KAZANSKIY, A.M.

KAZANSKIY, A.M., professor, doktor tekhnicheskikh nauk

About thermal capacity of peat and an academic dissertation. Torf.prom.32 no.4:19-24 '55. (MLRA 8:10)

1. Moskovskiy torfyanoy institut.
(Calorimetry) (Peat)

[illegible]

Alfalfa - Diseases and Pests

Dangerous virus disease of Alfalfa in Kazakhstan. Sov. agron. 10 no. 6, June 1952

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

KAZANSKIY, A.N. (Moskva)

Stability limits of oxyacetylene welding flames. Izv.AN SSSR. Otd. tekh.nauk no.11:139-140 N '55. (MLRA 9:2)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.
(Gas welding and cutting)

KAZANSKIY, A.N.

Subject : USSR/Engineering AID P - 5408

Card 1/2 Pub. 107a - 10/12

Authors : Bykov, V. V., Eng., and A. N. Kazanskiy, Eng.

Title : New equipment for processing metals by flame

Periodical : Svar. proizv., 10, 30-31, O 1956

Abstract : The authors briefly describe several newly designed gas-welding and gas-cutting equipment, such as: the GS-53, GSM-53 and GAO-55 torches, the PP-53, RAP-55 and RZP-55 cutters, and the RGS-53, RGM-53, RAT-55, RAO-55 and RAZ-55 insert cutters. They provide some technical characteristics of the cutters and torches. Five tables, 1 graph and 4 photos (showing numerous pieces of equipment and parts).

A-U Sci Res. Inst. Nitrogen Industry.

AUTHOR: Kazanskiy, A. N. (Moscow). 24-4-28/34

TITLE: On the velocity head and static pressure in the oxy-acetylene welding flame. (O skorostnykh naporakh i staticheskom davlenii v atsetileno-kislorodnom svarochnom plameni).

PERIODICAL: "Izv. Ak. Nauk, Otd. Tekh. Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section), 1957, No.4, pp.161-164 (USSR).

ABSTRACT: For recording the static pressure in the zone of the flame core a copper probe with an active canal diameter of 0.3 mm was used, Fig.1; the full flow pressure was recorded by copper probes with canal diameters of 0.3 and 0.7 mm respectively, as shown in Figs. 2 and 3. One variant of the recording arrangement is shown in Fig.4. It was found that in the zone of the non-ignited gas mixture in the flame core excessive static pressure exists; during ignition of the gas mixture the excess static pressure drops sharply and changes into a clearly pronounced vacuum and, following that, the pressure gradually increases to the atmospheric pressure, remaining constant at all the other sections. It is assumed that this rarefication represents one of the stages of the reaction of the combustion of acetylene at which two molecules or two radicals combine forming a single particle; the reduction in the number of

Card 1/2

AUTHOR: Kazanskiy, A. N. (Moscow). 24-5-23/25

TITLE: On the thermal regime of the edge of the nozzle mouthpiece of an acetylene-oxygen welding torch. (O teplovom rezhime kromki sopla mundshtuka atsetileno-kislorodnoy svarochnoy gorelki).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk", (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.5, pp.139-140 (U.S.S.R.)

ABSTRACT: In studying the temperature regime of the nozzle of an acetylene-oxygen burner ГС-53, the temperature of the mouthpiece was measured during the process of burning of the flame by means of a thermocouple consisting of a constantan wire which was hard-soldered to the copper mouthpiece. The results are graphed in Fig.2, p.139. In the case of stable burning of the gas mixture emanating from the nozzle the heat is transmitted from the flame to the nozzle; if the edge of the nozzle is cooled by gases flowing through it to a temperature lower than that of the ambient medium the flame will tear off. The highest quantity of heat will be transmitted to the nozzle mouthpiece in the case of mixtures containing about 40% acetylene.
There are 2 figures and 1 Slavic reference.

SUBMITTED: February 13, 1957.

AVAILABLE:

Card 1/1

135-8-6/19

TITLE: Investigation of the Stability of the Oxyacetylene Torch Flame. (Issledovaniye ustoychivosti plameni svarochnoy atsetileno-kislorodnoy gorelki)

The article contains 7 diagrams, two sketches of torch nozzles and 9 bibliographic references, 5 of which are Russian.

ASSOCIATION: "VNIIAvtogen"

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

Card 2/2

KAZANSKIY A.M.

25(1) PHASE I BOOK EXPLOITATION SOV/2281 DR

Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov

Kislorodnaya rezka i svarka (Oxygen Cutting and Welding) Moscow, Mashgiz, 1959. 268 p. (Series: Its: Trudy, vyp. 5) Errata slip inserted. 4,800 copies printed.

Ed.: A.N. Shashkov, Candidate of Technical Sciences. Ed. of Publishing House: G.N. Soboleva; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Heavy Machine Building: S. Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for engineers, technicians, scientists, designers, and students of vtuzes. The book may be used for improving operational methods of oxygen and gas metalworking.

COVERAGE: This book contains articles on theoretical investigations of oxygen cutting and welding and problems related to the gas-

Card 1/ 7

acetylene ratio and employs the SV-10GS welding rod, developed by VNII Avtogen.

Strizhevskiy, I.I., and D.I. Tesmenitskiy [Engineer]. Using Fine-grained Calcium Carbide in a Mixture With Fuel-Oil 256

Kozlovskiy, A.L. [Candidate of Technical Sciences]. New Materials for Metallizing 260

The author describes a method of metallizing, claimed to be new, in which metal powder embedded in a plastic filament is used instead of the usual metal wire or powder. Because of the high degree of dispersion of the metal, coatings produced by filament spraying have a fine-grained structure and are more uniform than those produced by the wire or powder methods.

Kozlovskiy, A.L., I.A. Nemkovskiy [Engineer] and N.I. Filimonova [Engineer]. Developing Production Methods for Manufacturing Polyamide Powder for Metallizing 263

KAZANSKIY, A.N., kand.tekhn.nauk

Regulators of new design.. Svar.proizv. no.6:42 Je '61.
(MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut avtogennoy obrabotki metallov.
(Gas welding and cutting--Equipment and supplies)

KAZANSKIY A.S.

CA

PROCESSES AND PROPERTIES INDEX

23

Biochemical decomposition of lignosulfonic acids in sulfite lye. A. S. Kazanskii and M. A. Mikhailova. *Lesokhim. Prom.* 3, No. 11, 18-20(1940). Two media were prepd.: To (1) a liquid lye neutralized to pH 7 with NaOH soln. and to (2) 1.3 0.5% soln. of the dry residue obtained by evapg. (1) to dryness were added KH_2PO_4 0.25 and $(NH_4)_2HPO_4$ 0.1%. These media were inoculated with *Trametes pini*, *Stereum hirsutum*, *Fomes annosus*, 5 samples of infusorial earth, and decompd. stable manure. Medium (1) promoted bacterial growth little or not at all. *Fomes annosus* did not grow in either medium. After inoculation, medium (2) was allowed to stand for 20-60 days, then treated with 10 vol. of alc. The ppt. formed together with mycelium and glass wool was filtered out, dried and weighed. The filtrate was evapd. to dryness, and the residue weighed and extd. with H_2O. The residue from the H_2O ext. was treated with $FeCl_3$. Alc.-insol. lignosulfonic acids were transformed into acids sol. in alc., especially in the infusorial earth cultures. Eleven references. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKIY, A. S. (Engineer)

"An Investigation of the Process of Crushing Large Lumps of Anthracite With a Single Implement." Cand Tech Sci, All-Union Sci-Res Coal Inst, 29 Dec 54. (VM, 20 Dec 54)

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

SO: SUM No. 556, 24 Jun 55

BERON, A.I., kand. tekhn. nauk; POZIN, Ye.Z., kand. tekhn. nauk; KAZANSKIY, A.S., kand. tekhn. nauk; SHAVRINA, R.F., red.

[Improving coal breaking methods and the actuating mechanisms of mining machinery to better the fractional composition of coal output; short scientific report] Sovershenstvovanie metodov razrusheniia uglia i ispolnitel'nykh organov vyemochnykh mashin s tsel'iu uluchsheniia fraktsionnogo sostava uglia; kratkii nauchnyi otchet. Moskva, 1962. 50 p. (MIRA 18:4)

1. Moscow. Institut gornogo dela im. A.A.Skochinskogo. Laboratoriya mekhanicheskikh sposobov razrusheniya gornykh porod.

/1

KAZANSKIY,A.S., inzhener

Brief survey of tests made on large coal crushing planers. Nauch. rab. VUGI no.11:177-204 '54. (MIRA 8:11)
(Coal preparation)

TEKHMISHCHYAN, Azat Vagramovich, kand. tekhn. nauk; TSETNARSKIY, Igor' Aleksandrovich, inzh.; KAZANSKIY, Anatoliy Sergeyevich, kand. tekhn. nauk; SEMENOV, Vladimir Mikhaylovich, kand. tekhn. nauk; KORABLEV, Anatoliy Aleksandrovich, kand. tekhn. nauk; SEMENOV, I.B., otv. red.; ABARBARCHUK, F.I., red. izd-va; IL'INSKAYA, G.M., tekhn. red.

[Mining machinery] Gornaia mekhanika. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 291 p. (MIRA 14:6)
(Coal mining machinery)

BERON, A.I., kand.tekhn.nauk; KAZANSKIY, A.S., kand.tekhn.nauk

Research on stresses and deformation in rock during straight cutting. Trudy Inst. gor. dela 5:57-63 '60. (MIRA 14:5)
(Boring)

BERON, Aba Isaakovich, kand. tekhn. nauk; KAZANSKIY, Anatoliy Sergeyevich, kand. tekhn.nauk; LEYBOV, Boris Mikhaylovich, starshiy nauchnyy sotr.; POZIN, Yevgeniy Zal'manovich, kand.tekhn.nauk; SHOROKHOVA, A.V., red. izd-va; PROZOROVSKAYA, V.L., tekhn. red.

[Cutting of coal] Rezanie uglia. Moskva, Gosgortekhizdat, 1962. 438 p. (MIRA 15:7)
(Coal mining machinery)

KAZANSKIY, A.S.

Determination of contact stresses under the punch. Fiz.-mekh.-svois.,dav.i razr.gor.porod no.1:236-242 '62. (MIRA 16:3)
(Coal--Testing)

KAZANSKIY, A.S.; ROMANENKO, Ye.S.

Effect of an open slit on the size of contact stresses during the impression of a punch. Fiz. mekh. svois., dav. i razr. gor. porod. no.2:26-29 '63. (MIRA 17:1)

KAZANSKIY, A. V.

Voprosy razmeshcheniya i spetsializatsii sotsialisticheskogo sel'skogo khozyaystva (Problems of Allocation and Specialization in Socialist Argiculture), collection of articles, compiled by A. V. Kazanskiy. Sel'khozgiz, 33 sheets.

The symposium describes problems of the allocation of socialist agriculture according to individual oblasts and rayons of the USSR; problems of the combination of branches of agriculture within variously specialized kolkhozes.

The book is intended for agricultural specialists and scientific workers.

SO: U-6472, 18 Nov 1954

KAZANSKIY, A.V.; TOKAR', V.M., red.; ORESHKINA, V.I., tekhn.red.

[Decimal system of classification of industrial drawings and objects] Detsimal'naia obezlichennaia sistema klassifikatsii chertezhei i ob"ektov proizvodstva. Izd.2. Moskva, Gos.izd-vo obor.promyshl., 1959. 75 p. (MIRA 13:2)
(Classification, Decimal)

KRUGER, M.Ya., inzh.; PANOV, V.A., kand. tekhn. nauk; KULAGIN, V.V., kand. tekhn. nauk; POGAREV, G.V., kand. tekhn. nauk; KRUGER, Ya.M., inzh.; LEVINZON, A.M., inzh.; Prinimal uchastiye KALINKEVICH, V.N., inzh.; KAZANSKIY, A.V., kand. tekhn. nauk, retsenzent; DMITRIYEV, A.A., inzh.; SIMONOVSKIY, N.Z., red. izd-va; MITARCHUK, G.A., red.izd-va; SHCHETININA, L.V., tekhn. red.

[Handbook for the designer of optical instruments] Spravochnik konstruktora optiko-mekhanicheskikh priborov. [By] M.IA. Kruger i dr. Moskva, Mashgiz, 1963. 803 p. (MIRA 16:12)
(Optical instruments)

KAZANSKIY, B

KAZANSKIY, B.

Scientific Research Institute of the Economics of Construction.
Vop. ekon. no.7:173-175 Jl '58. (MIRA 11:8)
(Building)

VINOGRADOV, Andrey Nikolayevich; KAZANSKIY, B., red.; TELEGINA, T., tekhn.red.

[Planning the lowering of housing construction costs] Planirovanie snizheniia sebestoimosti rabot v zhilishchnom stroitel'stve. Moskva, Gosfinizdat, 1959. 103 p. (MIRA 13:3)
(Construction industry--Costs)

KAZANSKIY, B.

Collection of articles on construction economics ("Economic effectiveness of capital investments and new technology in construction "Reviewed by B.Kazanskii). Vop.ekon. no.11: 141-144 N '59. (MIRA 12:12)
(Construction industry)

KAZANSKII, B. A.

B. A. Kazanskii, A. V. Kiperina, and O. A. Zemskaya - "Concerning the oxidation of B-methyl cyclohexanol. The synthesis of 1-methyl-3-propylcyclopentane." (p. 1212)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1920, Vol. 20, No. 7.

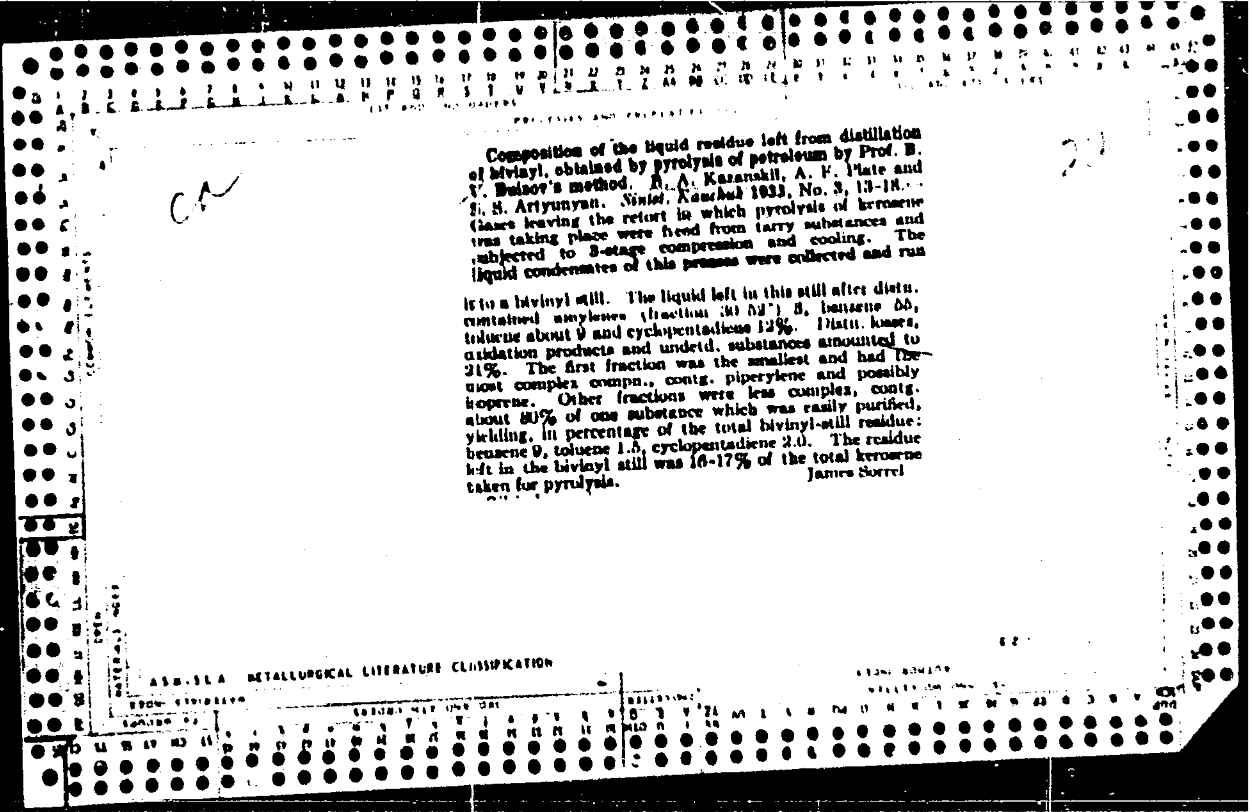
1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

KAZANSKIY, B.

Nicotine determination by titration with silicotungstic acid. B. Kazanskii. *Bull. Plant Protection* (U. S. S. R.) 3, No. 1, 147-53(1931).—Finely ground tobacco was prepd. according to Pfyl (*C. A.* 22, 1814) and the nicotine was distd. over with steam into a flask with a few cc. of HCl. The flask was then filled with H_2O to the 500-cc. mark and 100 cc. was pipetted out for each detn. To the 100 cc. of the nicotine soln. was added 2 g. of NH_4Cl and the titration was carried out with silicotungstic acid until a turbidity could not be observed by the addn. of one drop of the acid soln. The amt. of acid soln. used in titration is of an empirical nature and therefore the titer of the soln. must be detd. with a nicotine soln. of known concn. before titrating the nicotine soln. of unknown concn. The presence of NH_4OH does not interfere with the titration. The prepn. of silicotungstic acid is described. A. A. Boehtlingk

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES

CA

22

Composition of the liquid residue left from distillation of bivinyl, obtained by pyrolysis of petroleum by Prof. B. V. Byzov's method. B. A. Kazanskii, A. F. Plate and S. S. Artyunyan. *Sintet. Kauchuk* 1933, No. 3, 13-18.—Gases leaving the retort in which pyrolysis of kerosene was taking place were freed from tarry substances and subjected to 3-stage compression and cooling. The liquid condensates of this process were collected and run it to a bivinyl still. The liquid left in this still after distn. contained amylenes (fraction 30-52°) 8, benzene 55, toluene about 9 and cyclopentadiene 12%. Distn. losses, oxidation products and undetd. substances amounted to 21%. The first fraction was the smallest and had the most complex compn., contg. piperylene and possibly isoprene. Other fractions were less complex, contg. about 80% of one substance which was easily purified, yielding, in percentage of the total bivinyl-still residue: benzene 9, toluene 1.5, cyclopentadiene 2.0. The residue left in the bivinyl still was 16-17% of the total kerosene taken for pyrolysis.

