.G.; DUGACHEVA, G.M.; MEL'NIKOV, A.A.; PLATE, A.F.

Preparation of pure organic compounds. Vest.Mosk.un.Ser.mat., mekh.,astron.,fiz.,khim. 13 no.1:227-232 '58. (MIRA 11:11)

1. Kafedra khimii nefti i Kafedra fizicheskoy khimii Moskovskogo gos. universiteta.

(Chemicals)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

SOV/62-58-12-11/27

Synthesis of Dicyclopentyl Methane and 1,3-Dicyclopentyl Propane on the Basis of Cyclopentadiene

There are 1 table and 8 references, 6 of which are Soviet.

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

SUBMITTED: April 3, 1957

Card 3/3

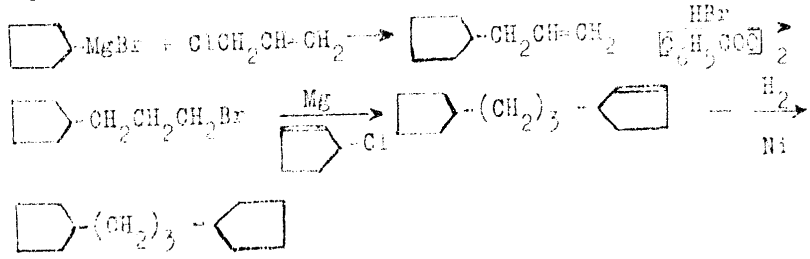
APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6



Synthesis of Dicyclopentyl Methane and 1,3-Dicyclopentyl Propane on the Basis of Cyclopentadiene

that no isomerization of the cycles could then take place. In fact, the constants of the obtained dicyclopentyl methane differed somewhat from those mentioned in publications. The synthesis of the earlier not described 1,3-dicyclopentyl propane was carried out according to the following scheme:



In the stage of the interaction between 1-bromo-3-cyclopentyl propane and magnesium and $\Delta^2$-cyclopentenyl chloride the formation of 3-($\Delta^2$-cyclopentenyl)-1-cyclopentyl propane as well as of allyl cyclopentane were observed. A similar case was described already earlier (Ref 3). In the table the physical properties of the obtained $\alpha,\omega$-dicyclopentyl alkanes are mentioned.

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SOV/62-58-12-11/22

5(3)

AUTHORS: Plate, A. F., Stanko, V. I.

TITLE: Synthesis of Dicyclopentyl Methane and 1,3-Dicyclopentyl Propane on the Basis of Cyclopentadiene (Polucheniye ditsiklopentilmetana i 1,3-ditsiklopentilpropana na osnove tsiklopentadiyena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 12, pp 1472-1475 (USSR)

ABSTRACT: α,ω-dicyclopentyl alkanes are insufficiently investigated and they have been hardly described at all in publications. α,ω-dicyclohexyl alkanes are much better investigated. To investigate the physical properties as well as the spectra of the Raman scattering of these hydrocarbons, the authors synthesized the first members of the α,ω-dicyclopentyl alkane series (Refs 2 and 3). Along with the hydrocarbons mentioned in this paper, hydrocarbons with two five-membered nuclei of the common formula [⟩-$(CH_2)_n$-⟨] were obtained, where n is equal to from 0 to 5. In the synthesis of dicyclopentyl methane the authors proceeded from cyclopentadiene, on the assumption

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Isomerization of 2-Vinyl Bicyclo-(2,2,1)Heptene-5 Into the Tetrahydroindene System SOV/62-58-10-23/25

did not take place by way of the decomposition stage (I) to the initial components (with subsequent interaction of cyclopentadiene dienophyl and butadiene diene) but it took place as a result of the break of the C-C bond between the endomethylene group and nucleus and a closing of a nucleus by the unification of the methylene group with the vinyl group. Then the stabilization of the biradical takes place.

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

SUBMITTED: June 27, 1958

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

SOV/[illegible]

AUTHORS: Plate, A. F., Belikova, N. A.

TITLE: Isomerization of 2-Vinyl Bicyclo-(2,2,1)Heptene-5 Into the Tetrahydroindene System (Izomerizatsiya 2-vinilbitsiklo-(2,2,1)geptena-5 v sistemu tetragidroindena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye [illegible], 1958, Nr 10, pp 1279 - 1279 (USSR)

ABSTRACT: Recently the authors synthesized 2-vinyl bicyclo-(2,2,1) heptene-5 by means of the diene synthesis of cyclopentadiene with butadiene. The investigation of the properties of this compound showed that it is subjected to a new type of isomerization into the system of the tetrahydroindene. It was proved that the isomerisate has the carbon skeleton of the tetrahydroindene, which forms hydrindane in its hydration and indane in its dehydration. Judging from the three bands found in the infrared spectrum of the isomerisate within the 700-750 $cm^{-1}$ range, and the four bands within the range 1600-1660 $cm^{-1}$ (characterizing the oscillations of the C=C bonds) the isomerisate apparently is a mixture of two or three isomers with differently located double bonds. This isomerization

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

AUTHORS: Anikin,A.G., Lugacheva,G.M., Mel'nikov,A.A. and Plate,A.F. SOV/55-58-1-31/33

TITLE: On the Question About the Production of Pure Organic Preparations (K voprosu o poluchenii chistykh organicheskikh preparatov)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, Nr 1, pp 227-232 (USSR)

ABSTRACT: During the production of organic preparations defiling admixtures can be avoided only then if not only the final preparation but also the intermediate alloys are cleaned. The degree of purity can be controled best by the determination of the crystallizing curves, since the crystallizing temperature is much more sensitive with respect to defilements than e.g. the specific weight or optical characteristical values. The authors describe the application of this method for the synthesis of the trans - 1.2 - di - n - butylcyclopentane obtained for the first time. There are 4 references, 2 of which are Soviet, and 2 American.

ASSOCIATION: Kafedra khimii nefti (Chair of Petroleum Chemistry)
Kafedra fizicheskoy khimii (Chair of Physical Chemistry)

SUBMITTED: March 5, 1957

Card 1/1

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE A.F.

BUTLEROV, Aleksandr Mikhaylovich; TERENT'YEV, A.P., otvetstvennyy red.; DANILOV, S.N., red.; ~~PLATE, A.F.,~~ red.; POROSHIN, K.T., red.; BYKOV, G.V., red.izd-va; PAVLOVSKIY, A.S., tekhn.red.; MAKUNI, Ye.V., tekhn.red.

[Works] Sochineniia. Moskva, Izd-vo Akad. nauk SSSR. Vol.3. [Popular scientific, historical, critical, bibliographical and other works in chemistry. Travels] Nauchno-populiarnye, istoricheskie, kritiko-bibliograficheskie i drugie raboty po khimii. Puteshestviia. 1958. 429 p. (MIRA 11:4)

1. Chlen-korrespondent AN SSSR (for Terent'yev, Danilov)
(Chemistry)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

SERGIYENKO, S.R., prof., otvetstvennyy red.; TOPCHIYEV, A.V., akademik, red.; KAZANSKIY, B.A., akademik, red.; FEDOROV, V.S., kand.tekhn.nauk, red.; KUSAKOV, M.M., prof., red.; PLATE, A.F., prof., red.; NIKOLAYEVA, V.G., kand.tekhn.nauk, red.; NEKRASOV, A.S., red. izd-va; PAVLOVSKIY, A.A., tekhn.red.

[Composition and properties of the high-molecular part of petroleum; a collection of papers on the composition and properties of petroleums and petroleum products] Sostav i svoistva vysokomolekuliarnoi chasti nefti; sbornik rabot po izucheniiu sostava i svoistv neftei i nefteproduktov. Moskva, Izd-vo Akad. nauk SSSR, 1958. 369 p. (MIRA 11:4)

1. Akademiya nauk SSSR. Institut nefti.
(Petroleum--Analysis)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

On the Interaction of Tetramethylene- and Pentamethylenedimagnesium Bromides With $\Delta^2$-Cyclopentenyl Chloride

a different position. Thus it is possible to attribute to the obtained hydrocarbons with a single 5-term cycle the structure of the 1-($\Delta^2$-cyclopentenyl)-butene-3 and 1-($\Delta^2$-cyclopentenyl)-pentene-4, respectively. The present paper also contains structural schemes. The previously unknown 1,4-dicyclopentylbutane and 1,5-dicyclopentylpentane are obtained by catalytic hydrogenation of the appropriate $\Delta^2$-cyclopentenyl compounds. The experimental part of the paper under review describes in detail the production methods together with constants and yields. There are 10 references: 3 of which are Soviet.

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

PRESENTED: February 28, 1956, B. A. Kazanskiy, Member of the Academy

SUBMITTED: December 27, 1956

AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

20-2-29/60

On the Interaction of Tetramethylene- and Pentamethylenedimagnesium Bromides With $\Delta^2$-Cyclopentenyl Chloride

pentenyl chloride with tetramethylene- and pentamethylene-magnesium chloride form the expected 1,4-di-($\Delta^2$-cyclopentenyl)-butane (47-51 %) and correspondingly 1,5-di($\Delta^2$-cyclopentenyl)-pentane (30 %). At the same time, however, hydrocarbons were formed with a cycle of only 5 terms. This was demonstrated at catalytic hydration by the production of n-butylcyclopentane and n-amylcyclopentane. It was shown at the qualitative determination of the hydrogen which at the hydrogenation of the unsaturated hydrocarbon attaches itself to it with a cycle of only 5 terms, that there are two double bonds in the molecule. Their position can be determined from the structure of the initial substances. The formation of olefines in the conditions of the Grignard's reaction is characteristic for secondary and tertiary haloidalkyls. However, this lateral reaction was also observed in the case of the primary haloidalkyls. This double bond probably is in the $\alpha$-position. In this context, an isomerization with displacement of the double bond is hardly possible, because it is known that the interaction of alkalimagnesiumhalogenides represents one of the most reliable methods for $\alpha$-olefine production without admixture of isomers with a double bond in

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

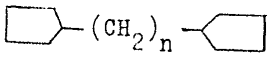
20-2-29/60

AUTHORS: Plate, A. F., Stanko, V. I.

TITLE: On the Interaction of Tetramethylene- and Pentamethylenedimagnesium Bromides With $\Delta^2$-Cyclopentenyl Chloride (O vzaimodeystvii tetrametilen- i pentametilendimagniybromidov c $\Delta^2$-tsiklopentenilkhloridom)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp. 339-342 (USSR)

ABSTRACT: In the context of further development of the investigations by the authors of the paper under review on production of hydrocarbons with 25-term cycles in accordance with a general formula



for the purpose of arriving at 1,4-dicyclopentylbutane and 1,5-dicyclopentylpentane, the authors investigated the interaction of $\Delta^2$-cyclopentenyl chloride with dimagnesium derivatives of the 1,4-dibrombutane and 1,5-dibrompentane. It was seen that the main products of the reaction of $\Delta^2$-cyclo-

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

AUTHOR PLATE A.F., STANKO V.I.

TITLE On the interaction of the Iotsich reagents with $\Delta^2$-chlorocyclopentene. (O vzaimodeystvii reaktiva Iotsicha s $\Delta^2$-Tsiklopentenilkhloridom. Russian) PA - 3160

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 3, pp 616-619 (U.S.S.R.)

Received: 6/1957 Reviewed: 8/1957

ABSTRACT The synthesis of some cyclopentane-hydrocarbons was carried out. On the occasion of the investigation of the interaction of $\Delta^2$-chlorocyclopentane and the reagens of iotsich it became evident that on this occasion a di-$\Delta^2$-cyclopentene-acetylene (I) is formed in a quantity of 20-36 % on which occasion, however, an approximatively equal quantity (28-35 %) of $\Delta^2$-cyclopenteneacetylene is produced. Attempts to change the conditions on the occasion of the reaction did not lead to an increase of the yield of cyclopenteneacetylene. The constant quantity of the two possible reaction products is independent of the quantity of the used reagentia and the important yield of $\Delta^2$-cyclopenteneacetylene can be speciously explained by the different velocities of the interaction between the $\Delta^2$-chlorocyclopentene and the two possible magnesia-organic compounds. The di-$\Delta^2$-cyclopentene-

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PLATE, A. F.

Distr: 4E4j

27 7

Poisoning action of some silanes on platinum catalyst. A. F. Plate and N. A. Belikova (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). Zhur. Obshchei Khim. 27, 2469-73 (1957).—Small amts. of silanes, particularly cyclic ones, act as strong poisons on Pt catalyst when attempts are made to hydrogenate these substances over Pt-C at 300°. $Me_2Si(CH_3)_2$ is quite effective in this manner, with $Me_2Si(CH_3)_2$ being a somewhat less potent poison. The higher the temp. of the expt. the more rapidly does the poisoning appear. The kinetic curves of the effect are reproduced. G. M. K.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A.F

USSR/Organic Chemistry. Synthetic Organic Chemistry. G-2

Abs Jour: Referat Zhur-Khimiya, No 4, 1958, 11227.

Author : Plate, A.F. and Tarasova, G.A.
Inst : Academy of Sciences USSR
Title : Synthesis of 1,2,3,4,7,7-hexachloro-(2,2,1)-dicyclo-2,5-heptadiene by the Condensation of Hexachlorocyclopentadiene with Acetylene

Orig Pub: Izvest Akad Nauk SSSR, Otdel Khim Nauk, No 7, 873-875 (1957)

Abstract: The condensation of hexachlorocyclopentadiene (I) with $C_2H_2$ under pressure (8-11 hrs at 120-145°, initial $C_2H_2$ pressure 15 atm) gives 1,2,3,4,7,7-hexachloro-(2,2,1)-dicyclo-2,5-heptadiene (II), the starting product in the synthesis of the insecticides isodrine and endrine /TN: spelling uncertain; appear to be of Belgian manufac-

Card : 1/2

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Optical Method of Studying Hydrocarbons. Part 10. Combined 62-1-5/21
Diffusion Spectra of Certain Naphthenes

ASSOCIATION: Academy of Sciences of the USSR, Physics Institute imeni P. N. Lebedev and Institute of Organic Chemistry imeni N. D. Zelinskiy

PRESENTED BY:

SUBMITTED: December 13, 1955

AVAILABLE: Library of Congress

Card 3/3

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A. F.

62-1-5/21

AUTHORS: Peregudov, G. V.; Markova, S. V.; Bazhulin, P. A.; Plate, A. F.; Terentyeva, Ye. M.

TITLE: Optical Method of Studying Hydrocarbons. Part 10. Combined Diffusion Spectra of Certain Naphthenes (Opticheskiy Metod issledovaniya uglevodorodov. Soobshcheniye 10. Spektry kombinatsionnogo rasseyaniya nekotorykh naftenov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1957, No. 1, pp. 37-42 (U.S.S.R.)

ABSTRACT: In this report, the results (combined diffusion spectra) obtained during the study of nine naphthenic and one aromatic hydrocarbons (three mono-cyclic cyclopentane, three dicyclic cyclohexane and four bicyclic hydrocarbons with condensed rings) are presented. All data on the intensities and frequencies of the hydrocarbons were determined photometrically. For each hydrocarbon, a brief description of its derivation and the basic constants such as boiling point, specific weight, index of refraction is given. The intensity data are expressed in a

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Plate, A. F

Distr: 4E4j/4E3d/4E2c(1)

Preparation of 1,2,3,4,7,7-hexachlorobicyclo[2,2,1]-hepta-2,5-diene by condensation of hexachlorocyclopentadiene with acetylene. A. F. Plate and G. A. Tarasova (N. D. Zelinskii Inst. Org. Chem., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1957, 873-5.—Hexachlorocyclopentadiene (20 g.) and 5 ml. pentane fraction of hydrocarbons were treated until a pressure of 15 atm. $C_2H_2$ was obtained in a rotating steel autoclave and then 8-11 hrs. (except for the night interval) at 120-50° (the yields rise steadily in this range up to 50%), to give *1,2,3,4,7,7-hexachlorobicyclo[2,2,1]hepta-2,5-diene*, $b_{12}$ 125-6°, $n_D^{20}$ 1.5550, $d_{20}$ 1.6622, f.p. −1.5°. G. M. Kosolapoff

4

2 May

3

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A.F.

KUSAKOV, M.M., prof., otvetstvennyy redaktor; PLATE, A.F., prof., otvetstvennyy redaktor; NIKOLAYEVA, V.G., kand.tekhn.nauk, otvetstvennyy redaktor; TOPCHIYEV, A.V., akademik, redaktor; KAZANSKIY, B.A., akademik, redaktor; SERGIYENKO, S.R., prof., redaktor; NEKRASOV, A.S., redaktor izdatel'stva; LOKTEV, S.M., redaktor izdatel'stva; NOVICHKOVA, N.D., tekhnicheskiy redaktor.

[Composition and properties of petroleums and gasoline-kerosene fractions; a collection of papers on the study of the composition of petroleums and petroleum products] Sostav i svoistva neftei i benzino-kerosinovykh fraktsii; sbornik rabot po izucheniiu sostava i svoistv neftei i nefteproduktov. Moskva, Izd-vo Akad.nauk SSSR, 1957. 518 p. (MIRA 10:11)

1. Akademiya nauk SSSR. Institut nefti.
(Petroleum)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A.F.

KAZANSKIY, B.A.; NESMEYANOV, A.N.; PLATE, A.F.

Studies of Academician N.D.Zelinskii and his school on hydrocarbons and organic catalysis. Uch.zap.Mosk. un. no.175:5-54 '56. (MLRA 10:3)

(Hydrocarbons) (Catalysis)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

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PLATE, A.F.; SHCHEMBAKOVA, O.A.

Isomerization of 1,1-dichloro-2-vinylcyclopropane in the presence of acid catalysts. Neftekhimiia 3 no.4:507-510 Jl-Ag '63. (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova, khimicheskiy fakul'tet.

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PLATE, A. F.

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Catalytic transformation of amines over aluminomolybdenum catalyst. A. F. Plate, M. E. Vol'pin, B. A. Reformatskaya, and S. V. Zotova. *J. Gen. Chem. U.S.S.R.* 26, 785-90(1956)(English translation).—See *C.A.* 50, 14710f. B. M. R.

Chem

AM

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Conversion of amines by alumina-molybdic oxide catalyst. A. B. [illegible] M. R. Volpin, E. A. Reformatskaya and S. V. Zotova [illegible] Khim. (1956, 96, 684—689).—The initial amines were obtained by reduction of acetone, propaldehyde and cyclopentanone with compressed $H_2$ in presence of $NH_3$ and skeleton Ni catalyst. At temp. below 400° with the $Al_2O_3/MoO_3$ catalyst, n-propylamine [illegible] a mixture of primary, sec. and tert. amines, olefins and [illegible]. At temp. higher than 400° propionitrile (I) formed with partial decomposition at 500° and formation of acetonitrile (II). At [illegible] products were 67% II and 33% I with very small quantities of sec. and tert. amines. Reaction of di-n-propylamine was similar to that of n-propylamine at 500° except that II and I formation was 14 and 86% respectively. There was a marked increase in volatile materials, especially unsaturated hydrocarbons. In the presence of catalyst, however, isopropylamine conversion did not start with [illegible] formation. At 500° yield of II was 10% with formation of ammonia, propylene and hydrogenated and cracking products of the latter. The formation of II from isopropylamine was by dehydrogenation of amines to ketimine with decomposition. cyclo-Pentylamine is converted to cyclopentene with large quantities of gas reaction products, and this partially forms cyclopentane and cyclopentadiene.