James Sorrel

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

10

Preparation of butyl and hexyl alcohols from by-products obtained in the synthesis of bivinyl from ethyl alcohol. III. B. A. Kazanskii, A. A. Balandin, I. M. Tretkovnikov, K. A. Ivanova and B. N. Staroverova. *J. Applied Chem.* (U. S. S. R.) 6, 260-73(1933).—The Bu fraction sepd. from the above by-products b. 115-30°, d_4^{20} 0.8330, n_D^{20} 1.4085, Br no. 40.3; it constituted about 23.18% of the unsatd. alcs. of the formula C_4H_8O in the fraction. This fraction was hydrogenated by the Sabatier method in the presence of various catalysts, such as Ni pptd. on pumice stone with a glass and a Cu tube, Cu on asbestos, Fe, and Ni (hydrogenation in the liquid phase). The process was carried out at 340-60°, 320-30°, 120°, 350°, 2 5°, 400-80° and 100°. The catalyzate had the following consts.: b_{745} 115.5-17° (mainly 116-17°), n_D^{20} 1.4008, d_4^{20} 0.8105, which are fairly close to those given in the literature for BuOH. The hexyl fraction was also redistd. and hydrogenated under similar conditions. It yielded a product b. 150-5°, n_D 1.4187, d_4^{20} 0.8265. This is not a uniform product. The yield of BuOH amounted to 19.3% of the total of the alc. by-products. The best hydrogenation temp. for the Bu fraction lies at 120°, although hydrogenation takes place at 50°; Ni pptd. on asbestos is the best catalyst at 150°. A. A. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

CA

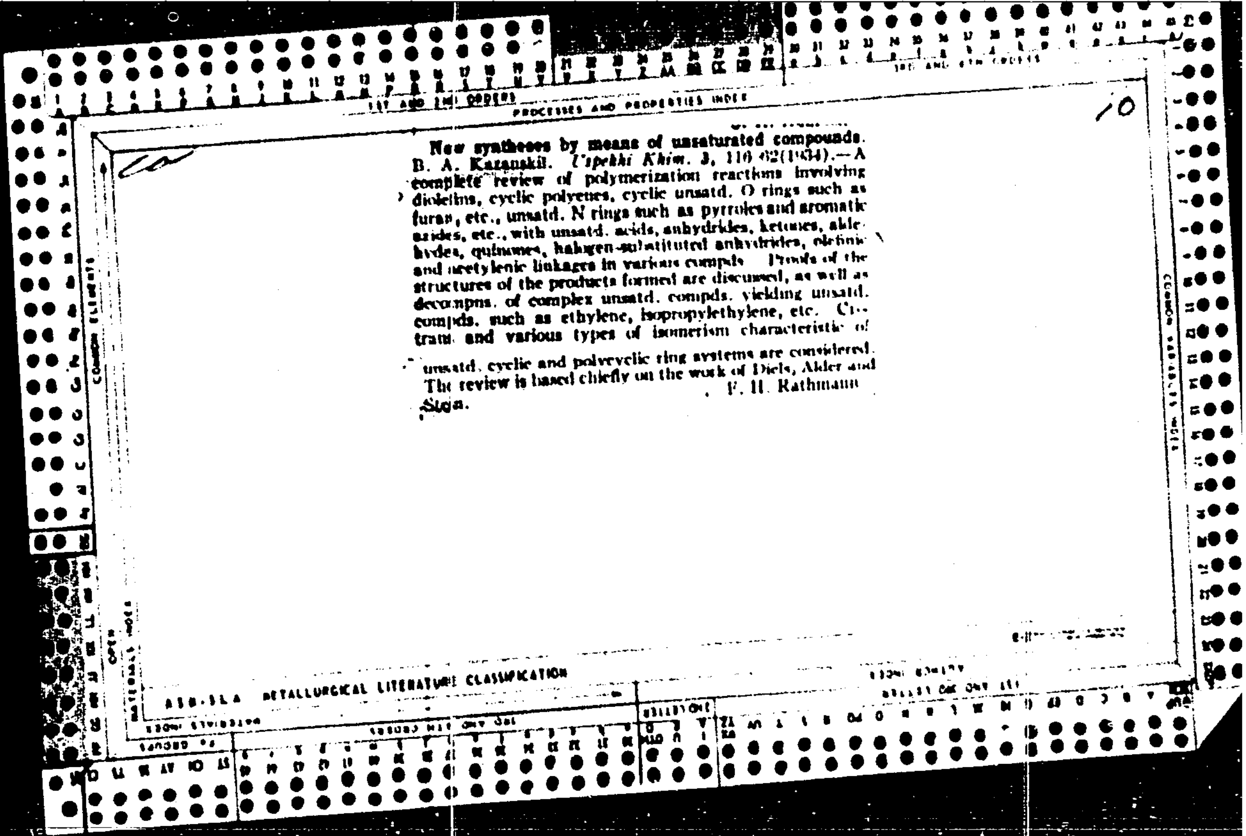
10

PROCESSES AND PROPERTIES INDEX

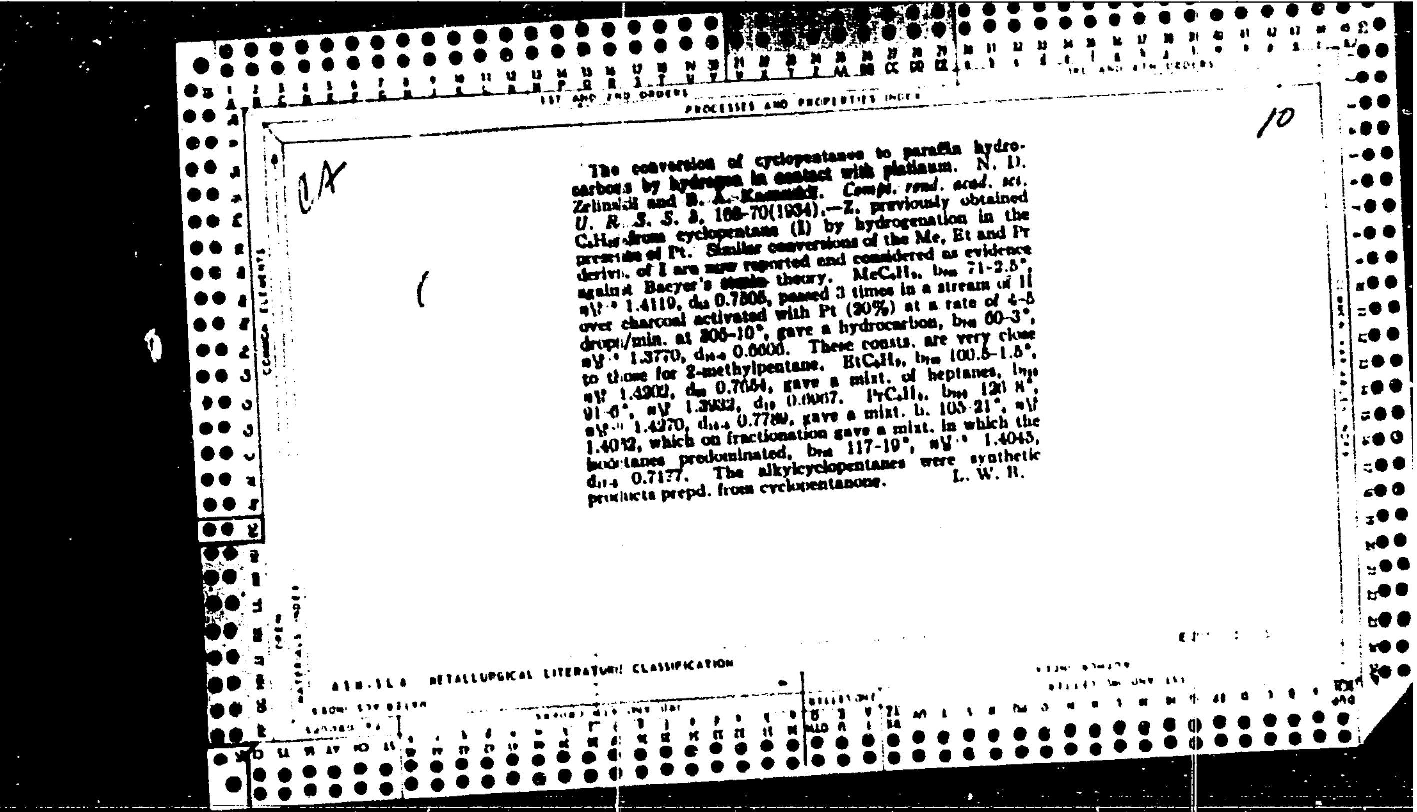
The preparation of butadiene from *sym*-**dimethylethylene.** B. A. Kazanskii and I. A. Rafilzon. *Sintet. Kauchuk* 1934, No. 1, 31-4.—From 3 to 4% of *sym*-dimethylethylene (I) is formed during the process of prepg. butadiene from alc. After treatment of I with Cl gas 2,3-dichlorobutane (II) is obtained and by removing 2 HCl from II butadiene is obtained. The authors passed II through an elec. oven at an av. temp. of 360-400°, using different catalysts. The best yield—30-40% butadiene—was obtained with $BaCl_2$; 15.3% at 381-388° with $NiCl_2$ and 6.1% at 360-370° with Al_2O_3 (all II was decompd.). The catalysts were poisoned during the reaction by the tar-like products.

A. Pestoff

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION



New syntheses by means of unsaturated compounds. B. A. Kazanskii. *Uspekhi Khim.* 3, 110-62(1934).—A complete review of polymerization reactions involving diolefins, cyclic polyenes, cyclic unsatd. O rings such as furan, etc., unsatd. N rings such as pyrroles and aromatic amides, etc., with unsatd. acids, anhydrides, ketones, aldehydes, quinones, halogen-substituted anhydrides, olefinic and acetylenic linkages in various compds. Proofs of the structures of the products formed are discussed, as well as decompns. of complex unsatd. compds. yielding unsatd. compds. such as ethylene, isopropylethylene, etc. Cis-trans and various types of isomerism characteristic of unsatd. cyclic and polycyclic ring systems are considered. The review is based chiefly on the work of Diels, Alder and Stein. F. H. Rathmann



CA

10

The conversion of cyclopentanes to paraffin hydrocarbons by hydrogen in contact with platinum. N. D. Zelinskii and B. A. Kazanskii. *Compt. rend. acad. sci. U. R. S. S.* 3, 168-70(1934).—Z. previously obtained C_6H_{14} from cyclopentane (I) by hydrogenation in the presence of Pt. Similar conversions of the Me, Et and Pr derivs. of I are now reported and considered as evidence against Baeyer's strain theory. MeC_5H_9, b. 71-2.5°, n_D 1.4119, d 0.7506, passed 3 times in a stream of H over charcoal activated with Pt (20%) at a rate of 4-5 drops/min. at 305-10°, gave a hydrocarbon, b. 60-3°, n_D 1.3770, d 0.6606. These consts. are very close to those for 2-methylpentane. EtC_5H_9, b. 100.5-1.5°, n_D 1.4202, d 0.7654, gave a mixt. of heptanes, b. 91-6°, n_D 1.3882, d 0.6907. PrC_5H_9, b. 120.8°, n_D 1.4270, d 0.7780, gave a mixt. b. 105-21°, n_D 1.4012, which on fractionation gave a mixt. in which the isooctanes predominated, b. 117-19°, n_D 1.4045, d 0.7177. The alkylcyclopentanes were synthetic products prepd. from cyclopentanone. L. W. R.

KASANSKIJ, B. A.

"Sur la nature des homologues du cyclohexane qui composent la fraction, octonaphtenique" du benzine de Ssourakhani". Kasanskij, B. A. et Markossowa, M. I. (p. 884)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 6

KAZANSKY, B. A.

"Synthese de quelques homologues monosubstitues du cyclopentane a chaine laterale bifurguee". Kasansky, B. A., Plats, A. F. et Gnatenko, K. M. (p. 1593)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 11

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

A-3

Dehydration of dimethylcyclobutylcarbinol. B. A. Kazanski (J. Gen. Chem. Russ., 1936, 6, 1598—1601).—CS_2 is added to a solution of the K salt of dimethylcyclobutylcarbinol in decahydronaphthalene, and the xanthate so formed is treated with MeI at 160°. The mixture of isomeric isopropenylcyclobutanes, b.p. 98—100°, so obtained yields *isopropyl*cyclobutane, b.p. 90·5—91·5°, when hydrogenated.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Bc

a-1

Aromatisation of certain homologues of *cyclo*pentane and of paraffins in presence of platinised charcoal. B. A. KAZANSKI and A. F. PLATE (J. Gen. Chem. Russ., 1937, 7, 328—334).—The following products are obtained by passing the hydrocarbons over Pt-C at 310—315°; 3-methyloctane and o-C_6H_4MeEt from n-butyl*cyclo*pentane; p-xylene from Bu^{β}_2; PhEt and o-xylene from n-octane; m-C_6H_4MePr$^{\beta}$ from di*iso*amyl. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Hydrogenation of aromatic hydrocarbons by means of Ca-NH$_3$. B. A. Kazanskii and N. V. Smirnova. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Ser. chim.* 1937, 547-64.—Dumanskii and Zvyagina (C. A. 11, 1871) first found that NH$_3$ passed into C$_6$H$_6$ gave "dihydrobenzene." The author adds C$_6$H$_6$ to Ca-NH$_3$ and state-Ca + 4NH$_3$ → Ca(NH$_3$)$_4$ → Ca(NH$_2$)$_2$ + 2NH$_3$ + H$_2$. Thus C$_6$H$_6$ gives cyclohexene and traces of 1,3-cyclohexadiene. 1,3-Cyclohexadiene gives high yields of cyclohexene, which is not further hydrogenated under similar conditions. Toluene gives tetrahydrotoluene, and C$_{10}$H$_8$ gives tetralin. At higher temps., Ca(NH$_3$)$_4$ becomes unstable, thereby losing its efficiency. Sergius Kobetnick

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

W

10

Hydrogenation of aromatic hydrocarbons by means of a Ca-NH$_3$. II. B. A. Kazanskii and N. F. Glushnev. *J. Gen. Chem.* (U. S. S. R.) 8, 642-50 1938); cf. *C. A.* 32, 2088.—In a modification of the previous procedure a hydrocarbon is allowed to react at room temp. for 24 hrs. with Ca(NH$_3$)$_6$ prepd. by passing dry NH$_3$ over Ca at 0°, 15° and 30°. The hydrogenated products were identified as nitrosochloride derivs. formed with EtNO$_2$ and HCl at low temps. The addn. of H produces hydrocarbons with 1 double bond at the C atom linked with the substituent. C$_6$H$_6$ gave 90% cyclohexene, b. 81-4°, n_D^{20} 1.4533. Toluene gave 90% 1-methyl-1-cyclohexene, b_{760} 106-7°, d_4^{20} 0.8090, n_D^{20} 1.4508; nitrosochloride, m. 93-4° (Me$_2$CO). PhEt gave 1-ethyl-1-cyclohexene, b_{744} 134-5°, d_4^{20} 0.8171, n_D^{20} 1.4547, nitrosochloride, m. 101-2°. *o*-Xylene gave a product contaminated with unaltered hydrocarbon. The purification and identification of the hydrogenated product are being investigated. *m*-Xylene gave 1,3-dimethyl-3-cyclohexene, b_{744} 127-0°, d_4^{20} 0.8036, n_D^{20} 1.4547; nitrosochloride, m. 117-18°. *p*-Xylene gave 1,4-dimethyl-3-cyclohexene, b_{744} 127-9°, d_4^{20} 0.8030, n_D^{20} 1.4502; nitrosochloride, m. 85-6°. Mesitylene is difficultly hydrogenated, giving a mixt., b. 140-65°. Its nitrosochloride, m. 132-3° (decompn.), corresponds to 1,3,5-trimethyl-1-cyclohexene. Tetralin gave a mixt. of 1- and 9-octalin. 1,4-Cyclohexadiene adds 2 H atoms, giving cyclohexene. The hydrogenation is probably effected by preliminary isomerization to 1,3-cyclohexadiene.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CN

1c

Catalytic transformation of 2-methylbicyclo[2.2.1]-
5-heptene and 2-methylbicyclo[2.2.1]heptane. B. A.
Kazanskii and N. G. Chernova. *J. Gen. Chem.* (U. S. S.
R.) 8, 651-?(1938); cf. *C. A.* 29, 6221. When 2-
methylbicyclo[2.2.1]-5-heptene (I) was hydrogenated in
the vapor phase with Pt charcoal at 125-30° instead of 300°
the product was not a heterogeneous mixt. (cf. Zelinskii,
Kazanskii and Plate, *C. A.* 27, 5725), but *2-methylbicyclo-*
[2.2.1]heptane (II) previously obtained from I with H and
Pt sponge at room temp. I is not dehydrogenated in the
presence of Pt charcoal in N at 300° but gives some high-
boiling products which poison the catalyst. II with Pt
charcoal and excess H at 300-10° undergoes a cyclic cleav-
age with the formation of monocyclic pentanes and paraf-
fins. The catalyzate contains traces of aromatic hydro-
carbons (*m*-xylene). This indicates the cleavage of the
-C—C- bond forming the methylene bridge. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CX

10

Addition of hydrogen to aromatic hydrocarbons by the action of ammonia complexes of lithium, strontium and barium. III. B. A. Kazanskii and N. F. Glushnev. *Bull. acad. sci. U. R. S. S., Classe sci. mat. nat., Sér. chim.* 1938, 1061-4; cf. *C. A.* 33, 1270^{9}.—NH_3 complexes of Li, Ba and Sr were prepd. and then decompd. in the presence of C_6H_6 and PhMe. In all cases it was shown that H was added to the aromatics. The NH_3 complex of Li yielded 25.3% tetrahydrotoluene and 32% cyclohexene. The Sr complex reduced only 4% of the PhMe but it yielded 12.3% of tetrahydrobenzene; the reduction products of both C_6H_6 and PhMe showed a weak diene reaction. The Ba complex gave practically no reduction with PhMe but with C_6H_6 it yielded 32.5% cyclohexene. B. Z. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

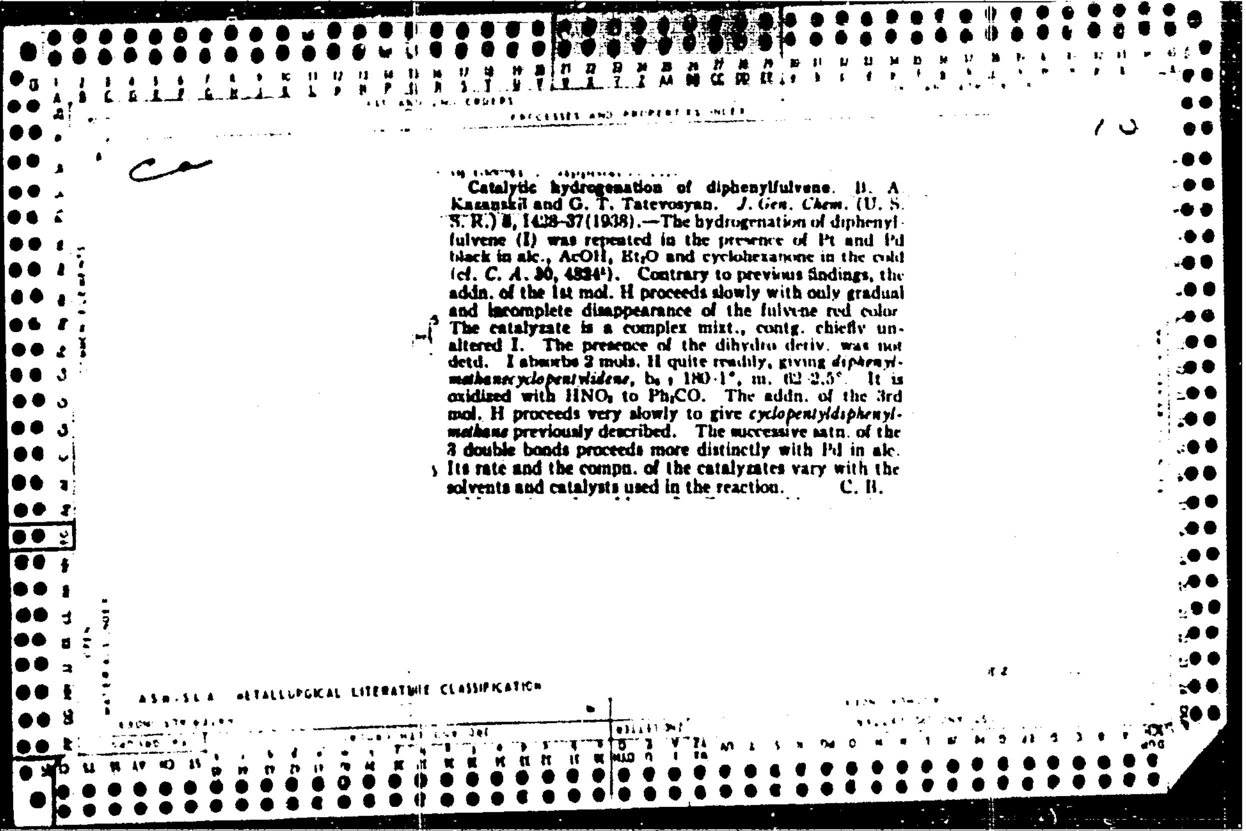
CA

10

Isomerization phenomena accompanying the reduction of diolefinic and aromatic hydrocarbons by means of calcium-ammonia. B. A. Kazanskiĭ and N. F. Glushnev. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* **1938**, 1065-71 (in English, 1072); cf. *C. A.* **33**, 1270⁴.—Various diolefins and aromatic hydrocarbons undergo isomerization upon reduction with $Ca(NH_3)_6$. Reduction of 2,3-dimethyl-1,3-butadiene, cyclopentadiene, ethylenebenzene, propylenebenzene, 2,5-dimethyl-1,5-hexadiene, and allylbenzene yielded tetramethylethylene, cyclopentene, 1-ethylcyclohexene, 1-propylcyclohexene, diisopropylethylene, and 1-propylcyclohexene, resp. Reduction of the dimer of divinyl gave a product which is believed to be 2-ethylcyclohexene. The results indicate that $Ca(NH_3)_6$ reduces 1,3-dienes, hydrocarbons having in the side chain a double bond which is conjugated with the double bonds in the benzene ring, and hydrocarbons having double bonds in 1,5- and 1,4-positions even though they contain nonconjugated diene systems. All isomerizations wer · carried out at 0°.

B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



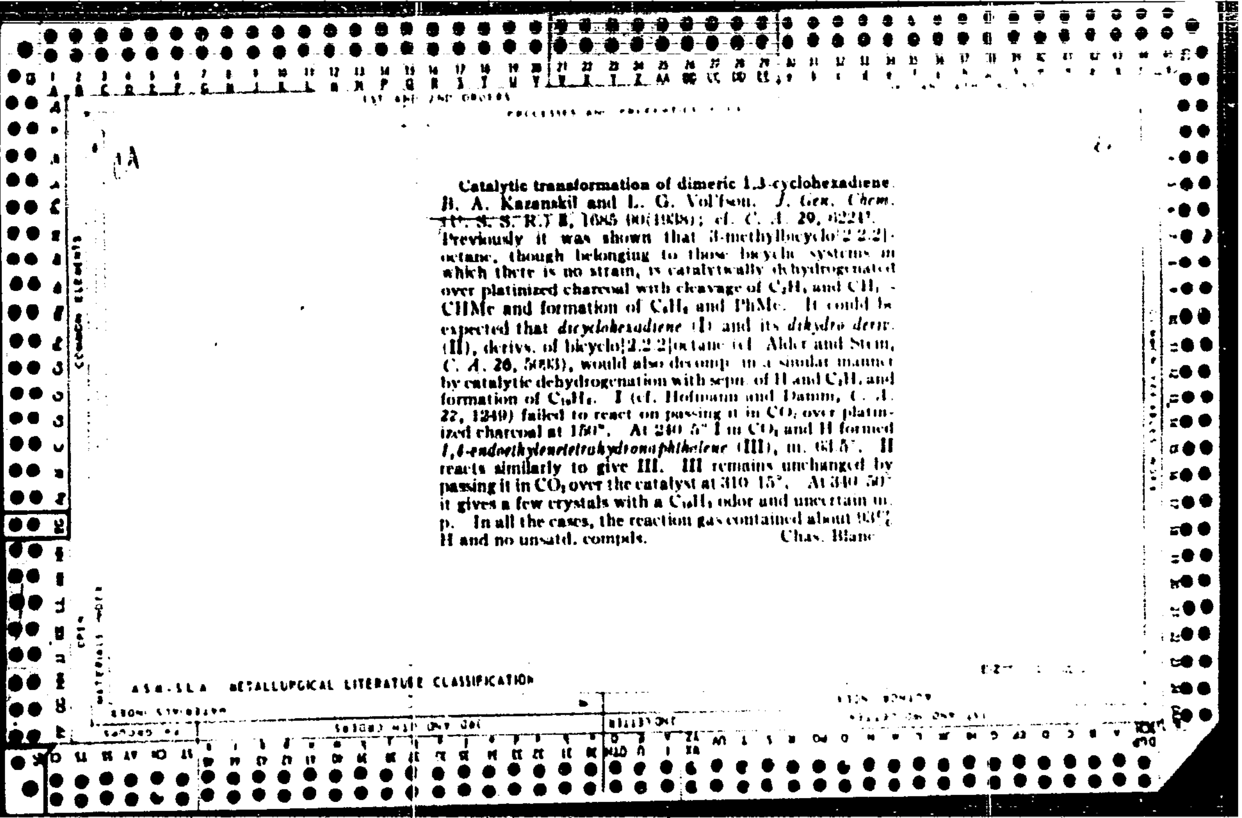
PROCESSES AND PROPERTIES INDEX

Ca

10

Catalytic hydrogenation of diphenylfulvene. B. A Kazanskii and G. T. Tatevosyan. *J. Gen. Chem.* (U. S. S. R.) 8, 1428-37(1938).—The hydrogenation of diphenylfulvene (I) was repeated in the presence of Pt and Pd black in alc., AcOH, Et_2O and cyclohexanone in the cold (cf. *C. A.* 30, 4824^{1}). Contrary to previous findings, the addn. of the 1st mol. H proceeds slowly with only gradual and incomplete disappearance of the fulvene red color. The catalyzate is a complex mixt., contg. chiefly unaltered I. The presence of the dihydro deriv. was not detd. I absorbs 2 mols. H quite readily, giving *diphenylmethanecyclopentylidene*, b_{4} 180-1°, m. 62-2.5°. It is oxidized with HNO_3 to Ph_2CO. The addn. of the 3rd mol. H proceeds very slowly to give *cyclopentyldiphenylmethane* previously described. The successive satn. of the 3 double bonds proceeds more distinctly with Pd in alc. Its rate and the compn. of the catalyzates vary with the solvents and catalysts used in the reaction. C. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Catalytic transformation of dimeric 1,3-cyclohexadiene. B. A. Kazanskiĭ and L. G. Vol'fson. *J. Gen. Chem.* ~~(U. S. S.~~ R.) **8**, 1685-90(1938); cf. *C. A.* **29**, 6221². Previously it was shown that 3-methylbicyclo[2.2.2]octane, though belonging to those bicyclic systems in which there is no strain, is catalytically dehydrogenated over platinized charcoal with cleavage of C_2H_4 and $CH_2:CHMe$ and formation of C_6H_6 and PhMe. It could be expected that *dicyclohexadiene* (I) and its *dihydro deriv.* (II), derivs. of bicyclo[2.2.2]octane (cf. Alder and Stein, *C. A.* **26**, 5083), would also decomp. in a similar manner by catalytic dehydrogenation with sepn. of H and C_2H_4 and formation of $C_{10}H_8$. I (cf. Hofmann and Damm, *C. A.* **22**, 1240) failed to react on passing it in CO_2 over platinized charcoal at 150°. At 240-5° I in CO_2 and H formed *1,4-endoethylenetetrahydronaphthalene* (III), m. 63.5°. II reacts similarly to give III. III remains unchanged by passing it in CO_2 over the catalyst at 310-15°. At 340-50° it gives a few crystals with a $C_{10}H_8$ odor and uncertain m. p. In all the cases, the reaction gas contained about 93% H and no unsatd. compds. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The composition of mononaphthenes. B. A. Kazanskii, G. Gasan-Zade and E. I. Margolis. *J. Applied Chem.* (U. S. S. R.) 11, 1481-5 (in English, 1485) (1938); cf. Kazanskii and Eliseeva, *C. A.* 30, 6930^4.—The mononaphthene fractions (b. 134-8°) of the Baku and Surakhan gasoline were dehydrogenated in the presence of carbon impregnated with Pt (also with Pd) and Al_2O_3 impregnated with Ni catalysts at 300-10°. The products were sulfonated and the sulfonic acids obtained were fractionally hydrolyzed, yielding EtC_6H_5, 1,2,4-$Me_3C_6H_3$, and *m*-, *o*-, and *p*-$Me_2C_6H_4$. The initial fractions apparently contained ethylcyclohexane, 1,2,4-trimethylcyclohexane, and 1,3-, 1,2- and 1,4-dimethylcyclohexane. A. A. B.

METALLURGICAL LITERATURE CLASSIFICATION

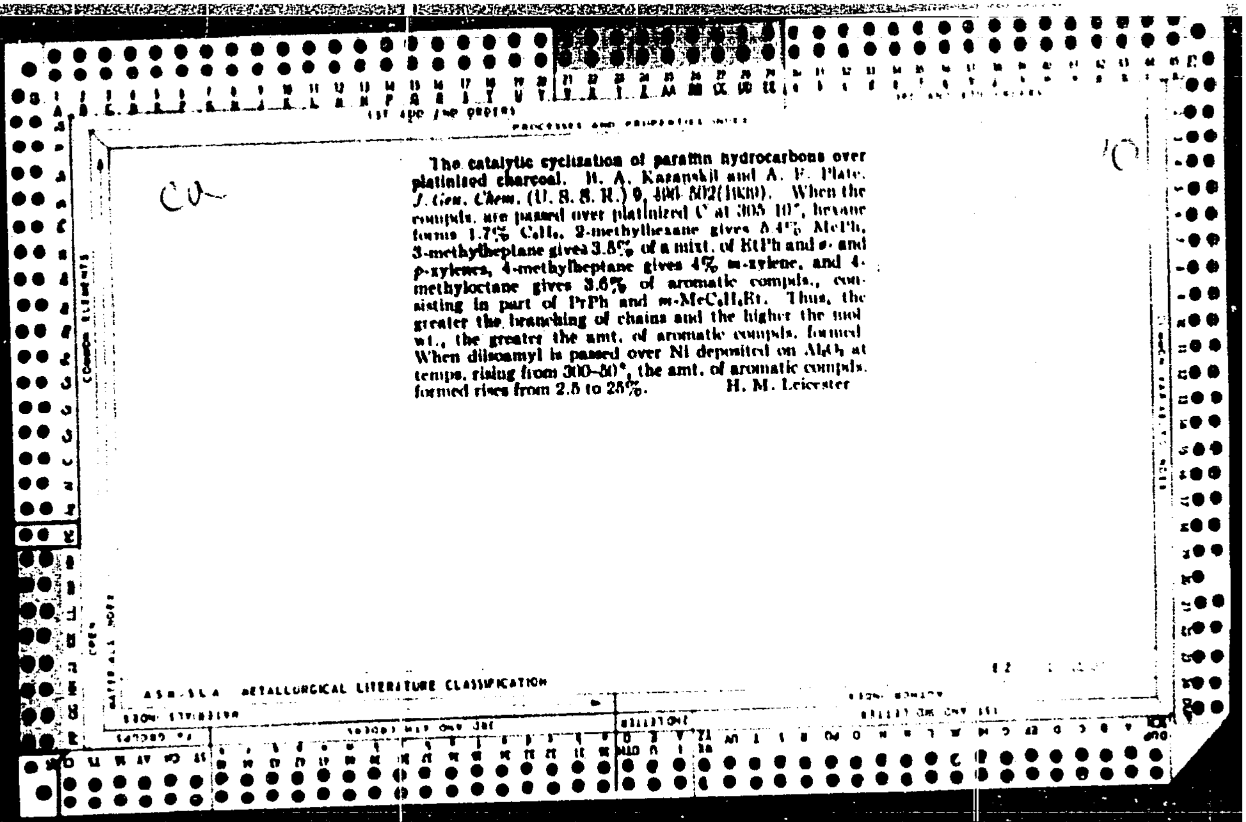
PROCESSES AND PROPERTIES INDEX

CP

10

The catalytic transformations of some homologs of cyclopentane. B. A. Kazanskii and S. R. Sergienko. *J. Gen. Chem.* (U. S. S. R.) 9, 447-52(1939). In the presence of Ni deposited on Al_2O_3 and in a H stream, butylcyclopentane breaks down even at 250° to form a considerable amt. of low-boiling compds. At higher temps. this amt. increases. Splitting of the ring with formation of 4-methyloctane also occurs. Over Ni or platinized C, isoamylcyclopentane in a N stream forms 38% of aromatic hydrocarbons. In a H stream, 2,5-dimethyloctane, b. 150-8°, n_D^{20} 1.4100, d_4^{20} 0.7370, M. R. calcd., 48.38, M. R. found, 48.34, is formed. Some naphthalene is also formed. When sec-butylcyclopentane is passed over Cr_2O_3 at 425° in a N stream, it gives 10 18% unsaturates and 11 13% aromatics. H. M. L.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



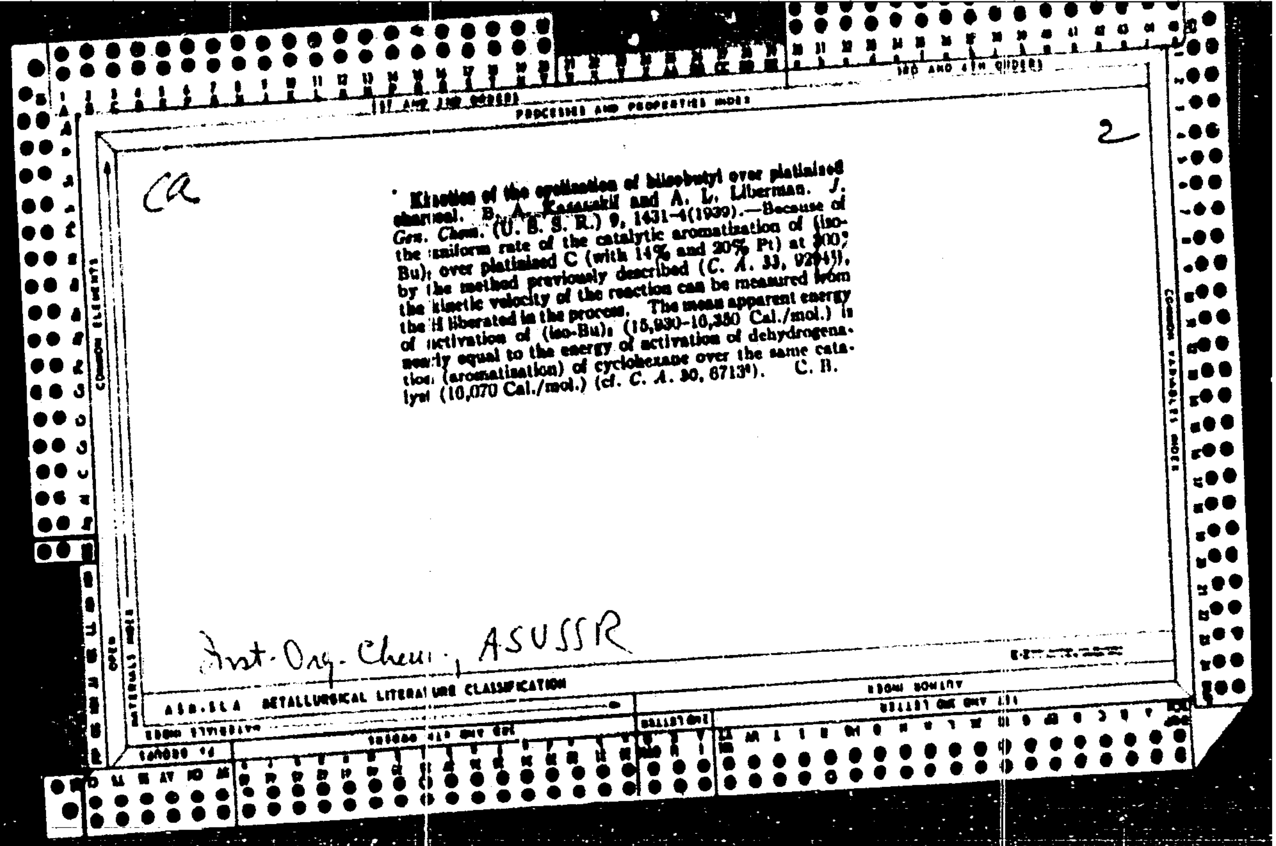
PROCESSES AND PROPERTIES INDEX

CU

10

The catalytic cyclization of paraffin hydrocarbons over platinized charcoal. B. A. Kazanskii and A. F. Plate. *J. Gen. Chem.* (U. S. S. R.) 9, 496-502(1939). When the compds. are passed over platinized C at 305-10°, hexane forms 1.7% C_6H_6, 2-methylhexane gives 5.4% MePh, 3-methylheptane gives 3.5% of a mixt. of EtPh and *o*- and *p*-xylenes, 4-methylheptane gives 4% *m*-xylene, and 4-methyloctane gives 3.6% of aromatic compds., consisting in part of PrPh and *m*-MeC_6H_4Et. Thus, the greater the branching of chains and the higher the mol. wt., the greater the amt. of aromatic compds. formed. When diisoamyl is passed over Ni deposited on Al_2O_3 at temps. rising from 300-50°, the amt. of aromatic compds. formed rises from 2.5 to 25%. H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

Kinetics of the cyclization of diisobutyl over platinised charcoal. B. A. Kazanskii and A. L. Liberman. J. Gen. Chem. (U. S. S. R.) 9, 1431-4(1939).—Because of the uniform rate of the catalytic aromatization of (iso-Bu)$_2$ over platinised C (with 14% and 20% Pt) at 300° by the method previously described (C. A. 33, 9294^1), the kinetic velocity of the reaction can be measured from the H liberated in the process. The mean apparent energy of activation of (iso-Bu)$_2$ (15,930-10,350 Cal./mol.) is nearly equal to the energy of activation of dehydrogenation (aromatisation) of cyclohexane over the same catalyst (10,070 Cal./mol.) (cf. C. A. 30, 6713^6). C. B.

Inst. Org. Chem., AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

10

Influence of the substituents on the velocity of catalytic
hydrogenation of certain trisubstituted ethylenes in the
presence of platinum. B. A. Kazanskii and G. T. Tate-
vosyan. *J. Gen. Chem.* (U. S. S. R.) 9, 1458-64(1939). -
1-Methyl-2,2-diethyl- (I), 1,2-dimethyl-1-phenyl- (II), 1-
methyl-2,2-diphenyl- (III) and triphenylethylene (IV) were
prepd. by known methods. The individual ethylenes and
equimol. mixts. of I with II, III and IV were hydrogenated
in 96% alc. in the presence of Pt black at room temp. by
the method described in an earlier paper (C. A. 33, 4214^{9}).
The graphic results show that the velocity of hydrogenation
of trisubstituted ethylenes decreases with increasing no. of
aryl substituents in the mol. The drop in velocity is par-
ticularly sharp with the introduction of a 2nd aryl substitu-
ent. The hydrogenation of mixed hydrocarbons proceeds
simultaneously. However, because of the different char-
acter of substituents and the resulting difference in the
hydrogenation velocity of the individual hydrocarbons and
the distribution of H between the components of mixts.,
the reaction shows some selectivity, which becomes more
pronounced with greater no. of Ph substituents in the 2nd
Chas. Blanc
component.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

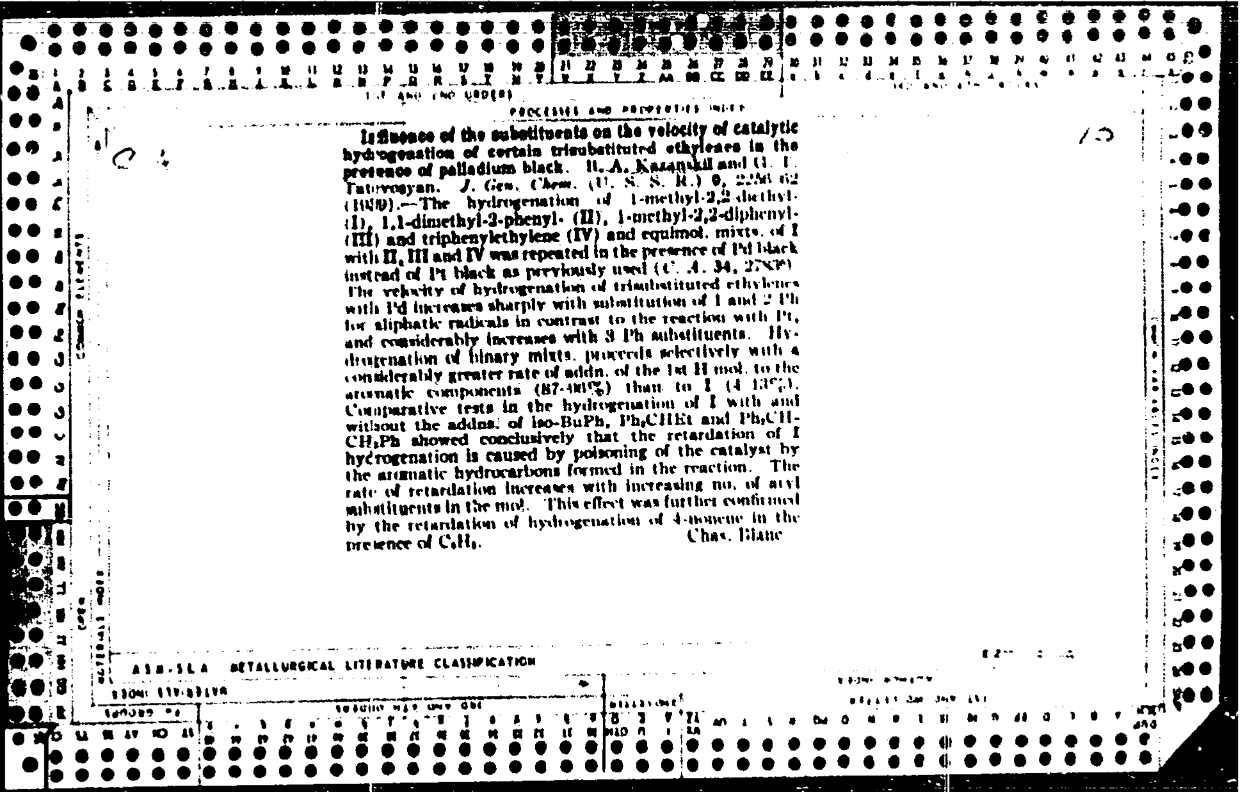
OC

A-3

Preparation of diethyl cyclobutane-1:1-dicarboxylate by Kishner's method. B. A. KAZANSKI (J. Gen. Chem. Russ., [illegible], 9, [illegible]).—The low yield of Et_2 cyclobutane-1:1-dicarboxylate (I) reported by Venus-Danilova (A., [illegible]) following Kishner's instructions (A., [illegible], i, 706) is ascribed to a misprint in Kishner's paper; using 1 g.-mol. of $Cl\cdot[CH_2]_3\cdot Br$ per g.-mol. of $CH_2(CO_2Et)_2$, the yield of (I) is 80%, as obtained by Kishner.