A. L. B.

Chem. [illegible]

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MOSCOW STATE UNIV

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USSR/ Scientists - Book

Card 1/1 Pub. 124 - 38/39

Authors : Plate, A. F., Dr. of Chem. Sc., and Blyakher, L. Ya., Dr. of Biol. Sc.

Title : Critique and bibliography

Periodical : Vest. AN SSSR 26/2, 148-153, Feb 1956

Abstract : Critical review is presented on a book by S. S. Nametkin, Academician Petrologist dealing in "Chemistry of Petroleum and Terpenes," A collection of reports, and the book by the French botanist-embriologist R. Suese are also given (1934).

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Submitted : .....

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Plate, A. F.

Synthesis of 2-cyclopentyloctane and 5,5-dimethylundecane. G. A. Tarasova, G. S. Talts, and A. F. Plate (N. D. Zelinskii Inst. Org. Chem., Moscow). Trest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1956, 1267-9.—To EtONa from 33 g. Na in 465 ml. abs. EtOH was added at 10-14° 178 g. $C_5H_{11}Ac$ ($b_{100}$ 173.0°, $n_D^{20}$ 1.4156, $d_{20}$ 0.8186) and 100 g. cyclopentadiene; after 1 hr. the mixt. was quenched in $H_2O$ and the org. layer after washing and steam distn. gave 44.3% 6-methyl-6-hexylfulvene, $b_3$ 94-6°, which was immediately charged into an autoclave and hydrogenated over Raney Ni at 110 atm. at room temp. in EtOH yielding 70% *2-cyclopentyloctane*, $b_{10}$ 120.5°, $b_{100}$ 230-6.5°, $n_D^{20}$ 1.4475, $d_{20}$ 0.8118. $C_5H_{11}MgBr$ and $Me_2CO$ gave 87.5% *dimethylhexylcarbinol*, $b_{24}$ 91-1.5°, $n_D^{20}$ 1.4281, $d_{20}$ 0.8230, which with HCl gave 88.8% *2-chloro-2-methyloctane*, $b_{14}$ 66.4°-7.1°, $n_D^{20}$ 1.4295, $d_{20}$ 0.8566. This (157.5 g.) was added to BuMgBr from 264.3 g. BuBr in $Et_2O$, which was pretreated with 10 g. $HgCl_2$, yielding after the usual hydrolysis 20% *5,5-dimethylundecane*, $b_{18}$ 101°, $n_D^{20}$ 1.4272, $d_{20}$ 0.7601.

G. M. Kosolapoff

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Bazhulin, P.A.; Sokolovskaya, A.T.

242(0), 280(2), 306(5), 345(38), 378(1), 402(2), 441(2), 454(27), 477(23), 508(0), 754(65), 778(43), 841(3), 913(3), 967(5), 991(8), 1014(5), 1031(10), 1069(65), 1108(3), 1166(26), 1175(28), 1195(0), 1251(41), 1275(2), 1306(11), 1345(24), 1354(30), 1442(36), 1457(60), 2672(3), 2816(290), 2873(160), 2909(160), 2932(240), 2959(100). Hexylcyclohexane, $b_{18}$ 123.5-3.7°, $n_D^{20}$ 1.4464, $d_{18}$ 0.8077; 228(4), 255(4), 406(2), 446(8), 495(0), 510(0), 524(0), 744(2), 776(10), 793(19), 811(4), 844(21), 894(4), 931(2), 979(5), 1033(30), 1053(6), 1082(10), 1104(6), 1120(6), 1157(8), 1182(2), 1203(0), 1261(28), 1301(16), 1348(11), 1366(4), 1393(2), 1445(75), 1460(10), 2667(5), 2728(2), 2842(260), 2853(260), 2875(100), 2892(100), 2919(170), 2933(170), 2959(50). Hexylbenzene (from AmMgBr and BzH, conversion of the carbinol to the acetate, its pyrolysis and hydrogenation), $b_{20}$ 126.8-6.9°, $n_D^{20}$ 1.4872, $d_{20}$ 0.8576; 233(25), 259(5), 353(0), 394(0), 510(0), 526(0), 569(2), 594(2), 622(37), 749(23), 786(10), 802(5), 816(20), 842(6), 864(4), 892(7), 902(8), 938(0), 1003(250), 1031(60), 1065(8), 1070(8), 1113(14), 1155(22), 1183(15), 1202(38), 1304(24), 1339(0), 1444(38), 1453(30), 1584(20), 1606(65), 2857(110), 2879(60), 2904(130), 2935(120), 2965(30), 3050(50), 3065(140), 3075(100). It is evident that *cis-trans* isomers display a sufficient selection of Raman lines for pos. identification of the isomers. The specimens studied are probably contaminated by not more than 2-3% of the opposite isomers.

G. M. Kosolapoff

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PLATE, A. F.

Phys

**Optical study of hydrocarbons. 14. Raman spectra of some naphthenes.** P. A. Bazhulin, A. I. Sokolovskaya, N. A. Belikova, A. L. Liberman, and A. F. Plate (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 1130-4; cf. *C.A.* 50, 3802a.—The following Raman spectra were detd. with very pure specimens of hydrocarbons. *cis*-1-Methyl-2-butylcyclopentane (cm.$^{-1}$), $b_{760}$ 175°, $b_{20}$ 78.7°, $n_D^{20}$ 1.4381, $d_{20}$ 0.7980; 277(8), 297(8), 372(5), 382(5), 423(3), 460(1), 501(3), 511(2), 520(2), 724(1), 758(9), 778(11), 805(5), 820(5), 830(8), 869(0), 888(20), 922(12), 960(0), 980(10), 1018(8), 1054(15), 1088(12), 1120(9), 1150(5), 1191(8), 1240(2), 1268(6), 1300(18), 1350(4), 1440(50), 1460(70), 1472(20), 2813(0), 2855(150), 2871(300), 2895(150), 2908(280), 2932(280), 2960(290). *trans*-1-Methyl-2-butylcyclopentane, b. 169.4-9.5°, $b_{20}$ 74.0-4.1, $n_D^{20}$ 1.4321, $d_{20}$ 0.7847; 237(7), 248(7), 288(7), 333(5), 378(6), 404(0), 424(4), 504(9), 525(3), 552(4), 600(4), 762(2), 777(7), 798(3), 813(6), 873(8), 895(24), 905(10), 925(8), 987(2), 1001(3), 1033(4), 1059(9), 1084(11), 1093(11), 1138(9), 1185(7), 1220(2), 1242(0), 1270(3), 1296(13), 1343(8), 1377(4), 1441(30), 1450(50), 1461(40), 2731(5), 2854(200), 2868(100), 2908(240), 2923(200), 2940(240), 2960(270). *cis*-1-Methyl-4-ethylcyclohexane, b. 152.6°, $n_D^{20}$ 1.4374, $d_{20}$ 0.7969; 202(2), 305(0), 368(15), 392(3), 410(3), 443(10), 458(5), 489(4), 590(1), 631(31), 738(15), 753(34), 766(15), 781(32), 817(20), 896(4), 909(2), 951(5), 966(10), 1004(10), 1028(8), 1044(8), 1059(31), 1103(10), 1163(19), 1195(6), 1206(6), 1264(37), 1288(3), 1308(8), 1348(19), 1439(45), 1459(46), 2853(220), 2880(100), 2905(100), 2924(200), 2930(270), 2959(50). *trans*-1-Methyl-4-ethylcyclohexane, b. 149.1°, $n_D^{20}$ 1.4304, $d_{20}$ 0.7798; 201(0),

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USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 26891.

concentrated $H_2SO_4$ in two directions - with splitting the bond Si-C in the cycle and with tearing the group $CH_3$ off. 0.7 mol of $(CH_3)_2SiCl_2$ in 1 lit of ether was added at 5° to 1.5-$C_5H_{10}(MgBr)_2$ (of 1.5 mol of Mg) in 650 ml of ether in order to prepare III, the mixture was heated 15 hours and after the usual treatment the yield of III was 26.7%. $CH_4$ (425 ml) separated, when 0.036 mol of III was shaken with 0.094 mo. of $H_2SO_4$ (13.5 hours, 20°); the treatment of the mass with water resulted in a mixture of disoloxanes - symm-tetramethyl-di-n-amyldisiloxane and trimethyl-n-amylpentamethylenedisiloxane, yield of the mixture 85%, boiling point 245-252°, $n^{20}D = 1.4430$, $d_4^{20} = 0.8681$.

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Author : Plate, A.F.; Belikova, N.A.; Yegorov, Yu.P.
Inst : Academy of Sciences of USSR.
Title : Interaction of 5- and 6-Membered Silicohydrocarbons Containing Silicium Atom in Cycle with Concentrated Sulfuric Acid.

Orig Pub: Izv. AN SSSR, Otd. khim, n., 1956, No. 9, 1085 - 1090.

Abstract: Concentrated $H_2SO_4$ breaks the bond Si-C in di-(tetramethylene)-silane (I) and diethyldi-(tetramethylene)-disiloxane (II) quantitatively. I was prepared of 60.5 g of 1,4-$C_4H_8Br_2$, 9g of Li and 35.8 g of dichlorotetramethylenesilane, yield 26.6%, boiling point 173 to 174°/750 mm,

Card 1/4

butylcyclotetrasiloxane, boiling point 194-196°/10 mm, $n^{20}D = 1.4422$, $d_4^{20} = 0.9286$, was similarly prepared of 0.011 mol of II and 0.25 mol of $H_2SO_4$ (20 hours, 20°), yield 60%. Dimethyl-penta methylenesilane (III) reacts with

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PLATE, A.F.; PRYANISHNIKOVA, M.A.

Preparation of bicyclo-2,2,1-heptadiene-2,5 by the condensation of cyclopentadiene with acetylene. Izv.AN SSSR Otd.khim.nauk no.6: 741-742 Je '56. (MLRA 9:9)

1.Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.

(Bicycloheptadiene)

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Plate, A.F.

Preparation of cyclopentene from cyclopentadiene. A. F. Plate and V. I. Stanko (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1936, 1148-50.—Cyclopentadiene over Raney Ni (prepd. from 1:1 Ni-Al by removing 50% of the Al) under 70-80 atm. H (reaction is exothermic and rapid; at lower pressures the exothermic effect is slight) after taking up 1 mole H gives about 70% cyclopentane, $b_{760}$ 44°, $n_D^{20}$ 1.4222, $d_{20}$ 0.7715. The reactor should be chilled rapidly, the catalyst filtered off and washed with EtOH, and the combined filtrate fractionated. The operation requires but 1.5-2 hrs. for an 80-g. run with 15 g. catalyst.

G. M. Kosolapoff

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PLATE A.F.

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Preparation of bicyclo[2.2.1]hepta-2,5-diene by the condensation of cyclopentadiene with acetylene. A. F. Plate and M. A. Pryanishnikova. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 753-4(English translation).—See *C.A.* 51, 863*f*. B. M. R.

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Thermal decomposition and destructive hydrogenation of hydrocarbons under high pressure of hydrogen. B. A. Kazanskii, M. G. Gonikberg, A. F. Plate, A. E. Gavrilova, and V. E. Nikitenkov (N. D. Zelinskii Inst. Org. Chem., Acad. Sci., Moscow). *Katalitcheskoe Gidrirovanie i Okislenie, Akad. Nauk Kazakh. S.S.R., Trudy Konf.* 1955, 121–34.—The previously reported results on hydrogenolysis of paraffins, methylcyclopentane and MePh are summarized; cf. *C.A.* 49, 8155*i*, 8825*h*. Possible mechanisms of the cleavage are discussed.

G. M. Kosolapoff

Fuels

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PLATE, A.F.

Preparation of bicyclo[2.2.1]hepta-2,5-diene by the condensation of cyclopentadiene with acetylene. A. F. Plate and M. A. Pryanishnikova. *Bull. Acad. Sci. U.S.S.R.*

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Reaction between hexachlorocyclopentadiene and some unsaturated compounds. I. S. Voronkov, N. N. Melnikov, A. F. Fiala, Su. N. Sarpabiev, and G. S. Talts (*Doklady Akad. Nauk SSSR*, 1956, 106, 1282—1285). Hexachlorocyclopentadiene is condensed with a number of unsaturated cyclic compounds, to give the following products (figures in parentheses refer, respectively, to yield and to toxicity to insects, taking chlordane as 100): 4 : 5 : 6 : 7 : 8 : 8-hexachloro-4 : 7-endomethylene-1 : 2 : 3a : 4 : 7 : 7a-hexahydroindene (50%; 11), m.p. 162—165° (from cyclopentene; 5 hr. at 120—125°); 4 : 5 : 6 : 7 : 8 : 8-hexachloro-4 : 7-endomethylene-1-methyl-1 : 2 : 3a : 4 : 7 : 7a-hexahydroindene (yield not given; 30), m.p. 51—53° (from 2-methylcyclopentene; 5 hr. at 120°); 1 : 2 : 3 : 3a : 7a-hexachloro-4 : 7-endoxy-7-methyl-3a : 4 : 7 : 7a-tetrahydroindene (yield small; 30), m.p. 125—126° (from 2-methylfuran; 7 hr. at 70°); 1 : 2 : 3 : 4 : 9 : 9-hexachloro-1 : 4-endomethylene-1 : 4 : 4a : 5 : 6 : 7 : 8 : 8a-octahydronaphthalene (30%; 50) (from cyclohexene; 80 hr. at 115°); 1 : 2 : 3 : 4 : 10 : 10-hexachloro-1 : 4-5 : 8-diendomethylene-1 : 4 : 4a : 5 : 8 : 8a-hexahydronaphthalene (aldrin) (yield not given; 200) (from bicyclo-2 : 2 : 1-hepta-2 : 5-diene; 25 hr. at 100°); 1 : 2 : 3 : 4 : 10 : 10-hexachloro-1 : 4-5 : 8-diendomethylene (70%; 100) (from bicyclo-2 : 2 : 1-hept-2-ene; 0·5 hr. at 150°); 1 : 2 : 3 : 4 : 10 : 10-hexachloro-1 : 4-5 : 8-diendomethylene-6-methyl- (40%; 9), m.p. 84—86° (from 5-methylbicyclo-2 : 2 : 1-hept-2-ene; 11 hr. at 150°); 1 : 2 : 3 : 4 : 10 : 10-hexachloro-1 : 4-5 : 8-diendomethylene-6-ethyl- (yield not given; 14), m.p. 86—88° (from 5-ethylbicyclo-2 : 2 : 1-hept-2-ene; 13 hr. at 150°); 1 : 2 : 3 : 4 : 10 : 10-hexachloro-1 : 4-5 : 8-diendomethylene-6-n-pentyl- (64%; toxicity not given), b.p. 188°/0·1 mm., $n_D^{20}$ 1·5403, $d_4^{20}$ 1·3604 (from 5-n-pentylbicyclo-2 : 2 : 1-hept-2-ene; 27 hr. at 120—130°), and 1 : 2 : 3 : 4 : 10 : 10-hexachloro-1 : 4-5 : 8-diendomethylene-6-acetoxy-1 : 4 : 4a : 5 : 6 : 7 : 8 : 8a-octahydronaphthalene (33%; 20) (from 5-acetoxybicyclo-1 : 1 : 1-hept-2-ene; 22 hr. at 98°); and 1 : 2 : 3 : 4 : 7 : 7-hexachloro-6-phenyl-bicyclo-2 : 2 : 1-hept-2-ene (87%; 30) (from styrene; 3 hr. at 165—170°). The products are resistant to weathering and do not lose Cl after boiling with N-NaOH in methanol for 1 hr.

R. Truscon.

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PLATE, A.F.

Reaction of cyclopentadiene with 1-heptene and butenes. A. F. Plate and I. L. Sokolova (M. V. Lomonosov State Univ., Moscow). Doklady Akad. Nauk S.S.S.R. 105, 989-92(1955).—Heating an equimolar mixt. of 1-heptene and cyclopentadiene (dicyclopentadiene used in the expts. depolymerized under the conditions used) in a steel bomb 13 hrs. at 220-30° gave 17.2% 5-amylbicyclo[2.2.1]hept-2-ene, $b_{14}$ 94.5°, $n_D^{20}$ 1.4652, $d_{20}$ 0.8530, which hydrogenated over Raney Ni to 2-amylbicyclo[2.2.1]heptane, $b_{100}$ 214.3°, 1.4612, 0.8538. Heating cyclopentadiene with butenes (from dehydrogenation of BuOH over $Al_2O_3$) 13 hrs. at 180-90°, or better 7 hrs. at 220-30°, gave 3.4% 5-ethylbicyclo[2.2.1]hept-2-ene (I), $b_{100}$ 80.5-1°, 1.4600, 0.8599, and 0.6% 2,5-dimethylbicyclo[2.2.1]hept-2-ene, $b_{100}$ 70.1-2.5°, 1.4578, 0.8541. The use of tech. butene (92% 2-butene, 8% 1-butene, 1.5% butadiene) gave 12% condensation products, mainly I, with a little 5,6-dimethylbicyclo[2.2.1]hept-2-ene, $b_{100}$ 80.4-8°, 1.4576, 0.8542. Hydrogenation of I over Ni gave 2-ethylbicyclo[2.2.1]heptane, $b_{100}$ 157.2-7.7°, 1.4589, 0.8599 (cf. Nasarov and Nagibina, C.A. 42, 7728b). The structures of the bicyclo products were confirmed by Raman spectra; the 880-905 cm.$^{-1}$ line of the 5-membered ring was evident, in regions to 1600 cm.$^{-1}$ strong sharp lines resemble those of decahydronaphthalenes, and the olefinic bond is shown by a 1571-2 line. O. M. Kosolapoff

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PLATE,A.F.; BELIKOVA,N.A.; YEGOROV,Yu.P.

Interaction of dialkyl-tetramethylene silanes and concentrated sulfuric acid. Dokl. AN SSSR 102 no.6:1131-1134 Je'55. (MLRA 8:10)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR. Predstavleno akademikom B.A.Kazanskim
(Silane) (Sulfuric acid)

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Plate, A.F.

6

Isomerization of methylcyclohexane and ethylcyclohexane in the presence of aluminum chloride under pressure of hydrogen. A. F. Plate, L. V. Tarasova, and P. A. Akishin (Moscow State Univ.). *Zhur. Obshchei Khim.* 25, 479-85 (1955); *J. Gen. Chem. U.S.S.R.* 25, 447-57 (1955) (Engl. translation); cf. *Doklady Akad. Nauk S.S.S.R.* 89, 79 (1953).—Isomerization of methylcyclohexane (I) and ethylcyclohexane (II) in the presence of 10% (by wt.) $AlCl_3$ under 100 atm. H initial pressure gave the following results. At 150° I gave 18% mixed cyclopentane derivs., at 200° this rose to 25%, and at 250° to 28%. The mixt. contained 1,1-, 1,2-, and 1,3-dimethylcyclopentanes, the latter being predominant. At 250° II gave 26% cyclopentane derivs. (1,1,2-, 1,1,3-, 1,2,3-, and 1,2,4-trimethylcyclopentanes), 36% 1,3-dimethylcyclohexane, 13% 1,4-dimethylcyclohexane, 10% 1,2-dimethylcyclohexane, and 3% 1,1-dimethylcyclohexane. The products were identified by Raman spectra and by conversion to corresponding aromatic substances.