R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

15

Influence of the substituents on the velocity of catalytic hydrogenation of certain trisubstituted ethylenes in the presence of palladium black. B. A. Kazanskiĭ and G. T. Tatevosyan. *J. Gen. Chem.* (U. S. S. R.) 9, 2256-62 (1939).—The hydrogenation of 1-methyl-2,2-diethyl- (I), 1,1-dimethyl-2-phenyl- (II), 1-methyl-2,2-diphenyl- (III) and triphenylethylene (IV) and equimol. mixts. of I with II, III and IV was repeated in the presence of Pd black instead of Pt black as previously used (*C. A.* 34, 2789). The velocity of hydrogenation of trisubstituted ethylenes with Pd increases sharply with substitution of 1 and 2 Ph for aliphatic radicals in contrast to the reaction with Pt, and considerably increases with 3 Ph substituents. Hydrogenation of binary mixts. proceeds selectively with a considerably greater rate of addn. of the 1st H mol. to the aromatic components (87-100%) than to I (4-13%). Comparative tests in the hydrogenation of I with and without the addns. of iso-BuPh, Ph_2CHEt and Ph_2CHCH_2Ph showed conclusively that the retardation of I hydrogenation is caused by poisoning of the catalyst by the aromatic hydrocarbons formed in the reaction. The rate of retardation increases with increasing no. of aryl substituents in the mol. This effect was further confirmed by the retardation of hydrogenation of 4-nonene in the presence of C_6H_6. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKIY4B8A8 600

1. KAZANSKIY, B. A., TATEVOSYAN, G. T.

2. USSR (600)

"The Catalytic Fixation of Hydrogen in Compounds Having Several Double Bonds -- II. The Hydrogenation of Dimethylfulvene", Zhur. Obshch. Khim., 9, No. 24, 1939 Inst. of Organic Chem. of the Acad. of Sci. USSR, Div. of Acad. N. D. Zelinskiy. Received 9 July 1939.

9. [redacted] Report U-1626, 11 Jan 1952

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

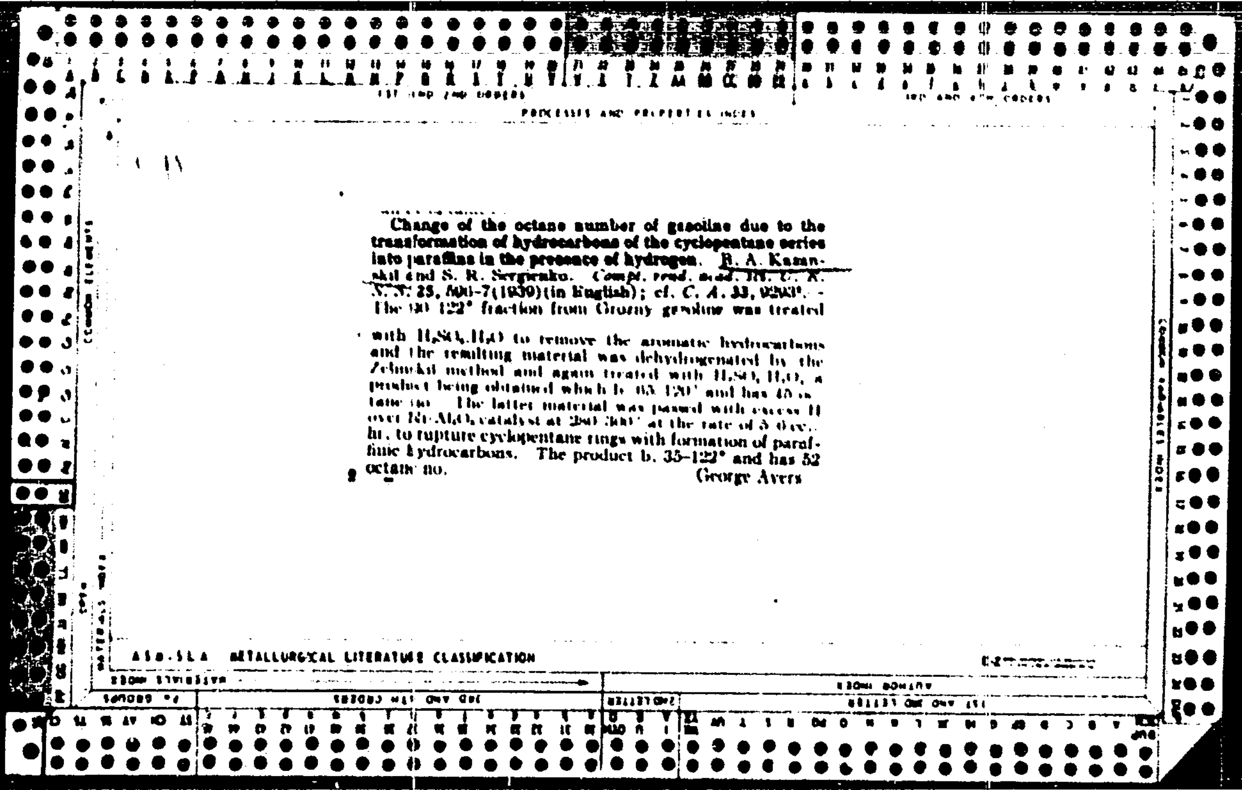
ca

10

Catalytic cyclization of 2,6-dimethyloctane in the presence of platinized charcoal. B. A. Kazanskii, A. F. Plate and E. K. Gol'dman. *Compt. rend. acad. sci. U. R. S. S.* 23, 250 (1939)(in English). 2,6-Dimethyloctane, prepd. (1) by hydrogenation of alloocimene over Ni-asbestos at 170°, yielding a product b_{760} 159-61°, n_D^{20} 1.4139, d_{20} 0.7280, and (2) by distn. of citral hydrazone with KOH and platinized charcoal, was distd. twice through a glass tube at 305-310° in the presence of platinized charcoal, resulting in partial conversion (10% of the product was sol. in fuming H_2SO_4) into *p*-cymene (proved by conversion into Ba *p*-cymenesulfonate).

George Ayers

A S B - S L A METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Change of the octane number of gasoline due to the transformation of hydrocarbons of the cyclopentane series into paraffins in the presence of hydrogen. B. A. Kazanskii and S. R. Sergienko. *Compt. rend. acad. sci. U. R. S. S.* 25, 600-7(1939)(in English); cf. *C. A.* 33, 9293. — The 90-122° fraction from Grozny gasoline was treated with $H_2SO_4.H_2O$ to remove the aromatic hydrocarbons and the resulting material was dehydrogenated by the Zelinskii method and again treated with $H_2SO_4.H_2O$, a product being obtained which b. 85-120° and has 40 octane no. The latter material was passed with excess H over Pt-Al_2O_3 catalyst at 280-300° at the rate of 5 cc./hr. to rupture cyclopentane rings with formation of paraffinic hydrocarbons. The product b. 35-122° and has 52 octane no.

George Ayers

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKII, Boris Aleksandrovich,

Kazanskii, Boris Aleksandrovich, 1891- ,ed. Synthetic liquid fuel from carbon oxide and hydroxide S predisloviem N. D. Zelinskogo. Moskva, Gos. nauchno-tekhn. izdat. khim. lit., 1940 359 p.

PROCESSES AND PROPERTIES INDEX

B C

[illegible] aromatization of paraffin hydrocarbons. B. A. Kazanskii [illegible] — Platinized C at 310— [illegible] into p-xylene etc. [illegible] Al_2O_3 [illegible] the Pt on C. When 1 c.c. per hr. of a paraffin mixture [illegible] is passed over 10 c.c. of an oxide catalyst, aromatization takes place at 450—500°. The activity of Cr_2O_3 increases from "commercial" to "pptd. by NH_3 from aq. $Cr(NO_3)_3$" to "pptd. from aq. $Cr(NO_3)_3$ on ignited Cr_2O_3." The activity of these catalysts gradually decreases, especially if they have been used intermittently; heating in air followed by reduction with H_2 restores the activity. V_2O_5 and ThO_2 are inactive but the mixtures V_2O_5 1, Al_2O_3 10—20, and ThO_2 1, Al_2O_3 10 are efficient catalysts at 500°. ThO_2 may also be deposited on C. J. J. B.

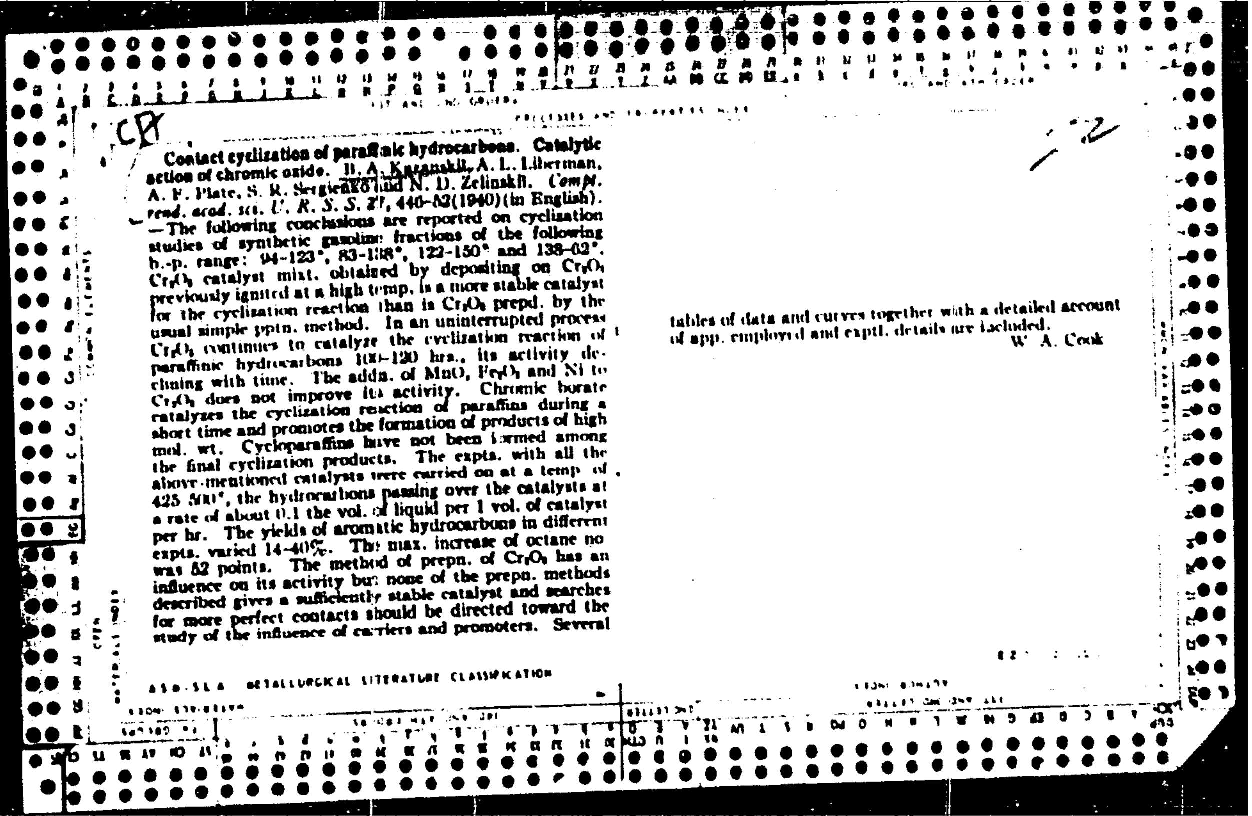
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

2 2

Contact cyclization of paraffinic hydrocarbons. N. D. Zelinskii, B. A. Kazanskii, A. L. Liberman, I. B. Losik, A. F. Plate and S. R. Sergienko. (*Compt. rend. acad. sci. U. R. S. S.* 27, 443-5(1940)(in English).—The present paper is a report on the extension of earlier studies and on other closely related work (*C. A.* 33, 9212^9) and pertains to the problem of the duration of the working period of catalysts. Synthetic gasoline fractions (synthine) consisting of paraffin hydrocarbons contg. 7 to 10 C atoms and a small quantity of normal olefins (about 10%) were employed with a tested Cr_2O_3 specimen prepd. by pptn. with NH_3 from a trivalent Cr salt soln. It was very energetic in catalyzing the cyclization reaction but its activity decreased gradually although active for more than 100 hrs. The behavior of Cr_2O_3 ignited at 750-800° demonstrated a noticeable activity for the first few hrs. of use and was completely deactivated in 10-15 hrs. When Cr_2O_3 was deposited from a soln. of $Cr(NO_3)_3$ on the ignited oxide used as a carrier, the resulting catalyst mixt. successfully accelerated the paraffinic cyclization and displayed a greater stability than Cr_2O_3 prepd. in the usual way. The behavior of a catalyst mixt. prepd. by depositing Cr_2O_3 on Al_2O_3 was likewise studied. Thus it was observed that even when the content of Cr_2O_3 in such contacts was as low as 7%, the reaction of aromatization of paraffins proceeded with sufficient effect and the catalyst was capable of being regenerated with air. An even greater influence of the carrier on the activity and stability of catalysts in this reaction was observed in the case of contacts contg. V_2O_3 or ThO_2. While Al_2O_3 or V_2O_3 alone did not promote paraffinic cyclization under the conditions employed, the addn. of 5-10% V_2O_3 or ThO_2 to the Al_2O_3 yielded a catalyst which stimulated aromatization to a considerable degree. The same observations were made with Mo and U oxides.

W. A. Cook

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION



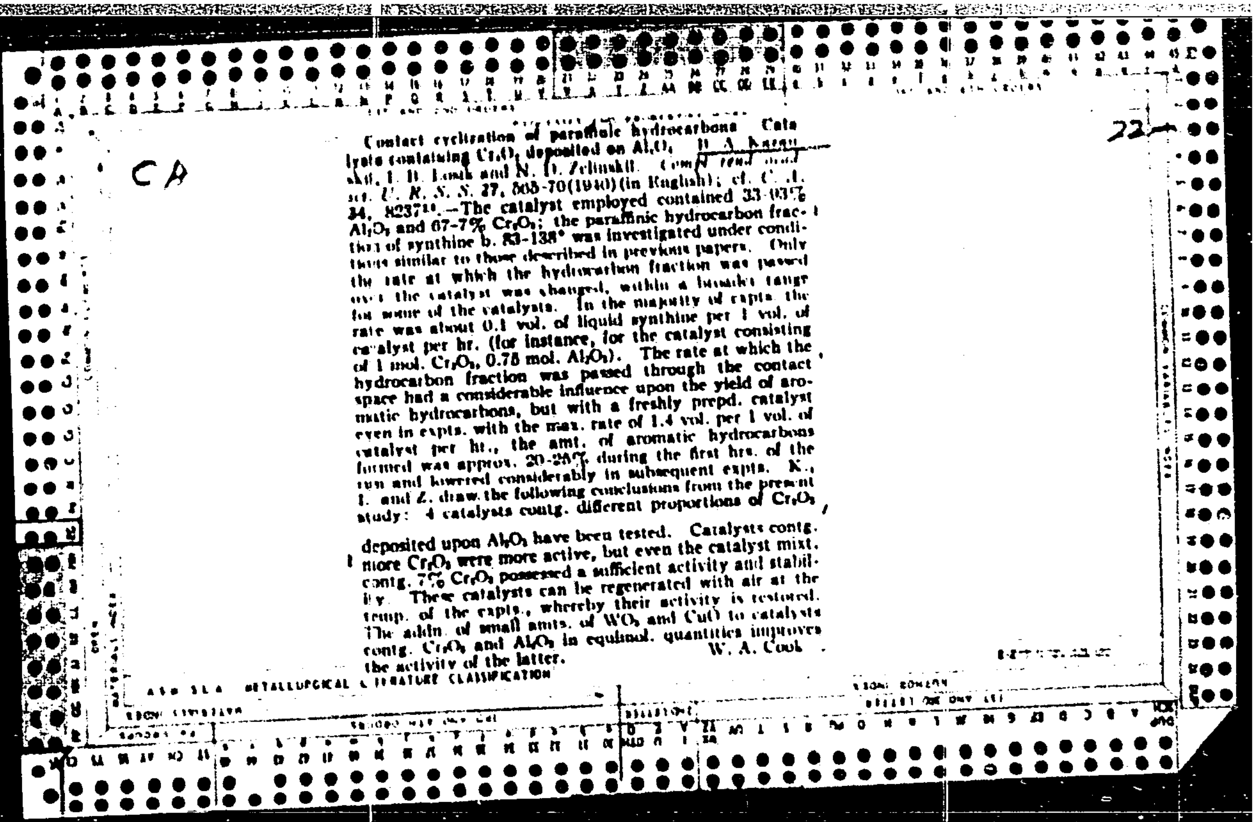
CR

2

Contact cyclization of paraffinic hydrocarbons. Catalytic action of chromic oxide. B. A. Kazanskii, A. L. Liberman, A. F. Plate, S. R. Sergienko and N. D. Zelinskii. *Compt. rend. acad. sci. U. R. S. S.* 27, 440-52(1940)(in English). —The following conclusions are reported on cyclization studies of synthetic gasoline fractions of the following b.-p. range: 94-123°, 83-138°, 122-150° and 138-62°. Cr_2O_3 catalyst mixt. obtained by depositing on Cr_2O_3 previously ignited at a high temp. is a more stable catalyst for the cyclization reaction than is Cr_2O_3 prepd. by the usual simple pptn. method. In an uninterrupted process Cr_2O_3 continues to catalyze the cyclization reaction of paraffinic hydrocarbons 100-120 hrs., its activity declining with time. The addn. of MnO, Fe_2O_3 and Ni to Cr_2O_3 does not improve its activity. Chromic borate catalyzes the cyclization reaction of paraffins during a short time and promotes the formation of products of high mol. wt. Cycloparaffins have not been formed among the final cyclization products. The expts. with all the above-mentioned catalysts were carried on at a temp. of 425-500°, the hydrocarbons passing over the catalysts at a rate of about 0.1 the vol. of liquid per 1 vol. of catalyst per hr. The yields of aromatic hydrocarbons in different expts. varied 14-40%. The max. increase of octane no. was 52 points. The method of prepn. of Cr_2O_3 has an influence on its activity but none of the prepn. methods described gives a sufficiently stable catalyst and searches for more perfect contacts should be directed toward the study of the influence of carriers and promoters. Several tables of data and curves together with a detailed account of app. employed and exptl. details are included.

W. A. Cook

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

22

Contact cyclization of paraffinic hydrocarbons. Catalysts containing Cr_2O_3 deposited on Al_2O_3. B. A. Kazanskii, I. B. Losik and N. D. Zelinskii. Compt. rend. acad. sci. U. R. S. S. 27, 565-70(1940)(in English); cf. C. A. 34, 8237^1.—The catalyst employed contained 33-93% Al_2O_3 and 67-7% Cr_2O_3; the paraffinic hydrocarbon fraction of synthine b. 83-138° was investigated under conditions similar to those described in previous papers. Only the rate at which the hydrocarbon fraction was passed over the catalyst was changed, within a broader range for some of the catalysts. In the majority of expts. the rate was about 0.1 vol. of liquid synthine per 1 vol. of catalyst per hr. (for instance, for the catalyst consisting of 1 mol. Cr_2O_3, 0.75 mol. Al_2O_3). The rate at which the hydrocarbon fraction was passed through the contact space had a considerable influence upon the yield of aromatic hydrocarbons, but with a freshly prepd. catalyst even in expts. with the max. rate of 1.4 vol. per 1 vol. of catalyst per hr., the amt. of aromatic hydrocarbons formed was approx. 20-25% during the first hrs. of the run and lowered considerably in subsequent expts. K., L. and Z. draw the following conclusions from the present study: 4 catalysts contg. different proportions of Cr_2O_3 deposited upon Al_2O_3 have been tested. Catalysts contg. more Cr_2O_3 were more active, but even the catalyst mixt. contg. 7% Cr_2O_3 possessed a sufficient activity and stability. These catalysts can be regenerated with air at the temp. of the expts., whereby their activity is restored. The addn. of small amts. of WO_3 and CuO to catalysts contg. Cr_2O_3 and Al_2O_3 in equimol. quantities improves the activity of the latter.

W. A. Cook

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

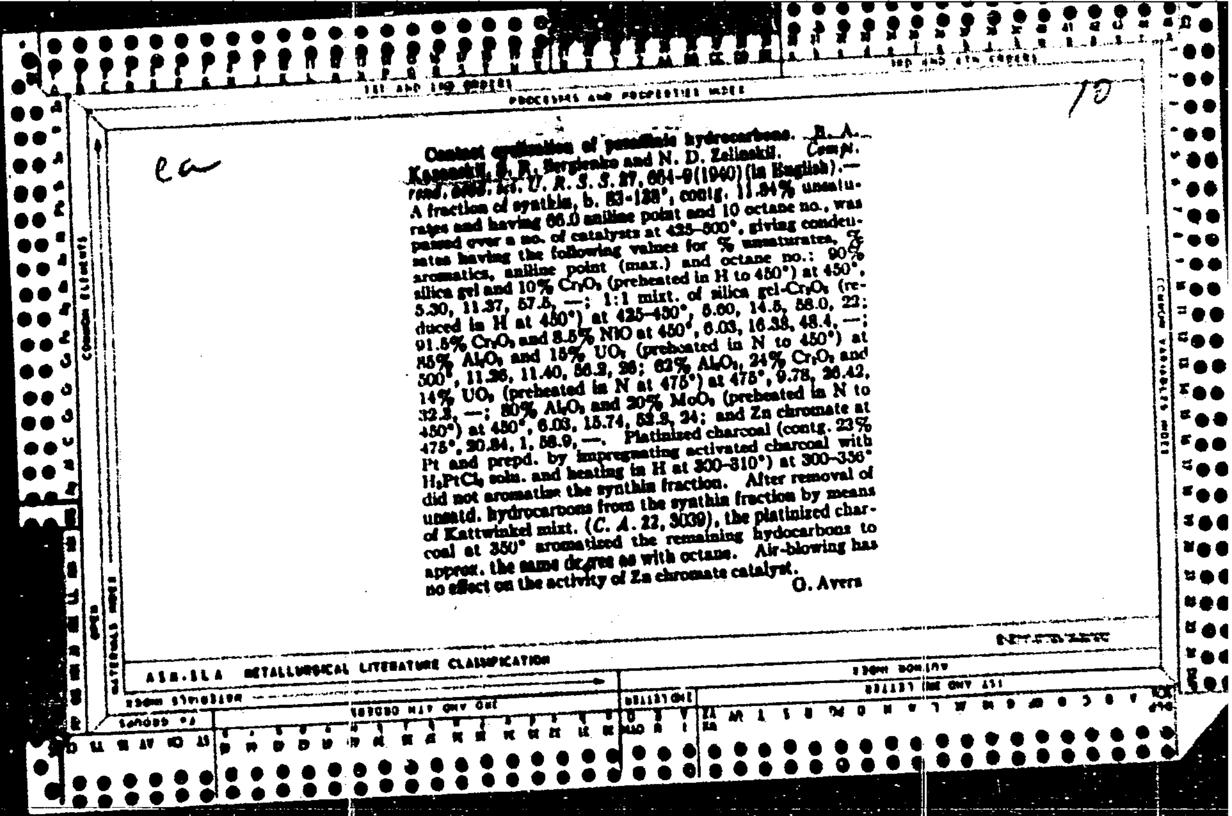
ca

10

Contact cyclization of paraffinic hydrocarbons. Catalysts containing vanadium pentoxide and thorium dioxide. B. A. Kazanskii, A. F. Platé, T. F. Bulanova and N. D. Zelinskii. *Compt. rend. acad. sci. U. R. S. S.* **27**, 658-63 (1940) (in English).—When a synthin fraction, b. 83-138°, was passed over V_2O_5 at approx. 500°, NH_4VO_3 (preliminary heating to 500° in N) at 500° or Al_2O_3 at 450-555°, there was practically no formation of aromatic hydrocarbons. Alumina with 5-10% of V_2O_5 at 475-500° catalyzes the formation of aromatic hydrocarbons from synthin fractions which b. 83-138° and 163-205°, resp., but gradually loses its activity, becoming covered with C; the catalyst readily regains its original activity by heating in a current of air. Cr_2O_3 with 10% V_2O_5 at 450-470° showed considerable catalytic activity, but rapidly lost its activity. Parby kieselguhr with 10% V_2O_5 did not catalyze the formation of aromatic hydrocarbons from a synthin fraction b. 83-138°. Alumina with 10% ThO_2 catalyzed the formation of aromatic hydrocarbons from the same synthin fraction. The catalytic activity of alumina with 10% ThO_2 at 500° for the formation of aromatic hydrocarbons from the same synthin fraction increased slowly and then slowly decreased; the catalyst can be regenerated by heating with air. Alumina with 10% V_2O_5 and 2% ThO_2 at 475-500° acted in the same manner as alumina with 10% V_2O_5. Activated charcoal with 10% ThO_2 at 450-470° catalyzed considerably the formation of aromatic hydrocarbons from the synthin fraction, but the catalyst declined somewhat rapidly in activity and was not satisfactorily regenerated with air.

George Ayers

ASM-SLA METALLURGICAL LITERAT



10

ca

Contact cyclization of paraffinic hydrocarbons. B. A. Kazanskii, S. R. Sergienko and N. D. Zelinskii. *Compt. rend. acad. sci. U. R. S. S.* 27, 664-9(1940)(in English).—
A fraction of synthin, b. 83-138°, contg. 11.84% unsatu-
rates and having 66.0 aniline point and 10 octane no., was
passed over a no. of catalysts at 425-500°, giving conden-
sates having the following values for % unsaturates, %
aromatics, aniline point (max.) and octane no.: 90%
silica gel and 10% Cr_2O_3 (preheated in H to 450°) at 450°,
5.30, 11.37, 57.5, —; 1:1 mixt. of silica gel-Cr_2O_3 (re-
duced in H at 450°) at 425-450°, 6.60, 14.5, 58.0, 22;
91.5% Cr_2O_3 and 8.5% NiO at 450°, 6.03, 16.38, 48.4, —;
85% Al_2O_3 and 15% UO_3 (preheated in N to 450°) at
500°, 11.26, 11.40, 56.2, 26; 62% Al_2O_3, 24% Cr_2O_3 and
14% UO_3 (preheated in N at 475°) at 475°, 9.78, 26.42,
32.3, —; 80% Al_2O_3 and 20% MoO_3 (preheated in N to
450°) at 450°, 6.03, 15.74, 52.8, 24; and Zn chromate at
475°, 20.84, 1, 58.9, —. Platinized charcoal (contg. 23%
Pt and prepd. by impregnating activated charcoal with
H_2PtCl_6 soln. and heating in H at 300-310°) at 300-336°
did not aromatize the synthin fraction. After removal of
unsatd. hydrocarbons from the synthin fraction by means
of Kattwinkel mixt. (*C. A.* 22, 3039), the platinized char-
coal at 350° aromatized the remaining hydocarbons to
approx. the same degree as with octane. Air-blowing has
no effect on the activity of Zn chromate catalyst.

O. Avers

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKIY, B. A., EYDUS, Ya. T. and ZELINSKIY, N. D.

"The Influence of the Type of Carrier on the Synthesis of Liquid Hydrocarbons Over Ni-MnO-Al_2O_3 Catalysts at Atmospheric Pressure," Iz. Ak. Nauk, SSSR, Otdel Tekh Nauk, pp 27-33, 1941

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3RD AND 4TH ORDERS

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KAZANSKIY, B

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The Academy member, N. D. Zelinskii. B. Kazanskii. *J. Chem. Ind.* (U. S. S. R.) 18, No. 11, 4-7(1941).—An appreciation of the Russian scientist on his 80th birthday.

C. I. H.

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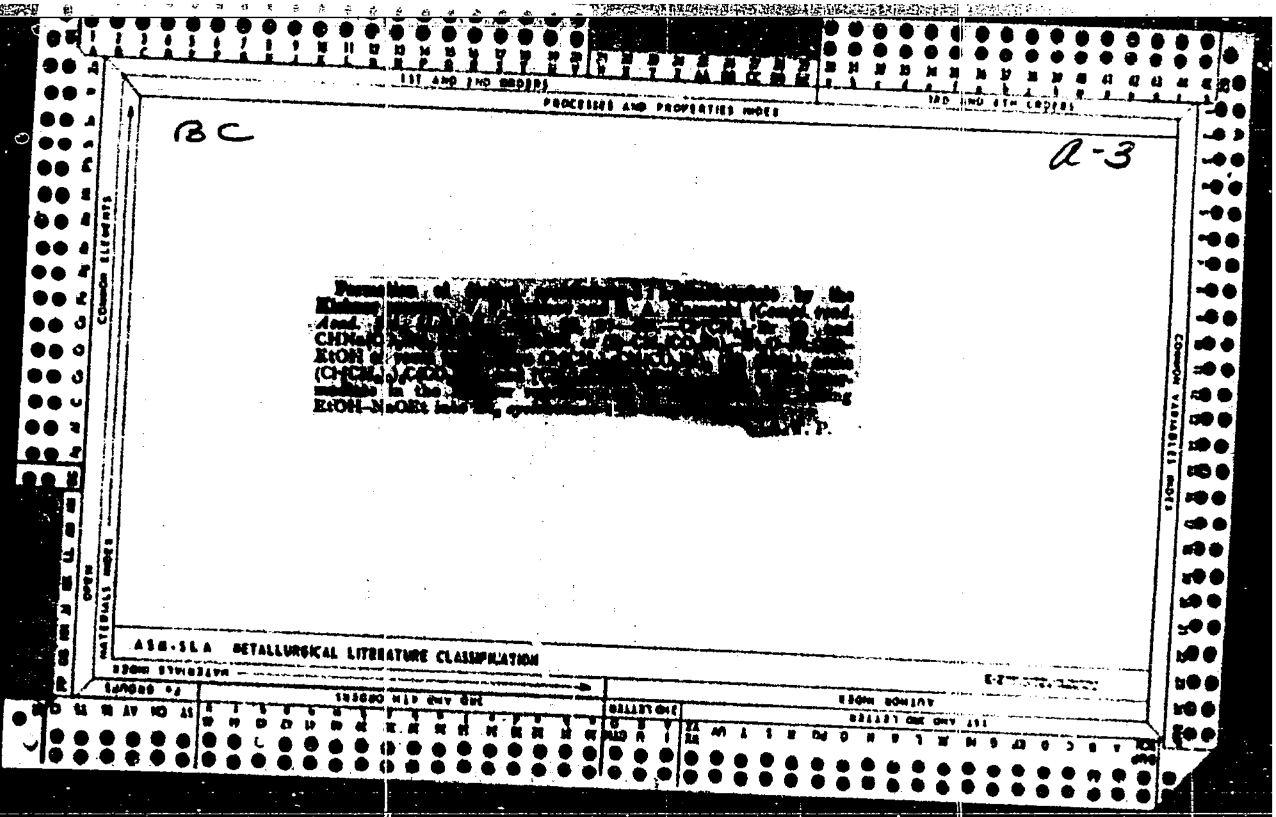


BC

a-3

Formation of [illegible] by the [illegible] (Compt. rend. Acad. [illegible] CHNaO [illegible] EtOH [illegible] (CHCH [illegible] in the [illegible] EtOH–NaOEt into [illegible]

[illegible] P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKIY

KASANSKY, B. A.

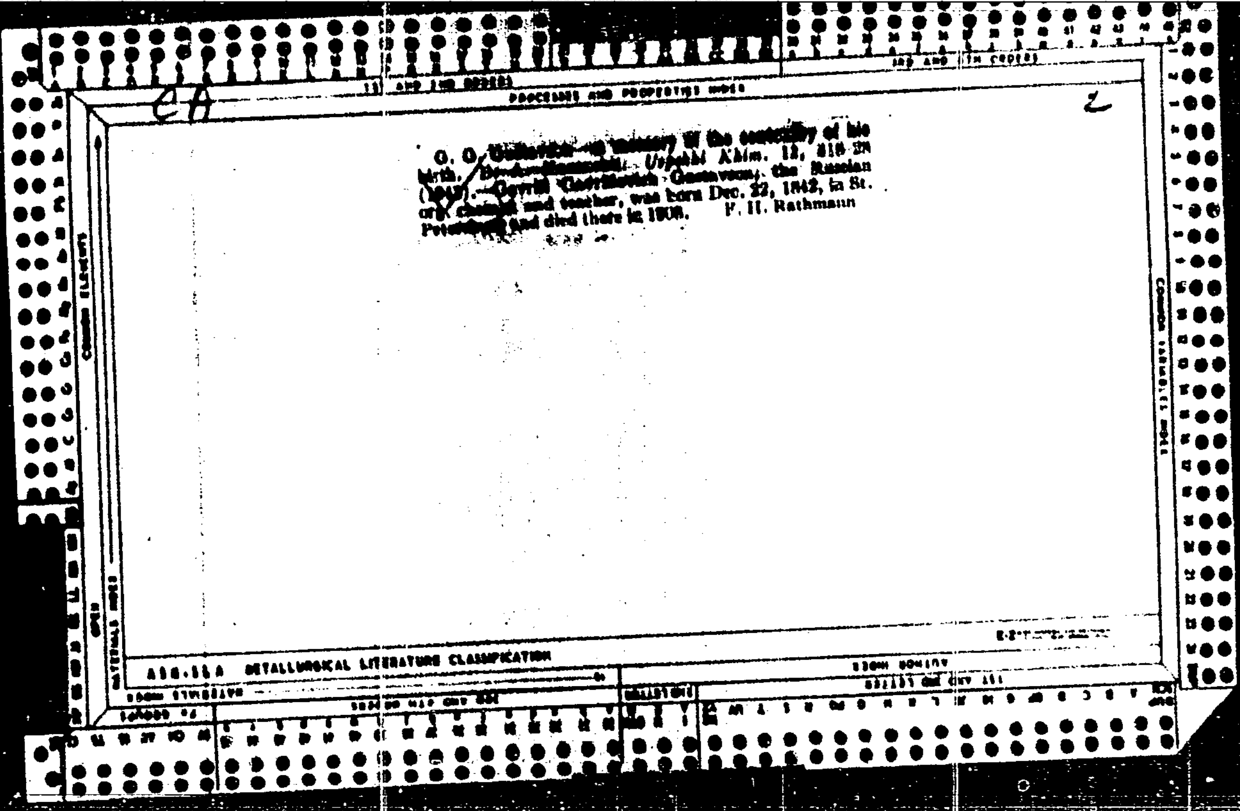
"The relative Efficiencies of Laboratory fractionating Columns of various Construction."
Kasansky, B. A., Liberman, A. L., Serguienko, S. R., Tarassowa, G. A., and Plate, A. F.
(p. 122)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1942, Vol 12, No 1-2.

KAZANSKY, B. A.

"Polymerisation of butylenes on an alumosilicate catalyst." Kazansky, B. A., and Rosengart, M. I. (p. 254)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1942, Vol 12, No 5-6.



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G. G. Gustavson—in memory of the centenary of his birth. [illegible] Uspekhi Khim. 12, 416-28 ([illegible]).—Gavriil Gavrilovich Gustavson, the Russian org. chemist and teacher, was born Dec. 22, 1842, in St. Petersburg and died there in 1908. F. H. Rathmann

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Influence of the diameter of laboratory columns with Fenske packing upon their effectiveness and productivity. B. A. Kazanskii, A. L. Liberman and O. D. Sterligov. J. Gen. Chem. (U. S. S. R.) 13, 125-30(1943)(English summary).—The authors showed that, within the limits studied (8-30 mm.), the diam. of the inner column of lab. fractionating stills packed with Fenske packing (cf. C. A. 29, 1^{7}) do not affect appreciably the efficiency of such columns, although the throughput increases sharply with increased diam.

G. M. Kosolapoff

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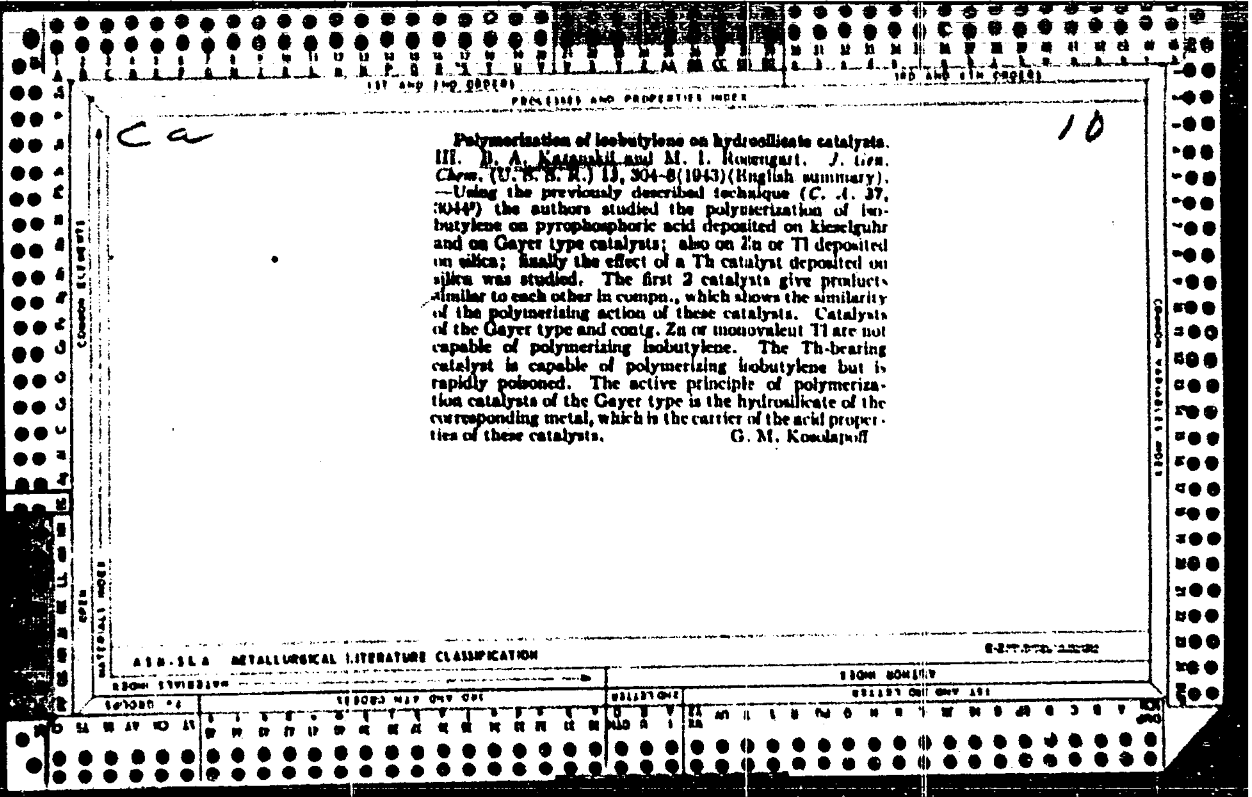

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Polymerization of isobutylene on hydrosilicate catalysts. III. B. A. Kazanskii and M. I. Rosengart. *J. Gen. Chem.* (U. S. S. R.) 13, 304-8(1943)(English summary). —Using the previously described technique (*C. A.* 37, 3044^9) the authors studied the polymerization of isobutylene on pyrophosphoric acid deposited on kieselguhr and on Gayer type catalysts; also on Zn or Tl deposited on silica; finally the effect of a Th catalyst deposited on silica was studied. The first 2 catalysts give products similar to each other in compn., which shows the similarity of the polymerizing action of these catalysts. Catalysts of the Gayer type and contg. Zn or monovalent Tl are not capable of polymerizing isobutylene. The Th-bearing catalyst is capable of polymerizing isobutylene but is rapidly poisoned. The active principle of polymerization catalysts of the Gayer type is the hydrosilicate of the corresponding metal, which is the carrier of the acid properties of these catalysts. G. M. Kosolapoff

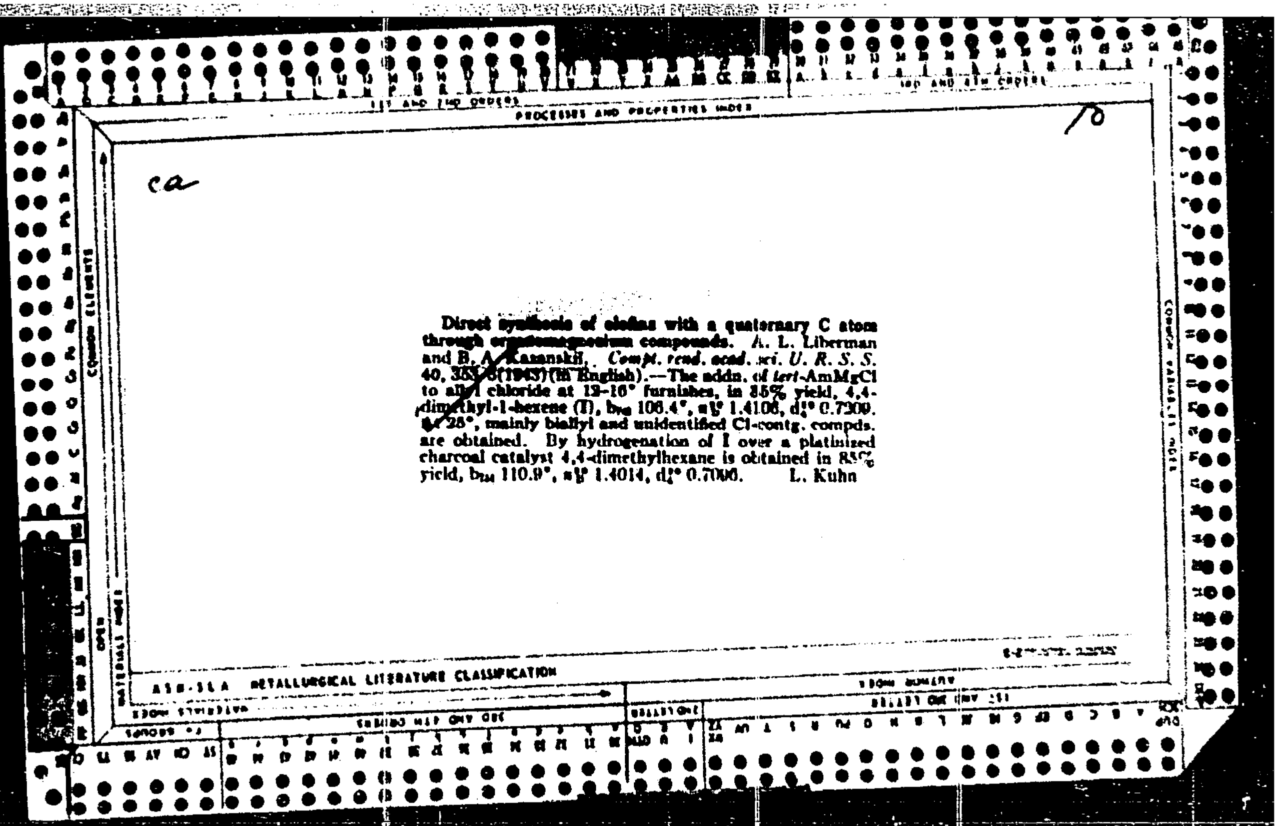
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible]

KASANSKY, B. A.