G. M. Kosolapoff

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PLATE, A.F.; EVENTOVA, M.S.

V.V. Markovnikov's departure from Kazan University. Trudy Inst. ist.est.i tekh. vol.6:298-307 '55. (MLRA 9:5)
(Markovnikov, Vladimir Vasil'evich, 1838-1904)

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PLATE, A.F.

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Transformations of cycloölefins in the presence of ammonia over aluminomolybdenum oxide catalyst. A. F. Plate, M. E. Vol'pin, and S. V. Zotova. *Vestnik Moskov. Univ.* 10, No. 2, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 1, 77-80(1955).—Passage of cyclopentene in $NH_3$ atm. over Mo-Al oxide catalyst at 484-545° failed to yield any nitriles, but gave coke, cyclopentane, and cyclopentadiene, with traces of cyclopentylamine. Cyclohexene under similar treatment at 472° gave $C_6H_6$ and cyclohexane, and 0.0% $PhNH_2$. $C_6H_6$ under these conditions gave 0.27% $PhNH_2$.

G. M. Kosolapoff

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Chair of Petroleum Chemistry

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A. F.

ZELINSKIY, N. D.; KAZANSKIY, B. A., akademik; BALANDIN, A. A., akademik; KOCHESHKOV, K. A.; KHUYKIN, N. I.; KAVERZNEVA, Ye. D., doktor khimicheskikh nayk; LEVINA, R. Ya., doktor; khimicheskikh nauk; PLATE, A. F. doktor khimicheskikh nauk; RUBINSHTEYN, A. ... doktor khimicheskikh nauk; YUREV'YEV, Yu. K., doktor khimicheskikh nauk.

[Collected works] Sobranie trudov, Moskva, Izd-vo Akad. Nauk SSSR. Vol. 3, 1955 719 p. (MLRA 8:8)

1. Chlen-korrespondenty AN SSSR (for Kochrshkov, Shuykin)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

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MARKOVNIKOV, V.V.; PLATE, A.F., doktor khimicheskikh nauk, redaktor; BYKOV, G.V., kandidat khimicheskikh nauk, redaktor; PETROVSKIY, I.B., akademik, redaktor; BYKOV, K.M., akademik, redaktor; YAZAN-SKIY, B.A., akademik, redaktor; SHMIDT, O.Yu., akademik, redaktor; ANDREYEV, N.N. akademik, redaktor; SHCHERBAKOV, D.I., akademik, redaktor; YUDIN, P.F., akademik, redaktor; DELONE, B.N., redaktor KOSHTOYANTS, Kh. S., redaktor; SAMARIN, A.M., redaktor, LEBEDEV, D.M., professor, redaktor; FIGUROVSKIY, N.A., professor, redaktor; KUZNETSOV, I.V., kandidat filologicheskikh nauk, redaktor; STERLI-GOV, O.D., redaktor; ZEMLYAKOVA, T.A., tekhnicheskiy redaktor

[Selected works] Izbrannye trudy. Redaktsiia, stat'i i primechaniia A.F. Plate i G.V. Bykova, Moskva, Izd-vo Akademii nauk SSSR 1955. 926 p. (MLRA 8:10)

1. Chlen-korrespondent AN SSSR (for Delone, Koshtoyants, Samarin) (Chemistry) (Markovnikov, Vladimir Vasil'evich 1837-1904)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

ZELINSKIY, Nikolay Dmitriyevich, 1861-1953 [deceased] KAZANSKIY, B.A., akademik; BALANDIN, A.A., akademik; KOCHESHKOV, K.A.; SHUYKIN, N.I.; KAVERZNEVA, Ye.D, doktor khimicheskikh nauk; LEVINA, R.Ya., doktor khimicheskikh nauk; PLATE, A.F., doktor khimicheskikh nauk; RUBINSHTEYN, A.M., doktor khimicheskikh nauk; YUR'YEV, Yu.K., doktor khimicheskikh nauk; KISELEVA, A.A., tekhnicheskiy redaktor.

[Collected works] Sobranie trudov, Moskva, Izd-vo Akademii nauk SSSR. Vol. 2. 1955. 743 p. (MLRA 8:11)

1. Chlen-korrespondent AN SSSR(for Kocheshkov and Shuykin)
(Hydrocarbons) (Petroleum)

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

Plate, A. F.

USSR/ Chemistry - Analytical chemistry

Card 1/1 Pub. 22 - 32/63

Authors : Setkina, V. N.; Plate, A. F.; Sterligov, O. D.; and Kursanov, D. N., Memb. Corres. of Acad. of Sc. USSR

Title : Possibility of adapting the hydrogen exchange reaction for the analysis of saturated hydrocarbon mixtures

Periodical : Dok. AN SSSR 99/6, 1007-1010, Dec 21, 1954

Abstract : The characteristics of hydrogen exchange reaction and the possibility of applying this reaction for analytical purposes were investigated. A compulsory condition for the adaption of the hydrogen exchange reaction for the analysis of saturated hydrocarbon mixtures was found to be the attainment of reaction equilibrium. It was established that the hydrogen exchange reaction of aliphatic and alicyclic hydrocarbon mixtures containing from 5 to 7 carbon atoms in the molecule begins within a period of 10 - 20 hrs. The results, obtained during the reaction of two-component saturated hydrocarbon mixtures, are tabulated. Nine USSR references (1935-1954). Tables.

Institution: .....

Submitted: June 18, 1954

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PLATE, A.F.

USSR

Thermal decomposition of methylcyclopentane at high hydrogen pressures. A. E. Gavrilova, M. G. Gonikberg, A. F. Plate, and B. A. Kazanskii (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 96, 987-90(1954); cf. *C.A.* 48, 10325h.—Heating methylcyclopentane (I) with more than 500 atm. H at 440° or 700 atm. at 450° results in but 1-3% unsaturated hydrocarbons along with a small amount of cyclohexane. Distn. and analysis by means of phys. constants showed that an increase of H pressure decreases the rate of decompn. of I, increasing the yield of liquid products. At the same time the proportion of cyclopentane in the reaction product increases, while the yield of distn. residues drops to 7-10% (material b. over 80°). Rise in temp. facilitates decompn. of I. At 440° and 640 atm. H in 5.3 hrs. I gave 86.5% liquid products, composed of 9.2% cyclopentane, 68% I, and 9.8% residues; at 450° and 1130 atm. H these figures were: 76.7%, 11.9%, 49.5%, and 6.7%. The rate constant (hrs.$^{-1}$) at 450° is 0.218. Increase of reactor surface failed to change the reaction rate. The reaction appears to behave as a monomolecular process.

G. M. Kosolapoff

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PLATE, A.F.

USSR.

Determination of individual hydrocarbons in gasolines by the combined method. V. Gasoline from Emba crude oil. B. A. Kazanskii, G. S. Landsberg, A. F. Plate, P. A. Bazhulin, A. L. Liberman, E. A. Mikhailova, M. M. Sushchinskii, G. A. Tarasova, S. A. Ukholin, and S. V. Yoronko (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 865–77; cf. *C.A.* 48, 14170*h*.—Analysis of a gasoline from Emba crude oil by a combination of distn., chromatography, and dehydrogenation-hydrogenation reactions resulted in establishing the structure of 81.1% of the hydrocarbons present. The gasoline is of naphthenic type, and the paraffins are predominantly branched. The following compds. were identified: 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, hexane, methylcyclopentane, 2,2-dimethylpentane, 2,4-dimethylpentane, cyclohexane, 3,3-dimethylpentane, 1,1-dimethylcyclopentane, 2,3-dimethylpentane, *cis*- and *trans*-1,3-dimethylcyclopentanes, *trans*-1,2-dimethylcyclopentane, methyl- and ethylcyclohexanes, 1,2,4-trimethylcyclopentane, 2,2- and 2,4-dimethylhexanes, 1,2,3-trimethylcyclopentane, 2,4-dimethylhexane, 1,2,3-trimethylcyclopentane, 3- and 4-methylheptane, 1,1-dimethylcyclopentane, 1,1,3-trimethylcyclohexane, 3- and 4-methyloctanes. EtPh and *o*-, *m*-, and *p*-xylenes were also identified; *m*-xylene being the predominant aromatic hydrocarbon. G. M. Kosolapoff

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PLATE, A. F.

USSR/ Chemistry - Organic chemistry

Card 1/1 : Pub. 22 - 24/48

Authors : Plate, A. F.; Momma, N. A.; and Yegorov, Yu. P.

Title : Synthesis and properties of certain cyclic silico-hydrocarbons

Periodical : Dok. AN SSSR 97/5, 847-850, August 11, 1954

Abstract : The synthesis and properties of tetramethylenesilane, a representative of five-membered cyclic silico-hydrocarbons, containing one Si-atom in the cycle, are described. A comparison of constants of the synthesized silico-hydrocarbon with the constants of homologous cyclopentane hydrocarbons showed that by substituting the carbon atom in the cyclopentane ring with a Si-atom the hydrocarbon attains a higher boiling point, index of refraction and specific weight. The physical constants of cyclic hydrocarbons obtained are shown in table. Thirteen references: 7-USA; 3-USSR; 2-German and 1-Japanese (1911-1953).

Institution : Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Organic Chemistry

Presented by : Academician B. A. Kazanskiy, April 9, 1954

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PLATE, A. F.

USSR/ Physics - Spectral analysis

Card 1/1 Pub. 43 - 56/62

Authors : Kazanskiy, S. A.; Landsberg, G. S.; Aleksanyan, V. T.; Bulanova, T. F.; Liberman, A. L.; Mikhaylova, Ye. A.; Plate, A. F.; Sterin, Kh. Ye.; and Ukholin, S. A.

Title : Analysis of aromatic ligroin parts by the combined diffusion spectra

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 704-706, Nov-Dec 1954

Abstract : Brief report is presented on the method and some results obtained during individual and close-group analysis of primary and secondary aromatics of ligroin. Analysis of results obtained showed that the basic ligroin (taken from the Embensk Petroleum Source) contained alkyl substitutes of benzene and cyclohexane with short term substituting radicals. Three references: 1 USA and 2 USSR (1947-1953). Tables.

Institution: Acad. of Sc., USSR., The N. D. Zelinskiy Inst. of Organ. Chem. and the Commission on Spectroscopy

Submitted : .....

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Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1053-1066, Nov-Dec 1954

Card 2/2 Pub. 40 - 16/27

Abstract : The gasoline from the above mentioned source was found to contain large amounts of aromatic hydrocarbons (16.37%). The paraffinic and naphthenic hydrocarbons were in approximately equal amounts (35.5 and 33.5%). Two fifths of the paraffinic hydrocarbons were composed of normal structure paraffins. The ratio between cyclopentane and cyclohexane hydrocarbons was set at 0.44. Five USSR references (1951-1954). Tables; graphs.

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PLATE, A.F.

USSR/Chemistry - Analytical chemistry

Card 1/2 Pub. 40 - 16/27

Authors : Kazanskiy, B. A.; Landsberg, G. S.; Plate, A. F.; Liberman, A. L.; Mikhaylova, E. A.; Sterlin, Kh. E.; Bulanova, T. F.; Tarasova, G. A. and Aleksanyan, V. T.

Title : Determination of the individual hydrocarbon composition of gasolines

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1053-1066, Nov-Dec 1954

Abstract : The individual hydrocarbon composition of straight run gasolines with 150° end point obtained from Karachukhursk crude oil, was investigated by means of a combination method. The content of all individual hydrocarbons found in the gasolines was calculated in percentages by weight with consideration of the initial and end points.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Institute of Org. Chemistry

Submitted : December 19, 1953

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200039-6

PLATE, A. F.

USSR/ Chemistry Fuels

Card : 1/1

Authors : Kazanskiy, B.A., Landsberg, G.S., Plate, A.F., Bazhulin, P.A., Liberman, A.L., Suschinskiy, N.M., Tarasova, G.A., Ukholin, S.A., Voron'ko, S.V.

Title : Combined method for the determination of the individual hydrocarbon composition of gasolines. Part 4.- Gasoline from the Tuymazinsk petroleum.

Periodical : Izv. AN SSSR, Otd. Khim. Nauk., 3, 456 - 469, May - June 1954

Abstract : The results obtained from the study of the individual hydrocarbon composition of gasoline with end point of 150°, derived from low-sulfur Tuymazinsk petroleum (Devonian horizon), are described. The quantitative, individual hydrocarbon composition of Tuymazinsk gasoline and the general losses are presented in percentage by weight values. The structure of paraffin-base gasoline derived from Tuymazinsk petroleum and the aromatic contents of other hydrocarbons are discussed. Toluene and m-xylene were found to be predominant among aromatic hydrocarbons. Four USSR references. Tables, graphs.

Institution : Acad. of Sc. USSR, The P. N. Lebedev Physics Institute

Submitted : July 20, 1953

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PLATE, A. F.

KAZANSKIY, B.A.; LANDSBERG, G.S.; PLATE, A.F.; LIBERMAN, A.L.; MIKHAYLOVA, Ye.A.; BAZHULIN, P.A.; BATUYEV, M.I.; UKHOLIN, S.A.; BULANOVA, T.F.; TARASOVA, G.A.

Composite method for the determination of individual hydrocarbons in gasolines. Part 3. The Surakhany gasolines. Izv.AN SSSR. Otd.khim.nauk no.2:278-291 Mr-Ap '54. (MLRA 7:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo, Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
(Hydrocarbons) (Surakhany--Petroleum) (Petroleum--Surakhany)

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PLATE, A. F. and VOL'PIN, M. Ye.

"Preparation of Acetonitrile by the Reaction Between Olefines and Ammonia in the Presence of Oxide Catalysts".
Izv. An Az SSR, No. 2, pp 55-65, 1954.

Acetonitrile can be prepared by the reaction of $NH_3$ with certain olefins in the presence of aluminum-molybdenum oxide catalysts. The activity of this catalyst can be increased by preliminary reduction of the Mo catalyst. The catalyst is further reduced furing the course of the reaction, with the maximum yield of acetonitrile being achieved after 3 hours of work. Small additions of oxygen or air selectively poison the catalyst and retard coking, thus increasing the yield of acetonitrile by 1.5 times. Pure $Al_2O_3$ has no catalytic activity in the olefin-ammonia reaction. (RZhKhim, No 4, 1955)

SO: Sum No 884, 9 Apr 1956

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PLATE, A.F.

**Determination of individual hydrocarbon composition of gasolines by the combined method. II. Two gasolines from petroleum of Kazanbulak origin.** B. A. Kazanskii, A. F. Plate, E. A. Mikhaflova, A. L. Liberman, M. I. Batuev, T. F. Bulanova, and G. A. Tarasova (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 266–77; cf. *C.A.* 48, 7342*a*.—Two specimens of gasoline from Kazanbulak area were examd. by the combined optical-distn. method. In fractions b. under 160° over 70 hydrocarbons were identified, thus accounting for 40–55% of the total compn. It is shown that despite the close origin of the specimens geographically, considerable differences in compn. are found. III. Surakhan gasolines. B. A. Kazanskii, G. S. Landsberg, A. F. Plate, A. L. Liberman, E. A. Mikhaflova, P. A. Bazhulin, M. I. Batuev, S. A. Ukholin, T. F. Bulanova, and G. A. Tarasova. *Ibid.* 278–91.—Two specimens of Surakhan gasolines were examd. by the combined method. In both some 47 hydrocarbons were identified, accounting for 77–84% of the total compn. Distn. curves and distn. data are cited.

G. M. Kosolapoff

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VAN NES, K.; VAN WESTERN, N.A.; PLATE, A.F., doktor khimicheskikh nauk [translator], redaktor; TSUKERMAN, A.M., redaktor; KOBENILOV, E.I., tekhnicheskiy redaktor.

[Aspects of the constitution of mineral oils] Sostav maslianykh fraktsii nefti i ikh analiz. Perevod s angliiskogo. . Perevod, redaktsiia i primechaniia A.F.Plate. Moskva, Izd-vo inostran.lit-ry, 1954. 263 p.
(MLRA 8:2)
(Petroleum--Analysis)

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PLATE, A F

Chemical Abst.
Vol. 48
Apr. 10, 1954
Organic Chemistry

The mechanism of formation of acetonitrile from olefins and ammonia. A. P. Platé and M. E. Vol'pin (M. V. Lomonosov State University, Moscow). Doklady Akad. Nauk S.S.S.R. 80, 401-4(1953).—The reaction of $NH_3$ with $C_2H_4$ apparently proceeds through formation of $EtNH_2$, followed by dehydrogenation to MeCN. Homologous olefins also yield MeCN with chain rupture and loss of C atoms. $C_3H_6$ yields $CH_4$ and C as by-products. Possibly the intermediate here is iso-$PrNH_2$, which loses $H_2$, yielding $Me_2C{:}NH$ which then loses $CH_4$. Over 15% $MoO_3$-85% $Al_2O_3$ above 400°, iso-$PrNH_2$ actually yields MeCN, in addn. to secondary and tertiary amines, $C_3H_6$, and $NH_3$. Passage of iso-$PrNH_2$ over the catalyst in $NH_3$ in a very narrow temp. range around 490° gives 50% MeCN, which is the max. yield. At 400° iso-$PrNH_2$ yields products which give $Me_2CO$ when boiled with $H_2O$, thus confirming the above scheme. The possibility of anti-Markovnikov addn. of $NH_3$ to the olefins, is discounted, as is the scheme given by Stevenson (C.A. 43, 7750b; 44, 9580b). At 497° the same catalyst causes but partial degradation of EtCN, yielding an approx. 50-50 mixt. of EtCN and MeCN. $PrNH_2$ in an $NH_3$ stream at 490° gave some MeCN and EtCN, and $C_2H_4$ 4, CO 5.8, $CH_4$ 12, $C_3H_6$ 6.3, and $NH_4CN$ 4.8%, as well as MeCN 04 and EtCN 23.5%.

O. M. Kosolapoff

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PLATE, A. F.; VOL'PIN, M. Ye.

Ammonia

Reaction of olefins with ammonia over an oxide alluminum-molybdenum catalyst, with the formation of acetonitriles. Dokl. AN SSSR 89, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

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USSR/Chemistry - Fuels

1 Mar 53

"The Isomerization of Cyclohexane into Cyclopentane in the Presence of Aluminum Chloride ~~and~~ under Hydrogen Pressure", A.F. Plate and L.V. Tarasova, Lab~~oratory~~ of Org~~anic~~ Chem imeni N.D. Zelinskiy, Moscow State U ~~Univ imeni M.V. Lomonosov~~

DRN

~~Dok Ak Nauk~~ SSSR, Vol 89, No 1, pp 77-80

Studied the isomerization of cyclohexane into cyclopentane in the presence of $AlCl_3$ ~~and~~ under ~~hydrogen~~ H pressure. The temp was 150-250°. If the isomerization is carried out at these conditions, the cracking can be kept to a min~~imum~~. At 200° the yield of methylcyclopentane 69% of the reacted cyclohexane. Presented by Acad L.A. Kazanskiy 22 Dec 52.