"Polymerization of Isobutylene on Hydrosilicate Catalysts". Kasansky, B. A. and Rosengart, M. I. (p. 308)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1943, Volume 13, no. 4-5-



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Direct synthesis of olefins with a quaternary C atom through organomagnesium compounds. A. L. Liberman and B. A. Kazanskii. *Compt. rend. acad. sci. U. R. S. S.* 40, 355-6(1943)(in English).—The addn. of *tert*-AmMgCl to allyl chloride at 12-16° furnishes, in 85% yield, 4,4-dimethyl-1-hexene (I), b_{760} 106.4°, n_D^{20} 1.4106, d_4^{20} 0.7309. [illegible] 25°, mainly biallyl and unidentified Cl-contg. compds. are obtained. By hydrogenation of I over a platinized charcoal catalyst 4,4-dimethylhexane is obtained in 85% yield, b_{744} 110.9°, n_D^{20} 1.4014, d_4^{20} 0.7006. L. Kuhn

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Hydrogenation of dimedon. A. I. Liberman and B. A. Kazanskii. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1946, 77-82(in Russian).—Dimedon (I) in aq. suspension of Pt black does not adsorb H at any significant rate and addn. of HCl does not improve it; a somewhat greater hydrogenation rate was observed in AcOH, but this rapidly dwindled to 0. I and an aq. suspension of platinized C also do not absorb H; addn. of a little H_2PtCl_6, however, led to theoretical absorption of H. I (40 g.), 150 ml. AcOH, 1 g. platinized C, and 6 ml. H_2PtCl_6 soln. (0.03 g. Pt/ml.) were treated with H over 45-65 hrs. with intermittent addn. of 1.5 g. platinized C and 15-20 ml. H_2PtCl_6 soln.; addn. of NaOH and distn. gave an oil (89.5 g. from 3 expts.) which on redistn. gave 10 g. *1,1-dimethylcyclohexane*, b_{760} 119.3°, d_4^{20} 0.7809, n_D^{20} 1.4294, $n_D^{10.7}$ 1.4313, and 61.4 g. of a mixt. (47.5:52.5) of *3,3-dimethylcyclohexanol* and *3,3-dimethylcyclohexyl acetate*, b. 175-200°; treatment of the mixt. with AcCl gave pure *3,3-dimethylcyclohexyl acetate*, b_{760} 196-98.9°, d_4^{20} 0.9370, n_D^{20} 1.4413, n_D^{25} 1.4387. Similar hydrogenation of I in Et_2O gave 18.8% 1,1-dimethylcyclohexane and 40.1% 3,3-dimethylcyclohexanol (isolated as the acetate); hydrogenation in dioxane gave 10% and 40%, resp., while use of H_2O for solvent gave exclusively the latter substance. Pyrolysis of 48 g. 3,3-dimethylcyclohexyl acetate at 450° by passage through a tube packed with glass wool gave 70.3% of a mixt. of *3,3-dimethylcyclohexene* and *4,4-dimethylcyclohexene*, b. 115.2-16.2°, n_D^{20} 1.4428; hydrogenation without a solvent over Pt black gave 1,1-dimethylcyclohexane, b_{760} 118.8°, d_4^{20} 0.7810, n_D^{20} 1.4293.

G. M. Kosolapoff

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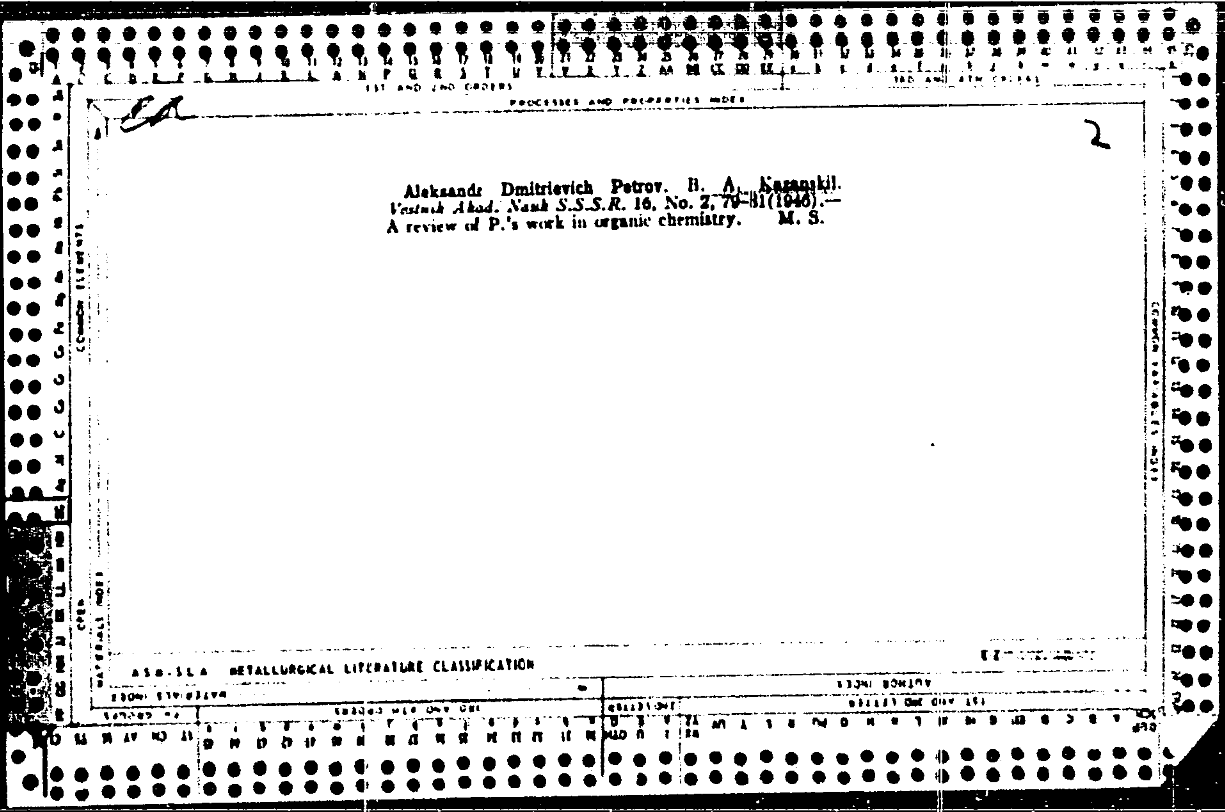

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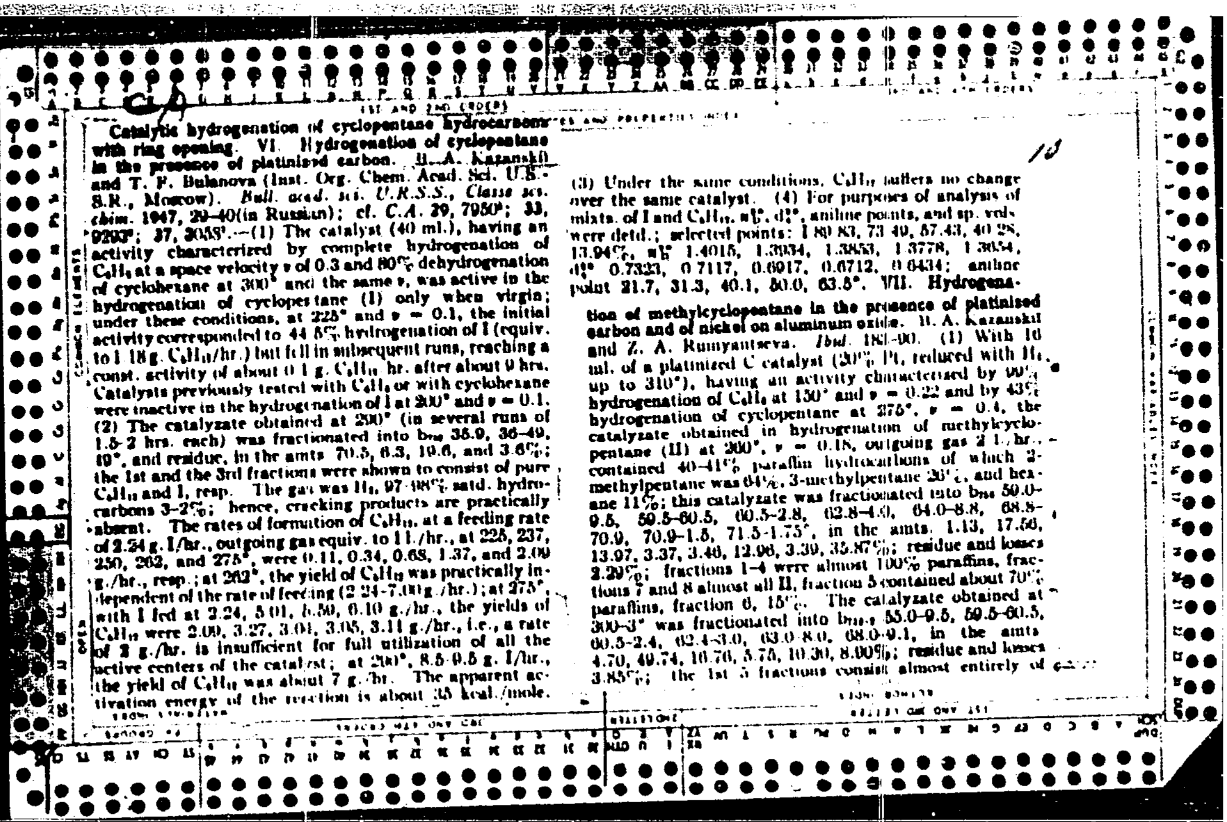
Aleksandr Dmitrievich Petrov. B. A. Kazanskii. *Vestnik Akad. Nauk S.S.S.R.* 16, No. 2, 79-81(1946).—A review of P.'s work in organic chemistry. M. S.

KAZANSKIY

KASANSKY, B. A.

"Catalytic Hydrogenation of a-Nitronaphthalene " by B A Kasansky and M. S. Promyslov
(P. 815)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii 1946, Volume 16, No. 6



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Catalytic hydrogenation of cyclopentane hydrocarbons with ring opening. VI. Hydrogenation of cyclopentane in the presence of platinized carbon. B. A. Kazanskii and T. F. Bulanova (Inst. Org. Chem. Acad. Sci. U.S.S.R., Moscow). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1947, 29-40 (in Russian); cf. *C.A.* 39, 7950^a; 33, 9293^a; 37, 3058^a.—(1) The catalyst (40 ml.), having an activity characterized by complete hydrogenation of C_6H_6 at a space velocity v of 0.3 and 80% dehydrogenation of cyclohexane at 300° and the same v, was active in the hydrogenation of cyclopentane (I) only when virgin; under these conditions, at 225° and v = 0.1, the initial activity corresponded to 44.5% hydrogenation of I (equiv. to 1.18 g. C_5H_{12}/hr.) but fell in subsequent runs, reaching a const. activity of about 0.1 g. C_5H_{12}/hr. after about 9 hrs. Catalysts previously tested with C_6H_6 or with cyclohexane were inactive in the hydrogenation of I at 300° and v = 0.1. (2) The catalyzate obtained at 290° (in several runs of 1.5-2 hrs. each) was fractionated into b_{760} 35.9, 36-49, 49°, and residue, in the amts 70.5, 8.3, 19.6, and 3.6%; the 1st and the 3rd fractions were shown to consist of pure C_5H_{12} and I, resp. The gas was H_2, 97-98% satd. hydrocarbons 3-2%; hence, cracking products are practically absent. The rates of formation of C_5H_{12}, at a feeding rate of 2.24 g. I/hr., outgoing gas equiv. to 1 l./hr., at 225, 237, 250, 262, and 275°, were 0.11, 0.34, 0.68, 1.37, and 2.09 g./hr., resp.; at 262°, the yield of C_5H_{12} was practically independent of the rate of feeding (2.24-7.00 g./hr.); at 275°, with I fed at 2.24, 5.01, 6.50, 9.10 g./hr., the yields of C_5H_{12} were 2.09, 3.27, 3.01, 3.05, 3.11 g./hr., i.e., a rate of 2 g./hr. is insufficient for full utilization of all the active centers of the catalyst; at 290°, 8.5-9.5 g. I/hr., the yield of C_5H_{12} was about 7 g./hr. The apparent activation energy of the reaction is about 35 kcal./mole. (3) Under the same conditions, C_5H_{12} suffers no change over the same catalyst. (4) For purposes of analysis of mixts. of I and C_5H_{12}, n_D^{20}, d_4^{20}, aniline points, and sp. vols. were detd.; selected points: I 80.83, 73.40, 57.43, 40.28, 13.94%, n_D^{20} 1.4015, 1.3934, 1.3853, 1.3778, 1.3654, d_4^{20} 0.7323, 0.7117, 0.6917, 0.6712, 0.6434; aniline point 21.7, 31.3, 40.1, 50.0, 63.5°. **VII. Hydrogenation of methylcyclopentane in the presence of platinised carbon and of nickel on aluminum oxide.** B. A. Kazanskii and Z. A. Rumyantseva. *Ibid.* 181-90. (1) With 10 ml. of a platinized C catalyst (20% Pt, reduced with H_2 up to 310°), having an activity characterized by 90% hydrogenation of C_6H_6 at 150° and v = 0.22 and by 43% hydrogenation of cyclopentane at 275°, v = 0.4, the catalyzate obtained in hydrogenation of methylcyclopentane (II) at 300°, v = 0.18, outgoing gas 2 l./hr., contained 40-41% paraffin hydrocarbons of which 2-methylpentane was 64%, 3-methylpentane 25%, and hexane 11%; this catalyzate was fractionated into b_{760} 50.0-9.5, 59.5-60.5, 60.5-2.8, 62.8-4.0, 64.0-8.8, 68.8-70.9, 70.9-1.5, 71.5-1.75°, in the amts. 1.13, 17.56, 13.97, 3.37, 3.40, 12.96, 3.39, 35.87%; residue and losses 2.29%; fractions 1-4 were almost 100% paraffins, fractions 7 and 8 almost all II, fraction 5 contained about 70% paraffins, fraction 6, 15%. The catalyzate obtained at 300-3° was fractionated into b_{760} 55.0-9.5, 59.5-60.5, 60.5-2.4, 62.4-3.0, 63.0-8.0, 68.0-9.1, in the amts 4.70, 49.74, 10.70, 5.75, 10.30, 8.00%; residue and losses 3.85%; the 1st 5 fractions consist almost entirely of paraffins, fractions 6 and 7 contain about 60% paraffins; thus, the total catalyzate contains 93% paraffins of which 2-methylpentane is 68%, 3-methylpentane 20%, hexane 12%. The gas evolved at 300-303° was H_2 96.9, CH_4 3.2, O_2 0.4, N_2 1.4%. The catalyzate obtained at 317-320° consisted on the average of 75-77% paraffins but the paraffin content attained 100% in individual expts. The corresponding fractions of the 200, 300-3, and 317-20° catalyzates were united and refractionated, giving b_{750} 52.0-9.5° (8.32%), b_{750} 59.5-9.8 (38.34), b_{750} 61.0-2.75 (13.76), b_{750} 62.5-4.0 (13.32), b_{750} 65.0-8.8 (6.40), b_{750} 68.8-71.4 (11.08), b_{750} 71.4-1.7 (7.52), residue 0.96%; by the phys. consts., the paraffins consist of 2-methylpentane 67%, 3-methylpentane 22%, hexane 11%. The residue contained 2% C_6H_6 (0.05% of the total catalyzate). By the Raman spectra, the compn. is 72, 20, and 8%, and the contents of the sep. fractions 2, 3, 4, 5 + 6, and 7: 2-methylpentane, 100, 60, 23, 0, and 0%; 3-methylpentane, 0, 40, 77, 0, and 0%; hexane, 0, 0, 0, 30, and 10%; II, 0, 0, 0, 70, and 90%. (2) With a Ni catalyst on Al_2O_3, characterized by 100% hydrogenation of C_6H_6 at 150° and v = 0.19 and by 77% dehydrogenation of cyclohexane to C_6H_6 at 290° and v = 0.19, II undergoes much cracking. At 240°, the gaseous products constitute 40% of the II introduced. At 280°, v = 0.15, the amt. of II cracked dropped from 46.6 to 83.0% in 4 consecutive runs, decreasing with progressing poisoning of the catalyst. Typical compn. of the gas: H_2 67.5, paraffin hydrocarbons 32.5%. The collected catalyzate, n_D^{20} 1.3980 (increasing from 1.3970 to 1.4098 in 4 consecutive runs), d_4^{20} 0.7080, aniline point 44.7°, was fractionated into b_{750} 27.4-69.5° (34.74%), 69.5-72.0° (57.90), residue 4.00%, losses 3.00%; by the phys. consts., it contains 35% paraffins; the residue contains C_6H_6. At 280°, v = 0.15, cracking attained 60%, n_D^{20} of the catalyzate 1.4040. (3) With the same Ni catalyst, 3-methylpentane at 200°, v = 0.15, gave 42% catalyzate, b_{750} 34.0-62.8°, n_D^{20} 1.3783, d_4^{20} 0.6670, aniline point 67.1°; the gas was H_2 67.9, satd. hydrocarbons

dimethylpentane and I, with the latter predominating (50-60% of the fraction). Thus, the main reaction consists in ring opening at the 3,4- or the 4,5-bond. The gas consists of 95.6% H_2 and 4.4% satd. hydrocarbons, i.e., cracking is insignificant. (2) 1,3-Dimethylcyclopentane (II), at 305°, vol. rate 0.27, gave a catalyzate contg. 55-60% paraffins, gas 97.7% H_2, 2% CH_4; at 275°, vol. rate 0.2, the catalyzate contained only 25% paraffins. The liquid obtained at 305° was fractionated under 750 mm. into b. 71.5-80.0° (16.1%), 80.0-81.0° (6.0%), 81.0-9.2° (12.8%), 89.2-91.7° (57.1%), residue (6.0%). Judging by the d., refraction, and aniline point, the 1st fraction consists almost entirely of paraffins, the 2nd and 3rd entirely, the 4th approx. 60%; 2,4-dimethylpentane predominates in the 1st and 2nd fraction and constitutes about 80% of the 3rd; the 1st fraction contains a small amt. of C_6H_6, the residue about 17% PhMe (1% of the total catalyzate). By Raman line photometry, over 50% of the mixed 1st, 2nd, and 3rd fraction are 2,4-dimethylpentane, not over 10% 2-methylhexane, and not over 10% 3-methylhexane; the 4th fraction consists of about 50% unreacted II, 25% 2-methylhexane, and 25% 3-methylhexane. Ring opening evidently takes place at the 4,5-bond. (3) At 200°, under identical conditions, the ratio of the nos. of moles of cyclopentane, methylcyclopentane, I, and II opened in 1 hr. are approx. 1.2:0.7:0.2:0.1. Thus, disubstituted cyclopentanes are opened more slowly than the monosubstituted compd., and II reacts more slowly than I owing to the presence of 4 "passive" bonds (1-2, 2-3, 3-4, 1-5) as against only 3 in I (1-2, 2-3, 1-5). IX. Hydrogenation of 1,1-dimethylcyclopentane over platinized carbon. *Ibid.* 48[illegible]. (1) 1,1-Dimethylcyclopentane (III) was synthesized with a higher yield than could be obtained by methods hitherto described: 85 g. 5,5-dimethyl-1,3-cyclopentanedione (IV), in 1000 ml. 95% EtOH, was hydrogenated in the presence of 17 g. Raney Ni, under an initial pressure

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of H₂ of 75-80 atm., with gradual heating up to 180°; the pressure rose up to 140°; from 140° to 160°, it fell rapidly down to 10-20 atm. After cooling, the H₂ pressure was again increased to 70-80 atm. and the autoclave was heated again to 180° for a total 6-8 hrs. after which no more H₂ was absorbed. Distn. of the product gave 50-53 g. (64-68% of the theory) 1,1-dimethyl-3-cyclohexanol. This was allowed to drop into 180 ml. HNO_3 (d. 1.4), 80 ml. H_2O, and 0.2 g. NH_4VO_3, at 55-60°; the mixt. was then heated until cessation of evolution of N oxides, and evapd. to a sirup which on cooling gave a cryst. mass; the mixt. of α,α- and β,β-dimethyladipic acids (recrystd. from H_2O and dried over H_2SO_4) was heated with 2% $Th(OH)_4$ to 280-90°; from 220 g. of the acids, 97.5 g. of a mixt. of 2,2- and 3,3-dimethylcyclopentanones was obtained, with a yield of 69% after redistn. at 145-8° (743 mm.). The ketones were converted into 85.1 g. hydrazones (yield, 77.6% after redistn. at 126-30° at 65 mm.). The hydrazones were decompd. by heating with fused KOH and platinized C; fractionation of the hydrocarbons gave 49.9 g. III; final yield (with respect to IV) 17.8% of theory. (2) Hydrogenation of III under the same conditions as before, with an excess of H₂ (1.5 l. H₂ outgoing per hr.), at 300°, vol. rate 0.20-0.30, gave a catalyzate estd. to contain 60% paraffins and fractionated, under 752.5 mm., into b. 78.7-9.25° (30.4%), 79.25-87.5° (62.1%), residue 3.7%, losses 3.7%. From the phys. consts., the 1st fraction is entirely 2,2-dimethylpentane; the 2nd fraction contains about 40% paraffins which Raman photometry shows to consist of approx. equal amts. of 2,2- (23%) and 3,3-dimethylpentane (21%); thus, the total paraffins obtained consist of about 77% 2,2- and about 23% 3,3-dimethylpentane. The catalyzate obtained at 297-300°, vol. rate 0.21, contained about 80% paraffins; it was fractionated (under 743.5 mm.) into b. 77.2-8.0° (37.4%), 79.0-92.8° (52.2%), residue 5.2%, losses 5.2%; the 1st fraction is, again, almost all 2,2-dimethylpentane, the 2nd fraction contains 75-80% paraffins which, by Raman photometry, consist of nearly equal amts. of 2,2- (32%) and 3,3-dimethylpentane (38%); the total proportions of 2,2- and 3,3 isomers are thus very nearly the same (74 and 26%, resp.) as at 200°. The balance of the 2nd fractions (50 and 30%, at 200° and 300°, resp.) is unreacted III. (3) The rate of hydrogenation of III is very nearly the same as that of the monosubstituted methylcyclohexane. Ring opening takes place exclusively at the 2,3-, 3,4-, and 4,5-bonds, to the extent of 30-8%, 24-8%, and 30-8%, resp.; III undergoes absolutely no ring opening at the 1,2- and 1,5-bonds, in contrast to methylcyclopentane where this type of ring opening does take place to some extent.