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PLATE, A.F.

USSR.

Preparation of 1,2-dialkylcyclanes. Synthesis of stereoisomeric 1-methyl-2-butylcyclopentanes. A. P. Plath, A. L. Liberman, and N. A. Momma. *Bull. Ac[redacted]X., Div. Chem. Sci.* 1953, 617-23(Engl. translation).—See *C.A.* 48, 12685e. H. L. H.

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of unreacted $C_2H_6$. The predominating side reaction here is the decompn. of $NH_3$ to N and H. An essential side-reaction is the cracking of the original $C_2H_6$ and its hydrogenation to $C_2H_4$; $C_2H_6$ with an equivalent quantity of H reacts almost completely; below 500° the hydrogenation predominates, but at higher temp. cracking produces noticeable quantities of $CH_4$. It appears that the I, which is formed, is also decompd. by the catalyst; the decompn. begins at about 400° and the rate quickly increases with increased temp. The decompn. products consist of HCN, $CH_4$, $C_2H_4$, $NH_3$, $H_2$, CO, and considerable C. At 498° 86 g.-atoms of C are formed per 100 moles of decompd. I. In the presence of the catalyst, the decompn. temp. of I is further reduced to 300°. In like manner I is decompd. in its passage over the same catalyst in a stream of $NH_3$. In this way, the unusual character of the relation of the yield of I to temp. in the reaction of $C_2H_6$ with $NH_3$ is shown by the narrow temp. interval (within several deg.) in which the yield of I is max., and the rapid decrease in yield which a further increase of temp. brings about through a rapid increase in rate of the side reactions (viz. decompn. of $NH_3$ to its elements, hydrogenation and cracking of $C_2H_4$, decompn. with formation of I). The formation of waste gases by the reaction of $C_2H_4$ with $NH_3$ shows that in this case the decreased yield of I at temps. above 500° is combined with the analogous side-reaction. Comparison of the quantities of $C_2H_4$ formed here with the quantity of $C_2H_6$ formed above shows that the rate of the side-reaction of hydrogenation of $C_2H_4$ is twice as great as the hydrogenation of $C_2H_4$; this is the reason for the smaller yield of I from $C_2H_4$ compared with that from $C_2H_6$.

A.F. PLATE

2/2

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PLATE, A.F.

USSR

Reaction of olefins with ammonia over alumina-molybdic oxide catalysts with formation of methylcyanide. A. F. Plate a d M. E. Vol'pin (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 89, 317-20 (1953); cf. *C.A.* 48, 3888*e*.—The activity of a series of olefins ($C_3H_6$, $C_4H_8$, $Me_2C{:}CH_2$, and 2-methyl-2-butene) toward $NH_3$ over alumina-molybdic oxide catalyst (15% $MoO_3$ and 85% $Al_2O_3$) is investigated. The reaction was carried out at atm. pressure. Olefins with a 5-fold excess of $NH_3$ are passed over 38 cc. of catalyst at a rate of 0.07 mole of olefin/hr. Before each test the catalyst is reduced in a current of H for 3 hrs. at 500°. After the test the coke which has deposited on the catalyst is removed by roasting in a current of dry air at 500°. Independent of the original olefins, the product was chiefly MeCN (I) and very small quantities of substances of amine character; in the case of $C_3H_6$ and $NH_3$, traces of EtCN were found. $NH_4CN$, coke, and gaseous products (H, N, satd. hydrocarbons, and CO) are also produced. The reaction begins at a temp. above 450° and the greatest yield is reached at a temp. of about 500° (at 484° the yields of I are for: $C_3H_6$, 16.7%; $C_4H_8$, 37.5%; $Me_2C{:}CH_2$, 29.9%; and $Me_2C{:}CHMe$, 41.6%). With the catalyst, the formation of I from $C_3H_6$ and $NH_3$ starts about 420°; with increase to 485° the yield of I quickly increases, reaches a max. value, and as the temp. continues to increase the yield quickly decreases; at a temp. above 600° I is absent from the reaction products. The reason for the decrease in the yield of I at temps. above 500° seems to be the quick increase in the rate of competing side-reactions. In the reaction of $C_3H_6$ with $NH_3$, increased temp. increases the quantity of $NH_4CN$; the quantity of $C_3H_6$ in the waste gases reaches a max. at 500° and decreases at higher temps., also with a decrease [illegible]

over

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No. 4

**Preparation of 1,2-dialkylcyclanes. Synthesis of stereoisomeric 1-methyl-2-butylcyclopentanes.** A. P. Platé, A. L. Liberman, [illegible] Bruking (M. [illegible]), Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1958, 189–96.—Dehydration of the glycol obtained by oxidation of 1-methylcyclopentene with $H_2O_2$-$HCO_2H$ yields 2-methylcyclopentanone; the corresponding cyclohexanone deriv. cannot be prepd. similarly since the dehydration in this case is accompanied by isomerization reactions. Passage of cyclohexene over $Al_2O_3$ at 480° gave 44–7% *1-methylcyclopentene*, b. 74.2–5.2°, $n^{20}_D$ 1.4336, $d_{20}$ 0.7821, along with 10–16% *3-methylcyclopentene*, b. 64–5°, $n^{20}_D$ 1.4310, $d_{20}$ 0.7854. Oxidation of the former with 30% $H_2O_2$ and 88% $HCO_2H$ at 30–5° gave 62–6% *trans-1-methyl-1,2-cyclopentanediol*, $b_{15}$ 93–5°, m. 64–4.3°, b. 210–11°. At higher temp. the reaction yields also some corresponding formate and the boiling range of the product is widened. The glycol was heated with a crystal of iodine 30 min. on a Babo funnel, and the resulting ketone slowly distd., washed with $Na_2S_2O_3$ soln., $Na_2CO_3$ and $H_2O$, dried, and redistd., giving 70% *2-methylcyclopentanone*, b. 138.7°, $n^{20}_D$ 1.4351, $d_{20}$ 0.9107; *2,4-dinitrophenylhydrazone*, m. 154.3–4.8°. Distn. of the low-boiling fractions yielded some methylcyclopentadiene and its dimers. The ketone with BuMgBr gave 54% *1-methyl-2-butylcyclopentanol*, $b_{20-18}$ 79–98°. Attempts to sep. the cis and trans isomers by distn. failed, since partial dehydration took place. Dehydration of the alc. in the presence of iodine gave 70% *1-methyl-2-butylcyclopentene*, b. 169.7–70.0°, $n^{20}_D$ 1.4515, $d_{20}$ 0.8109, hydrogenated in the cold over Pt-C activated with $PdCl_2$ to 87% of the satd. analog which, after careful fractionation, yielded 74.8% *trans-isomer*, $b_{20}$ 74–4.1°, $b_{10}$ 108.9–9.0°, $n^{20}_D$ 1.4321, $d_{20}$ 0.7847, and 19.8% *cis-isomer*, $b_{20}$ 78.7°, $b_{10}$ 174.5°, $n^{20}_D$ 1.4381, $d_{20}$ 0.7980. 1-Methylcyclohexanol, $b_{15}$ 55.5–6.2°, *f.p.* 25.9° (from MeMgI and cyclohexanone), dehydrated with iodine as above, yielded 96.8% *1-methylcyclohexene*, b. 110.3–10.4°, $n^{20}_D$ 1.4510, $d_{20}$ 0.8113, which was oxidized with $H_2O_2$-$HCO_2H$ as above at 30–5° to 72% *1-methyl-1,2-cyclohexanediol*, $b_{15}$ 123–7°, m. 80–1°. This heated with a little iodine began being dehydrated vigorously on melting and 282 g. of the glycol readily lost 48 ml. $H_2O$ (9 ml. over 100%); distn. gave 106.5 g. fraction b. 187–58° and 62 g. product $b_{20}$ 70–1.5°; redistn. gave a product, $b_{10}$ 108–13°, which on dehydrogenation over Pt-C gave MePh, indicating that the original substance was *methylcyclohexadiene*, a product of double dehydration. Redistn. of the remaining material gave more methylcyclohexadiene, several intermediate fractions, and 42.3% *2-methylcyclohexanone*, $b_{10}$ 56.1°, $n^{20}_D$ 1.4481, $d_{20}$ 0.9250, f.p. −9.15°.

G. M. Kosolapoff

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Isomerization of cyclohexane to methylcyclopentane in the presence of aluminum chloride under hydrogen. A. F. Plate and L. V. Turasova (M. V. Lomonosov State Univ., Moscow). Dokl. Akad. Nauk S.S.S.R. 89, 77-80 (1953).—By conducting the isomerization of cyclohexane in the presence of $AlCl_3$ under H at 150-250°, cracking was decreased to a minimum and methylcyclopentane yields (at 200°) were improved to 48% (based on the entering $C_6H_{12}$, 60% based on the reacting $C_6H_{12}$), small amts. of hydrocarbons of higher mol. wt. were formed. Gary Gerard.

PLATE, A.F.

Preparation of 1,2-dialkylcyclanes. Synthesis of stereoisomeric 1-methyl-2-butylcyclopentanes. A. F. Plate, A. L. Liberman, and N. A. Momina (M. V. Lomonosov State Univ., Moscow). Dokl. Akad. Nauk S.S.S.R. [illegible] $b_{18-19}$ 72-98°. Attempts to sep. the cis and trans isomers by distn. failed, since partial dehydration took place. Dehydration of the alc. in the presence of iodine gave 70% 1-methyl-2-butylcyclopentane [illegible]

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PLATE, A. F.