N. Thon

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CA

Contact catalytic transformations of 1,1-dimethylcyclohexane in the presence of platinized carbon. B. A. Kazanskii and A. L. Liberman (Acad. Sci. U.S.S.R., Moscow). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1947, 205-75(in Russian).—In connection with the problem of the mechanism of the catalytic aromatization of dimethylhexanes, in particular of 3,3-dimethylhexane which, at 307-316°, on platinized C, reacts in the main according to $MeCH_2CH_2CMe_2CH_2Me \rightarrow CH_4 + 3H_2 +$ PhMe, failure to detect intermediate formation of 1,1-dimethylcyclohexane (I) led to the investigation of the transformations of the latter on the same catalyst; its activity was characterized by 95% hydrogenation of C_6H_6 at 151° and a space velocity v = 0.48, and 87% dehydrogenation of cyclohexane at 300°, v = 0.49, in a very slow stream of H_2. (1) Without carrier gas, 24.3 g. I at 300°, v = 0.10, time of contact τ = 08 sec., on 75 ml. catalyst, gave 18.6 g. catalyzate and 2.5 g. (10.4 l.) gas, H_2 69.1, CH_4 26.2, N_2 3.0, O_2 1.5, CO_2 0.5%. The catalyzate was fractionated into b_{760} 103.2-10.3° (18.6%), 110.3-13.1° (39.3), 113.1-22.0° (26.2), residue 12.0%, losses 3.9%. By nitration, the contents of aromatic hydrocarbons in the 3 fractions and in the residue were 74.5, 70.5, 15, and 79%, i.e., with respect to the catalyzate, 14, 28, 4, and 10%, and in % of the theory with respect to the amt. of I used, 13, 26, 4, and 8%; the aromatic hydrocarbon of the 1st 3 fractions is PhMe (total yield 43%), those of the residue *o*- and *m*-$C_6H_4Me_2$, in the approx ratio ortho:meta = 5:1; the ratio of PhMe:$C_6H_4Me_2$ = 5.4:1. There is no *p*-$C_6H_4Me_2$. (2) In a strong stream of H_2, 4 l./hr. (300% excess), 12.25 g. I, at 300°, on 100 ml. catalyst, rate of flow 5 ml./hr., v = 0.05, τ = 34 sec., gave 12.1 g. catalyzate and 25 l. gas, H_2 91.3, CH_4 5.1, CO_2 1.8, N_2 1.2, O_2 0.9%. The catalyzate was fractionated into b_{760} 97.8-111.5° (30.0%), 111.5-19.3° (51.5%), residue 12.2%, losses 5.7%. Contents of aromatic hydrocarbons in the 2 fractions and in the residue, 62.5, 9.5, and 38%, i.e., with respect to the catalyzate, 19, 5, and 5%, or, in % of the theory with respect to the amt. of I, 18, 5, and 4%; the hydrocarbon of the two fractions being PhMe, that of the residue $C_6H_4Me_2$, the ratio is 5.7:1, i.e., practically the same as in the absence of H_2. (3) On a catalyst previously used for hydrogenation of C_6H_6 at 151° and then twice for dehydrogenation of cyclohexane at 300°, I at 300°, without carrier gas, at a rate of flow of 2.2 ml./hr./15 ml. catalyst, v = 0.15, τ = 50 sec., gave about 40% aromatic hydrocarbons. (4) The ratios of PhMe:$C_6H_4Me_2$ approx. 5:1 and *o*-$C_6H_4Me_2$:*m*-$C_6H_4Me_2$ approx. 5:1 are independent of the absence or presence of H_2 as carrier gas. The total yield of aromatic hydrocarbons is, within the interval studied, a linear function of τ, being 27, 40, and 50% at τ = 34, 50, and 68 sec., resp. No ring opening takes place in the reaction. The rate of the aromatization of I is halfway between that of dehydrogenation of cyclohexane and that of aromatization of paraffins on the same catalyst.

N. Thon

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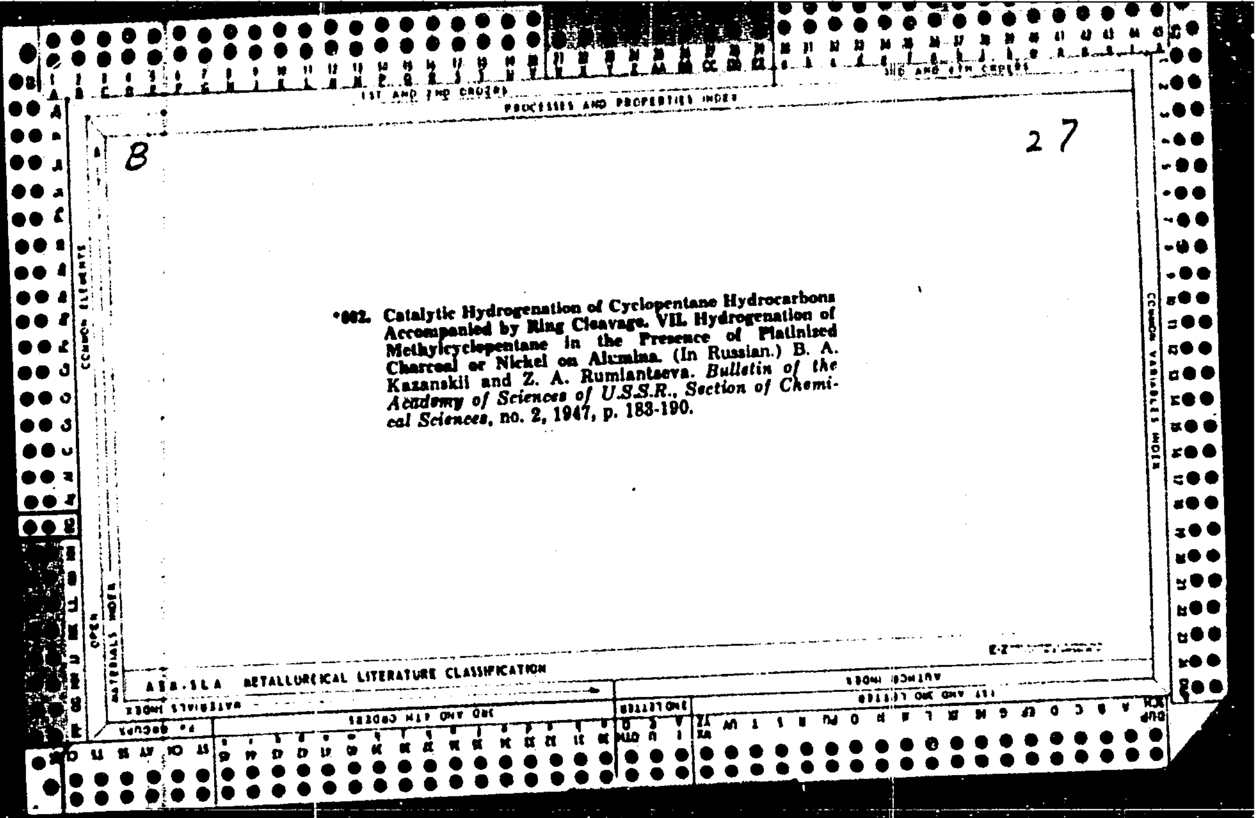
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



•602. **Catalytic Hydrogenation of Cyclopentane Hydrocarbons Accompanied by Ring Cleavage. VII. Hydrogenation of Methylcyclopentane in the Presence of Platinized Charcoal or Nickel on Alumina.** (In Russian.) B. A. Kazanskii and Z. A. Rumiantseva. *Bulletin of the Academy of Sciences of U.S.S.R., Section of Chemical Sciences*, no. 2, 1947, p. 183-190.

1A 53T6

KAZANSKIY, B. A.

Sep/Oct 1947

USSR/Chemistry - Hydrogenation
Chemistry - Hydrocarbons

"Catalytic Hydrogenation of Cyclopentanic Hydrocarbons When the Cycle Is Interrupted, VIII," B. A. Kazanskiy, Z. A. Rumyantseva, M. I. Batuyev, Inst Org Chem, Acad Sci USSR, 10 pp

"Izv Akad Nauk SSSR, Otd Khim Nauk" No 5

Discusses hydrogenation of trans 1, 2- and trans 1, 3-dimethylcyclopentane in presence of platinized carbon.

53T6

PROCESSES AND PROPERTIES INDEX

Synthesis and properties of some 1-alkenes. B. A. Kazanskii, A. L. Liberman, A. F. Plate, M. I. Rosengart, and G. A. Tarasova. *J. Gen. Chem.* (U.S.S.R.) 17, 1703-10 (1947)(in Russian).—The literature on the prepn. of 1-alkenes is reviewed (29 references) and the divergences ascribed to impurities, primarily isomers. Pure 1-alkenes were prepd. for standards in the work of the Soviet oil industry. Mg (48 g.) and 150 cc. Bu_2O were treated with 240 g. EtBr in 250 cc. Bu_2O (the mixt. being dild. with 250 cc. Bu_2O when the reaction began); after 2 hrs. and then heating 15 min. to 50°, the Grignard reagent was treated at 18-20° over 6-7 hrs. with 153 g. allyl chloride in 250 cc. Bu_2O, the cooling moderated, and the temp. allowed to rise to 50°; after standing overnight, the mixt. was distd. up to 117°; fractionation (40-plate column) gave a pentene fraction, b. 29-31.5°, which, shaken 8 hrs. with 0.5 vol. $H_2NCH_2CH_2OH$, washed with acid, and distd., gave pure *1-pentene* (90-5%), b_{760} 29.2°, n_D^{20} 1.3719, d_4^{20} 0.6411. Purification by heating to 110° with NaOPr in PrOH led to high losses and was less satisfactory. The entire Grignard reaction is best conducted in a slow stream of N. The Grignard reagent from 52 g. Mg and 246 g. EtBr in 500 cc. Et_2O was decanted from the solid ppt. and added over 6 hrs. at 14-18° to a stirred soln. of 153 g. allyl chloride in 250 cc. Et_2O in a N atm.; after standing overnight, the mixt. was decompd. with 1 kg. ice-1.5 kg. H_2O, the org. layer sepd., the aq. layer satd. with NH_4Cl, and the sepd. oil added to the Et_2O soln.; distn. gave a crude hexene fraction (b. 61.5-64°) which, boiled 20 hrs. with NaOMe or shaken with $H_2NCH_2CH_2OH$, gave 40-5% *1-hexene*, b_{760} 63.4-3.6°, n_D^{20} 1.3880, d_4^{20} 0.6748. Mg (50 g.) and 250 cc. Et_2O were treated with 3-5 cc. BuBr and a crystal of iodine; upon the beginning of a reaction, 275 g. BuBr in 250 cc. Et_2O was added over 30-5 min. with cooling; after standing 30-5 min. the soln. was warmed 0.5 hr., cooled to 13-14°, and treated with 153 g. allyl chloride in 250 cc. Et_2O over 6-7 hrs.; then, after allowing the temp. to rise to 30-2° and letting the mixt. stand overnight, working up as above gave 47% *1-heptene*, b_{760} 92.8-3.1°, n_D^{20} 1.4005, d_4^{20} 0.6975. n-$C_8H_{17}OH$ (b_{20} 105°, n_D^{20} 1.4305) (325 g.) and 10 cc. concd. H_2SO_4, slowly treated with 255 g. Ac_2O and heated 2 hrs. on a steam bath, gave 70% Ac deriv., b_{15} 101-2.5°, n_D^{20} 1.4190, d_4^{20} 0.8705; this was passed at 18 cc./hr. through a 26-mm. diam. tube filled with glass wool and kept at 500-15° to give, after washing, rough distn., and a 2nd pyrolysis pass, 63.5% *1-octene*, b_{760} 120.9-1.5°, n_D^{20} 1.4094, d_4^{20} 0.7160. Mg (24.5 g.) in 100 cc. Et_2O in a N atm. was treated with 193 g. n-$C_8H_{17}Br$ (b. 201°, n_D^{20} 1.4527, d_4^{20} 1.1082) in 175 cc. Et_2O at 36° over 15-30 min.; after stirring 0.5 hr. and standing 1 hr., the soln. was treated below 36° with 76.5 g. allyl chloride in 80 cc. Et_2O over 1-1.5 hrs.; after stirring 1.5 hrs. and letting stand overnight, the mixt. was treated with ice-water, then with dil. HCl; the org. layer, after washing, gave a crude product, b. 175-200°, which, boiled 48 hrs. with NaOPr, washed with cold concd. HCl and H_2O, and distd., gave 51% *1-hendecene*, b_{760} 191.4-1.7°, n_D^{20} 1.4270, d_4^{20} 0.7506.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

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In memory of Michail Ivanovich Ushakov. B. A. Kazanskii. *Uspekhi Khim.* 16, 231-2(1947); *Chem. Zentr.* 1947, I, 760. M. O. Moore

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

10

Hydrogenation of cyclopentane with ring opening in the presence of platinized carbon. B. A. Kazanskii, A. L. Liberman, and A. F. Plate (Acad. Sci., U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 57, 571-4(1947); *Chem. Zentr.* (Russian Zone Ed.) 1948, II, 825.—Hydrogenation of cyclopentane in the presence of platinized C yielded *n*-pentane (cf. *C.A.* 42, 4534e). No compds. having a fewer no. of C atoms were obtained. In the case of cyclopropane and cyclobutane similar hydrogenation with ring opening can be attributed to inner strains in the ring. However, this assumption cannot be made in the case of cyclopentane. It is assumed that in cyclopentane there are 4 like C—C bonds and a 5th which is less stable and breaks under the influence of activated H atoms.

M. G. Moore

PROCESSES AND PROPERTIES INDEX

CA

1,2,3-Trimethylcyclopentane. A. V. Koperina and B. A. Kazanskii. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1948, 309-10; cf. K., K., and Batuev, *Doklady Akad. Nauk S.S.S.R.* 57, 819(1947).—Condensation of $CH_2:CHC:CH$ with MeEtCO in Et_2O in the presence of KOH, followed by dehydration of the resulting 3-methyl-6-hepten-4-yn-3-ol with 60% H_2SO_4, gave 80% 3-methyl-1,5-heptadien-3-yne; the latter, on cyclization with 6 parts concd. HCl at 60-5°, gave 88% *2,3,4-trimethyl-2-cyclopenten-1-one*, b_{20} 91°, b_{12} 78°, n_D^{20} 1.4840. This (I) was hydrogenated under different conditions, as follows. I (40 g.), 100 ml. EtOH, 1 g. platinized C, and 1 ml. H_2PtCl_6 soln. (0.1 g. Pt) were hydrogenated with shaking and addn. of 4 ml. H_2PtCl_6 soln. every 7-8 hrs.; the final H consumption was 15.6 l.; after filtration and diln. with water, the org. layer was washed free of EtOH and distd., giving 28.8-9.5% hydrocarbons, after fractionation over Na; approx. equal vols. of 3 fractions were obtained, b. 110°, 118°, and 123°. The residue was distd. (b. 172.5-76°) and 26 g. heated with 50 g. $(CO_2H)_2$ 2 hrs. to 110-15°, then to 120-30°; after repetition of the dehydration the mixt. was fractionated, yielding 12.1 g. unsatd. hydrocarbon, b. 120-4°, n_D^{20} 1.4421; the combined product from 2 runs gave the C_8H_{14}, which on distn. from Na, b_{745} 120-1.5°, n_D^{20} 1.4436, d_4^{20} 0.7974; hydrogenation over platinized C at 100° gave the isomer mixt. which consisted mainly of the isomer b. 110°; the isomer b. 122° was present in traces. Thus, hydrogenation of the ketone in strongly acid medium gave 29% hydrocarbon, 53% alc., and 18% unreacted ketone; the combined yield of the hydrocarbons (including that obtained through dehydration) was 60% based on the unsatd. ketone. If 75 g. I, 150 ml. EtOH, 1.5 g. platinized C, and 3 ml. H_2PtCl_6 (without further addns.) were used, 3 moles of H were taken up, yielding 24.5% isomeric product mixt., which contained over 50% of the isomer b. 110°. The residue with semicarbazide-HCl gave the *semicarbazone*, m. 182-2.5°, the filtrate from which gave the cyclic satd. alc., $C_8H_{16}O$, b_{745} 176.5°, n_D^{20} 1.4505, d_4^{20} 0.8950, which on dehydration with $(CO_2H)_2$ gave 8 g. unsatd. hydrocarbons, b_{745} 121.5-2°, n_D^{20} 1.4438, d_4^{20} 0.7938; hydrogenation gave the satd. isomer, b. 110°. Treatment of the semicarbazone with 15% HCl gave the ketone, $C_8H_{14}O$, b_{745} 169.5-73°, which on fractionation boiled mostly at 170.5-2°, n_D^{20} 1.4396, d_4^{20} 0.8907, and formed much resinous matter on distn.; the ketone yields a *hydrazone*, b_{16} 98-100°, n_D^{20} 1.4830. Decompn. of the latter in the presence of solid KOH and platinized C gave, from 17.6 g., 11.3 g. satd. hydrocarbon mixt., which boiled principally at 118-18.3°, the lower- and higher-boiling isomers being present in small amts. Thus, hydrogenation in weakly acidic soln. gave 51.7% satd. hydrocarbons. I (55 g.), 100 ml. EtOH, and 7 g. Raney Ni hydrogenated at 100 atm. H (initially) 20 hrs. at room temp., then brought up to 100 atm. H again and heated to 80°, gave 4.5% satd. hydrocarbons, b_{745} 120°, n_D^{20} 1.4216, and 48 g. apparently pure alc., $C_8H_{16}O$, b_{745} 177.5-8.5°, n_D^{20} 1.4563, d_4^{20} 0.9102; the latter on dehydra-

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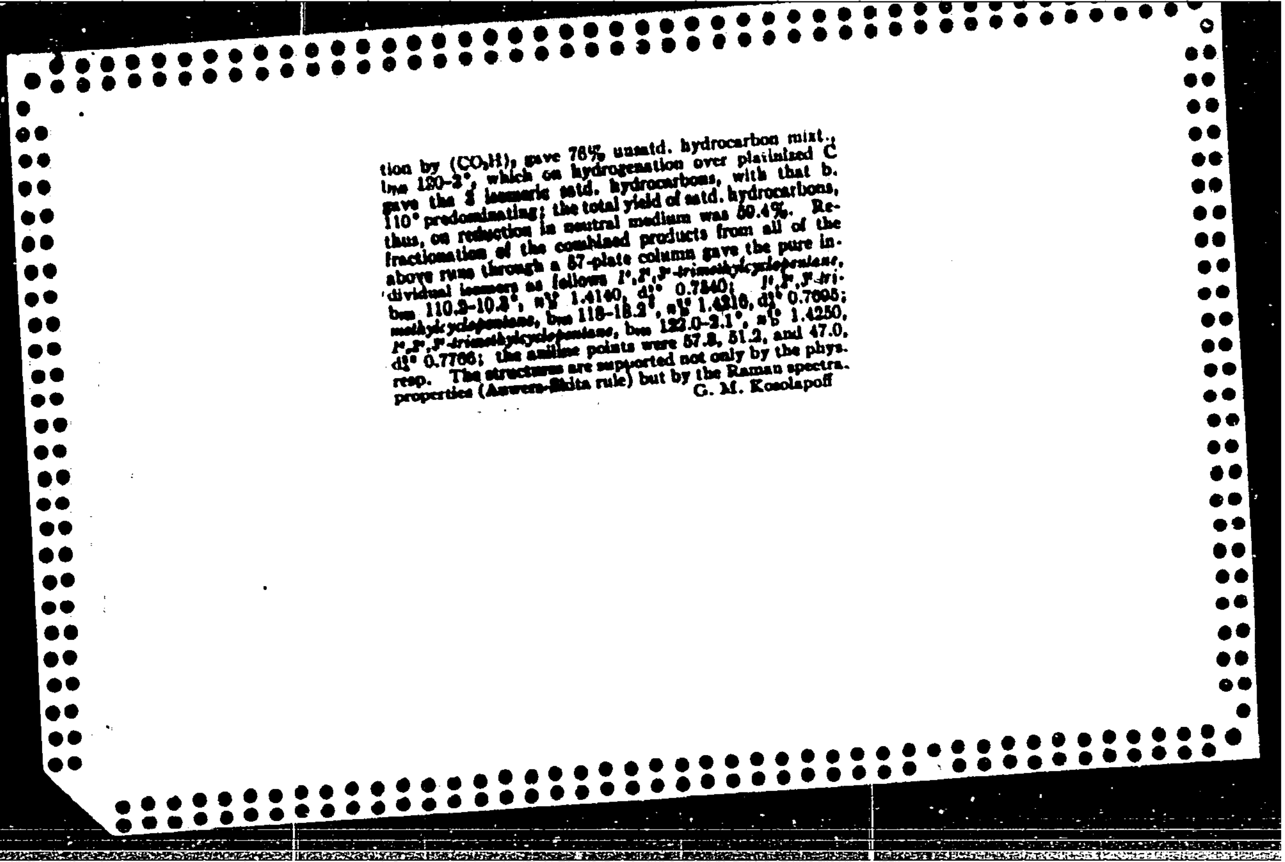

tion by $(CO_2H)_2$ gave 76% unsatd. hydrocarbon mixt., b_{760} 120-3°, which on hydrogenation over platinized C gave the 3 isomeric satd. hydrocarbons, with that b. 110° predominating; the total yield of satd. hydrocarbons, thus, on reduction in neutral medium was 59.4%. Refractionation of the combined products from all of the above runs through a 57-plate column gave the pure individual isomers as follows $1^{\circ},2^{\circ},3^{\circ}$-trimethylcyclopentane, b_{760} 110.2-10.3°, n_D^{20} 1.4140, d_4^{20} 0.7540; $1^{\circ},2^{\circ},3^{\circ}$-trimethylcyclopentane, b_{760} 118-18.3°, n_D^{20} 1.4216, d_4^{20} 0.7695; $1^{\circ},2^{\circ},3^{\circ}$-trimethylcyclopentane, b_{760} 122.0-3.1°, n_D^{20} 1.4250, d_4^{20} 0.7766; the aniline points were 57.8, 51.2, and 47.0, resp. The structures are supported not only by the phys. properties (Auwers-Skita rule) but by the Raman spectra.

G. M. Kosolapoff

C A

PROCESSES AND PROPERTIES INDEX

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Catalytic hydrogenation of cyclopentane hydrocarbons with ring opening. X. Hydrogenation of cyclopentane with the hydrogen set free in simultaneous dehydrogenation of cyclohexane. B. A. Kazanskii and T. F. Bulanova. *Izvest. Akad. Nauk. S.S.S.R., Otdel. Khim. Nauk* **1948**, 406-11; cf. *C.A.* **42**, 4535h.—Mixts. of cyclopentane (I) and cyclohexane (II) in the molar ratios 1:3, 1:1, 5:3, 3:1, and 0:1, of which 3:1 corresponds to the stoichiometric ratio $3C_5H_{10} + C_6H_{12} = 3C_5H_{12} + C_6H_6$, the 1st 3 ratios to an excess, and the 5th to a deficit of H_2, were allowed to react, without carrier gas, on platinized C (20% Pt) at 275 and 300°. In all mixts., part of the I was hydrogenated to C_5H_{12} by the H_2 evolved in the dehydrogenation of II; the amt. of C_5H_{12} formed per hr. increases with increasing amt. of I in the mixt. Runs were made in tubes of 10 mm. diam. with 40 ml. catalyst reduced in H_2 at up to 300°, tested in the hydrogenation of C_6H_6 at 150°, 15-18 ml./hr. for 5 hrs., then in the dehydrogenation of II at 275°, 10-12 ml./hr. for 5 hrs., then flushed with pure N_2 at the temp. of the intended expt. to remove traces of H_2; that such traces actually remain adsorbed, was demonstrated by conversion of I into C_5H_{12} in the absence of external H_2, attaining 0.2 g./hr. at 300°, 8 ml./hr. Catalyzates from mixts. I + II were fractionated into b. 30-40° and >40°; in the 1st fraction, C_5H_{12} was detd. by the refractive index and the aniline points. At 275°, space velocity 0.2-0.4, total amt. of mixt. passed 17.5 g., the mixts. 1:1, 5:3, and 3:1 gave, resp., 2.67, 2.01, and 3.06 g. C_5H_{12}/hr., i.e. a degree of conversion of I to C_5H_{12} of, resp., 34.0, 25.9, and 31.5%; the amts. of H_2 evolved were, resp., 1500, 1300, and 915 ml./hr.; the degree of dehydrogenation of II was 80-100%. Under the same conditions, pure I with excess H_2 gave C_5H_{12} 4.22 g./hr., conversion 61.5%; the 0:1 mixt., passed in a stream of H_2, gave C_5H_{12} 5.40 g./hr., conversion 36.3%. At 300°, the mixts. 1:3, 1:1, 5:3, and 3:1 gave, resp., 3010, 3200, 3100, and 1500 ml. H_2/hr., 0.55, 1.88, 2.58, and 3.38 g. C_5H_{12}/hr., conversion 37.0, 44.0, 48.0, and 43.6%; degree of dehydrogenation of II nearly 100%. Mixt. 0:1, in a stream of H_2, gave C_5H_{12} 0.55 g./hr., conversion 37%. Pure I, in a stream of H_2, gave, at the outset, C_5H_{12} 9.55 g./hr., 53.0%; after the runs with the 5 mixts., I gave only 5.90 g. C_5H_{12}/hr., 43.5%. This indicates that, in the long run, the catalyst suffers poisoning with regard to hydrogenation of I although its activity with respect to dehydrogenation of II is preserved.

N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKIY, B. A.

PA 66T24

USSR/Academy of Sciences Jan/Feb 1948

"Academician Aleksandr Erminingel'dovich Arbuzov," B. A. Kazanskiy, M. I. Kabachnik, 6 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 1

Written in honor of A. Ye. Arbuzov's 70th birthday, with summary of his scientific activities to date. Includes details of his method of synthesis and other experimental data.

[redacted]

66T24

KAZANSKII, B. A.

B. A. Kazanskii, A. V. Koperina and M. I. Batnev, Hydration of cyclopentane hydrocarbons with splitting of the cycle. XI. The hydration of stereoisomeric 1,2,3-trimethyl-cyclopentanes. P. 503.

During hydration of stereoisomeric 1,2,3-trimethyl-cyclopentanes, there is observed a transition of each one of them into the mixture of stereoisomers (always with a predominance of 1^c, 2^t, 3^c-trimethylcyclopentane) and a partial splitting of the five numbered cycle with formation of 2,3,4-trimethylpentane.

Inst. of Organic Chemistry of the
Acad. of Sci. USSR
December 25, 1947

SO: Bulletin of the U.S.S.R. Academy of Sciences (Chemistry Series)
Izvestia Akad. Nauk, S.S.S.R., No. 5, 1948.

PROCESSES AND PROPERTIES INDEX

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Catalytic Hydrogenation of Hydrocarbons of the Cyclopentane Series With Splitting of the Ring. (In Russian.) B. A. Kazanskii, *Uspekhi Khimii* (Progress in Chemistry), v. 17, Nov.-Dec. 1948, p. 641-662.

Reviews existing foreign and USSR research data concerning the above. Peculiarities of the process and optimum conditions are indicated. Diagrams and tables. 48 ref.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SKIY, B. A.

PA 8/49T9

USSR/Chemistry - Paraffins, Aromatization of Jul 48
Chemistry - Aromatization

"Cyclization of Paraffin Hydrocarbons With a Quaternary Atom of Carbon and the Mechanism of the Aromatization of Paraffins on Platinized Carbons," Acad B. A. Kazanskiy, A. L. Liberman, M. I. Batuyev, 3½ pp

"Dok Ak Nauk SSSR" Vol LXI, No 1

Authors'. previous experiments unsuccessful. Here they describe successful aromatization of 3, 3-dimethylhexane at lower temperatures (290° and 300° instead of 306° - 346°). 1,1-dimethylcyclohexane was present in the reaction products, as well as toluene and metaxylene. This shows that the sequence of operations is

8/49T9

USSR/Chemistry - Paraffins, Aromatization of Jul 48
(Contd)

paraffin → cyclohexane → aromatic. Submitted 3 May 1948.

8/49T9

KAZANSKIY, B. A., Acad

PA 35/49T11

USSR/Chemistry - Cyclopentane, Hydrogena- Sep 48
tion of
Chemistry - Catalysts, Palladium

"The Hydrogenation of Cyclopentane With Nickel and Paladium Catalysts," Acad B. A. Kazanskiy, T. F. Bulanova, 4 pp

"Dok Ak Nauk SSSR" Vol LXII, No 1

Discusses differences in action of platinized carbon and nickel as catalysts for hydrogenation, based on previously established data. Experiments on hydrogenation of cyclopentane over nickel on kieselguhr and over palladium, and on destructive hydrogenation

35/49T11

USSR/Chemistry - Cyclopentane, Hydrogena- Sep 48
tion of (Contd)

of normal pentane over nickel on kieselguhr, led authors to conclude that platinized carbon exerts a specific action in the sense that hydrogen is added only to two neighboring carbon atoms, whereupon splitting occurs without any side reactions. Submitted 6 Jul 48.

35/49T11

KAZANSKIY, B. A. Acad FA 36/49T13

USSR/Chemistry - Cyclopentane, Derivatives Sep 48
Chemistry - Bicyclo-(1,2,2,)-Heptane

"Structure of Bicyclo-(1,2,2)-Heptane," Acad B. A. Kazanskiy, A. V. Koperina, M. I. Batuyev, 4 pp

"Dok Ak Nauk SSSR" Vol LXII, No 3

Discussion of experimental data on conversions of bicyclo-(1,2,2)-heptane, largely obtained in authors' laboratory, points out that it should be considered a cyclopentane derivative and not a cyclohexane with a methylene bridge connecting carbons 1 and 4. Submitted 6 Aug 48.

36/49T13

KAZANSKIY, B. A. and LANSBERG, G. S.

"Complex Method of Analysing the Content of Different Gasolines," Gostoptekhizdat, Moscow, 1949

PROCESSES AND PROPERTIES INDEX

CA

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Catalytic hydrogenation of cyclopentane hydrocarbons with ring opening. XII. Hydrogenation of isopropylcyclopentane. B. A. Kazanskii, E. M. Terent'eva, and M. I. Batuev. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1949, 95-7; cf. *C.A.* 43, 1332b.—(1) On 40 ml. of a 20% Pt on C catalyst, characterized by an 80% yield of C_6H_6 in dehydrogenation of cyclohexane at 295° and space velocity 0.20, isopropylcyclopentane (I) + H_2, passed at a space velocity of 0.06-0.21 at 275°, gave a catalyzate b. 115-25°, n_D^{20} 1.4131-1.4156. By fractionation, about 35% of the catalyzate is paraffins; the gas (at space velocity 0.06) is H_2 96.2, satd. hydrocarbons 2.0, O_2 0.3, N_2 1.1%. At 300°, space velocity approx. 0.2, the catalyzate b. 113.5-25°, n_D^{20} 1.4165, and contains 45-50% paraffins. The combined catalyzates of the 275° and the 300° runs were fractionated into $b_{744.5}$ 106.5-13.0° (3.5 vol. %, n_D 1.4052, aniline point 61.4), 113.0-14.0° (4.9, 1.4040, 65.6), 114.0-15.5° (67.5, 1.4029, 69.1), 115.5-16.5° (5.7, 1.4039, 68.0), 116.5-17.5° (4.3, 1.4058, 66.0), 117.5-17.6° (5.2, 1.4100, 62.0), 117.6-21.5° (3.5, 1.4142, 57.0), residue (2.6, 1.4218, 50.8). By nitration and sulfonation, the residue contains *m*- and *o*-xylene in the approx. ratio 2:1. By Raman spectra, the fraction b. 114.0-15.5° contains 68 (±6)% $PrCHMeCHMe_2$ and 32 (±6)% $Me_2CHCHEt_2$; in the fractions b. 115.5-17.6°, 2-methylheptene was identified by Raman lines. (2) The main reaction thus consists in a rupture of the 2,3- and 4,5-bonds. To a lesser extent, bond 3,4 is broken, and, to an even lesser extent, bonds 1,2 and 1,5. The yield of aromatic hydrocarbons does not exceed 2-3%; their formation, in particular the 2:1 ratio of *m*- and *o*-xylene, and the near absence of PhMe, are difficult to explain. (3) The following is a synthesis of I giving better yields than methods previously described. Dimethylfulvene (100 g.) dissolved in an equal vol. of EtOH is hydrogenated under an initial pressure of 40-50 atm. in the presence of Raney Ni (10% of the wt. of fulvene). The operation is repeated 5-6 times until no more H_2 is absorbed, and the soln. washed, shaken with concd. H_2SO_4, washed again, dried, and distd. The yield is 95% of the theory.

N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KAZANSKIY, B. A.

Catalytic hydrogenation of hydrocarbons of cyclopentane series. B. A. Kazanskii. *Problemy Kinetiki i Kataliza, Akad. Nauk S.S.S.R.* 6, 223-31(1949).—Hydrogenation of cyclopentane over Pt-C even at 200° yields only pure *n*-pentane. The apparent energy of activation of the reaction, as estd. graphically from the kinetic data, is 35,000 cal./mole. The ring cleavage is appreciable even at 260°. Pt and Pt derivs. at 300° yield a complex mixt. of products, and only small amts. of *n*-alkanes are formed. Methylcyclopentane gave 12% *n*-hexane, 60% 2-methylpentane and 22% 3-methylpentane in a reaction run over Pt-C at 300°; at 260°, ring cleavage amounted to only 40%. 1,1-Dimethylcyclopentane gave similarly 75% 2,2-dimethylpentane, 25% 3,3-dimethylpentane and traces of 2-methylhexane. *trans*-1,2-Dimethylcyclopentane similarly gave 85% 2,3-dimethylpentane, some 3-methylpentane, and *n*-heptane (total, 15%); *trans*-1,3-dimethylcyclopentane gave a catalyzate containing 65% paraffinic hydrocarbons, composed of 45% 2,4-dimethylhexane, 28% 2-methylhexane and 28% 3-methylhexane. The relative rates of hydrogenation were found to be: cyclopentane 11.5, methylcyclopentane 7, 1,1-dimethylcyclopentane 7.5, 1,2-dimethylcyclopentane 2, 1,3-dimethylcyclopentane 1. G. M. K.

LGH

KAZANSKIY, B. A.

"A Complex Method of Detailed Investigation of the Individual Composition of Gasoline" (Kompleksnyy Metod Detalizirovannogo Issledovaniya Individual'nogo Sostava Benzinov), G. S. Landsberg, B. A. Kazanskiy, P. A. Bazhulin, M. I. Batuyev, A. L. Liberman, A. S. Plate, and G. A. Tarasova, edited by V. S. Fedorov, Gostoptekhizdat, Moscow/Leningrad, 1949, 68 pages, 3 rubles.

Subject method is based on spectral analysis.

SO: Uspekhi Khimii, Vol 18, #6, 1949; Vol 19, #1, 1950 (W-10083)

PA 27/49T11

KAZANSKIY, B. A. Acad

USSR/Chemistry - Cyclopentanes Feb 49
Chemistry - Synthesis

"Several Mono-Derivative Homologue of Cyclopentane With a Branched Side Chain," Acad B. A. Kazanskiy, F. N. Gakhanov, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 4

Describes method of obtaining, and characteristics of two new hydrocarbons of cyclopentane series: 2-methyl-3-cyclopentylbutane and 4-cyclopentylheptane, synthesized from the corresponding fulvenes by catalytic hydrogenation. Submitted 9 Dec 48.

[redacted] 27/49T11

[illegible]KIY, B. A.

39/49T15

USSR/Chemistry - Cyclobutane
Chemistry - Synthesis

Apr 49

"Synthesis of Hydrocarbons of the Cyclobutane Series," Acad B. A. Kazanskiy, M. Yu. Lukina, 4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 5

Synthesized 1,3-dimethylcyclobutane and 1-methyl-3-ethylcyclobutane, each in form of two stereoisomers. From by-products of their synthesis, di-(3-methylcyclobutyl)-methane was obtained, not divisible into stereoisomers. Describes synthesis of these hydrocarbons and their characteristics, but does not discuss method of obtaining

39/49T15

USSR/Chemistry (Contd)

Apr 49

them or characteristics of intermediate products. Submitted 21 Feb 49.

39/49T15

KAZANSKIY, B.A.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
General and Physical Chemistry

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Chromatographic adsorption method of separation of hydrocarbons. E. A. Mikhailova and B. A. Kazanskii. *Issledovaniya v Oblasti Khromatog. Trudy Vsesoyuz. Soveshchaniya Khromatog., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1950, 155–71(Pub. 1952).—A detailed account is given of exptl. sepn. of hydrocarbon mixts. on SiO_2 gel. Sepn. of aromatics and unsatd. hydrocarbons from paraffins is completely practicable, as is the sepn. from naphthenes. The method is particularly suited for prepn. of pure specimens of paraffin and naphthene hydrocarbons, which are completely sepd. not only from the aromatic and olefin fractions, but also from S compds., pyridine, NH_3, chlorides, and alcs.

G. M. Kosolapoff

CA

Oxidation of 3-methylcyclohexanone. Synthesis of 1-methyl-3-propylcyclopentane. B. A. Kazanskii, A. V. Koperina, and O. A. Zemskaya (Lomonosov State Univ., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 1212-17(1950).—Oxidation of 100 g. 3-methylcyclohexanone with 252 g. HNO_3 (d. 1.37), 80 ml. H_2O, and 0.2 g. NH_4 metavanadate by slow addn. of the ketone to the soln. at 60-90° and fractional crystn. gave 81% total acids, a small amt. of $(CO_2H)_2$, and 2 isomeric *methyladipic acids*. The latter distd. in 75-g. aliquots with 0.01 mole $Ba(OH)_2$ gave 60% crude ketones, b. 130-45°, which, treated with MeMgI (slight excess) and distd. over $(CO_2H)_2$ or iodine, gave 51-2% mixed olefins, yielding on careful fractionation in 1.4:1.0 ratio *2,4-dimethylcyclopentene*, b_{760} 92.7°, d_4^{20} 0.7715, n_D^{20} 1.4287 (readily hydrogenated over Pt-C at 150° to the *satd. deriv.*, b_{760} 90.0°, n_D^{20} 1.4096, d_4^{20} 0.7452), and *1,2-dimethylcyclopentene*, b_{760} 104-4.5°, n_D^{20} 1.4444, d_4^{20} 0.7954 (similarly hydrogenated to a 60-40 mixt. of *trans-cis isomers* of *1,2-dimethylcyclopentane*, b_{760} 93.5-8.0°, n_D^{20} 1.4103, d_4^{20} 0.7680). A similar reaction with PrMgBr gave, upon dehydrative distn. over iodine, largely *1-methyl-3-propylcyclopentene*, b_{760} 143-3.8°, n_D^{20} 1.4405, d_4^{20} 0.7924, and a small amt. of the *1,2-isomer*, b_{760} 148.5°, n_D^{20} 1.4401, d_4^{20} 0.8002; hydrogenation of the former gave *1-methyl-3-propylcyclopentane*, b_{760} 147-7.8°, n_D^{20} 1.4254, d_4^{20} 0.7715, b_{760} 148.2-8.4°.

G. M. Kosolapoff

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The oxidation of 3-methylcyclohexanone. The synthesis of 1-methyl-3-propylcyclopentane. B. A. Kazanskii, A. V. Koperina, and O. A. Zemskaya. *J. Gen. Chem. U.S.S.R.* 20, 1257-62(1950)(Engl. translation).--See *C.A.* 45, 1525.
R. M. S.

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