234T3

USSR/Chemistry - Hydrocarbons; Fuels

1 Mar 52

"Isomerization of Methylcyclopentane in the Presence of Aluminum Chloride Under Pressure," M. G. Gonikberg, A. F. Plate, A. Ye. Gavrilova, Inst of Org Chem, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol 83, No 1, pp 81-83

Finds that one of the intermediate reactions in the isomerization of methylcyclopentane under pressure using $AlCl_3$ as a catalyst is dehydrogenation. Presented by Acad B. A. Kazanskiy 28 Dec 51.

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PLATE, A. F.

Alkylation

Alkylation of methylcyclopentene-1 by the Butlerov-Yel'tekov method. Dokl. AN [illegible] no. 6, '52 Laboratoriya Organicheskoy Khimii im. N.D. Zelinskogo Moskovskogo Gosudarstvennogo Universiteta im. M.V. Lomonosova rcd. 28 Dec. 1951

Monthly List of Russian Accessions, Library of Congress, July 1952. Unclassified.

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A.F. PLATE, G.A. TARASOVA

May 52

USSR/Chemistry- Liquid Fuels, Aromatization

"The Mechanism of Catalytic Transformation of Hydrocarbons Over a Vanadium Catalyst, VII. Comparison of the Behavior of Binary Mixtures of Heptane, Heptene, and Toluene," Inst. of Org. Chem, Acad. Sci USSR

Zhur Obshch Khim, Vol 22, No. 5, pp 765-771, May 1952.

Aromatization of heptane heptene mixt at 480° over $V_2O_5$ catalyst on $Al_2O_3$ was studied. Direct relation was found bet quantity of toluene formed and heptene content of original mixt. With a pentane content in the mixt below 25, amt of Heptene in final product increases, at 10% content it remains const, and above 10% the amt of unsaturated compds in final product is less than in the starting mixt. Mixt of heptane and 2-methylbutene-2 was aromatized at 480°. Heptane forms toluene and heptene in quantity proportional to its conen in the mixt. Isopentene under these conditions is hydrogenated to isopentane. Effect of addn of 10-90% of toluene on aromatization of heptane at 480° was studied. Quantity of newly formed toluene is directly proportional to heptane content of mixt; the yield of toluene calcd on the basis of heptane is const. Effect of addn of (from 11.8 to 95%) on the aromatization of heptene at 480° studied. Yield of toluene calcd on the basis of the original heptane increases as the concn of heptene in the mixt decreases. Heptane and heptene are aromatized at different centers of activity of the catalyst.

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PLATE, A.F.

Chem Abs V48
1-25-54

Organic Chemistry

Hydrindene. B. A. Kazanskii, A. F. Plate, and E. M. Terent'eva. Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org. Soedinenii, Sbornik 2, 70-1(1952); cf. C.A. 47, 8003h.—Hydrogenation of indene in the presence of 10% Raney Ni at 60-150 atm. H at room temp. over 4-5 hrs. yields 92-5% hydrindene, $b_{740}$ 176.1-6.2°, $d_{20}$ 0.9640, $n_D^{20}$ 1.5383. The product is best distd. from Na. G. M. K.

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191T10

USSR/Chemistry - Cyclic Hydrocarbons Sep/Oct 51

"Properties and Chemical Reactions of Cyclopentadiene," Ye. M. Terent'yeva, A. F. Plate, Moscow

"Uspekh Khim" Vol XX, No 5, pp 560-588

States that this is the 1st general review of subject published in the Russian language since B. A. Kazanskiy's article in "Uspekh Khim" 1934, No 3, p 116, and points out that in connection with development of the petroleum and coke-chem industry in the USSR, consideration of new ways for using this compd is appropriate. Discusses phys properties, formation, and analytical detn of

191T10

USSR/Chemistry - Cyclic Hydrocarbons (Contd) Sep/Oct 51

cyclopentadiene, its reactions with various compds, reactions of dicyclopentadiene, higher polymers of cyclopentadiene and its copolymers with other unsatd compds.

191T10

PLATE, A. F.

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PLATE, A. F.

USSR/Chemistry- Petroleum, Hydrocarbons

" Lines of Development of Academician N. D. Zelinskiy's Work," [illegible] A. [illegible], A. [illegible] Nesmeyanov, A. F. Plate, Moscow.

"Uspekh Khim" Vol XX, No 1, pp 18-53, 1951

General review of N. D. Zelinskiy's chem achievements in fields of synthesis of hydrocarbons, intraconversions of hydrocarbons, research into the origin of petroleum, catalytic conversions of heterocyclic systems, and catalytic conversions of [illegible] compds.

(CA 48 no.2:414 '54)

PA 193T6

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PLATE, A. E

183T5

USSR/Chemistry - Petroleum

May/Jun 51

"Academician B. A. Kazanskiy," A. F. Plate

"Iz Ak Nauk SSSR, Otdel Khim Nauk," No 3, pp 221-225

Reviews Kazanskiy's activity up to date, particularly in fld of petroleum chem.

LC

183T5

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PLATE, A.F.

USSR.

5

*Oxidation of allylcyclopentane with selenous acid and the preparation of γ-cyclopentylallyl alcohol. A. F. Plate and E. M. Mil'vitskaya. *Uchenye Zapiski Moskov. Gosudarst. Univ. im. M. V. Lomonosova* No. 132, *Org. Khim.* 7, 248-53(1950).—Cyclopentylmagnesium chloride and allyl chloride gave 35% *allylcyclopentane*, $b_{760}$ 125.8-6.5°, $d_{20}$ 0.7939, $n^{20}_D$ 1.4408 (this forms an *azeotrope* with 15-20% *cyclopentanol*, $b_{760}$ 123.4°, $d_{20}$ 0.8231, $n^{20}_D$ 1.4430).

The hydrocarbon (20 g.), 20 g. $Ac_2O$ and 20 g. AcOH were treated in 3 portions with 7.6 g. $H_2SeO_3$, the addn. being timed with temp. decline to 50-60° from max. of 85-90°. After heating 10 hrs. at 115-20° the product was quenched in $H_2O$ and steam distd. yielding 4.6 g. *γ-cyclopentylallyl acetate*; a 22 g. residue in the steam distn. could not be distd. but on passage through a tube at 320° it gave 10.5 g. pyrolyzate, along with Se; the former on steam distn. gave more acetate, for a combined yield of 29.4%; the pure product, $b_{10}$ 120-2°, $n^{20}_D$ 1.4554, $d_{20}$ 0.9310. Hydrolysis of this with aq. $Ba(OH)_2$ 4 hrs. gave 71.5% *γ-cyclopentylallyl alc.*, $b_{760}$ 180-3°, $n^{20}_D$ 1.4722, $d_{20}$ 0.9306, which hydrogenated to *γ-cyclopentylpropyl alc.*, $b_{10}$ 125-7°, $n^{20}_D$ 1.4580, $d_{20}$ 0.9150.

G. M. Kosolapoff

1

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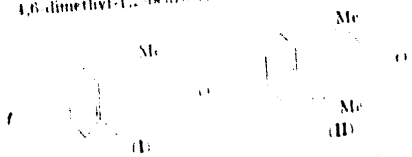
CA

**Catalytic hydrogenation of cyclic seven-membered doubly unsaturated ketones. Deactivation of the double bond by the ketone group.** M. F. Ved'pin and A. F. Plate (Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 70, 883-6(1950).—The rates of the Pd black and Pt black catalyzed hydrogenation of 4-methyl-1,2-benzo-1,3,6-cycloheptatrien-5-one (I) and of 4,6-dimethyl-1,2-benzo-1,3,6-cycloheptatrien-5-one (II)



(I) (II)

were detd. from the rates of absorption of $H_2$ in static runs with 0.3–0.4 g. ketone in soln. in 10 ml. EtOH, and 0.1 g. of catalyst. Plots of the rate against time show relatively low and practically const. rate of absorption of $H_2$ up to the moment of satn. of the 1st double bond, followed by a sudden rise of the rate to a peak which, in the case of I on Pd black, corresponds to rate increase of over 700% relative to the initial rate. Such peaks have been previously observed in the hydrogenation of acetylenic deriv., on passing from the hydrogenation of the triple bond to that of the double bond, but never before with conjugated double bonds. Equally new is the slow rate of hydrogenation of the 1st double bond, being 1/4 of that of trimethylethylene, and 1/6 of that found with mesityl oxide. That this lowering of the activity is not the result of conjugation in the cycle follows from the fact that the hydrogenation of dibenzylideneacetone (III) under the same conditions shows a normal behavior, starting at a high initial rate and falling uniformly with the progress of the reaction. The deactivation of the hydrogenation of the 1st double bond in the divinyl ketones I and II must be due to an effect of the CO group which, through electron shift along the cycle, gives rise to an excess pos. charge on all C atoms of the cyclic system compensated by an excessive charge on the O atom of the CO group. This effect disappears once the 1st double bond is hydrogenated, hence the abrupt increase of the rate at that point. Addnl. proofs of the effect of the CO group on the unsatd. cyclic system are the lowering of the Raman frequency of the CO group in II, 1617–28 cm.$^{-1}$ (doublet), as compared with 1658 in benzophenone and 1700 in $Me_2CO$, and the high dipole moments, 4.25 for I, 3.7 for II, as compared with 3.3 for III, 3.2 for benzophenone, and 2.8 for $Me_2CO$. In III, the CO group can have no deactivating effect owing to the absence of conjugation.

N. Thon

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