ISACHENKOV, YE. I., PIKHTOVNIKOV, R. V.

Deformations (Mechanics)

"Effect of the speed of deformation on the process of stamping parts from steel sheet." Vest. mash. 32 no. 5, 1952.

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

ISACHENKOV, Yevgeniy Ivanovich

ISACHENKOV, Yevgeniy Ivanovich, kand.tekhn.nauk; SVERDLOV, M.I., kand.tekhn. nauk, retsenzent; ROMANOVSKIY, V.P., dots., kand.tekhn.nauk, redaktor; KAPLANSKIY, Ye.F., redaktor izd-va; SOKOLOVA, L.V., tekhn.red.

[New extrusion methods] Novye sposoby shtampovki-vytiazhki. Pod obshchei red. V.P.Romanovskogo. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 50 p. (Bibliotechka shtampovshchika, no.4) (MIRA 11:2)

(Extrusion process)

I. Isachenkov, Ye. I.

AUTHOR: Solomonov, M.

SOV/24-58-4-36/39

TITLE: Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure (Primeneniye tekhnologicheskikh smazok i spetsial'nykh pokrytiy pri obrabotke metallov davleniyem) Conference at the Institute for Mechanical Engineering of the Ac.Sc. USSR (Soveshchaniye v Institute mashinovedeniya Akademii nauk SSSR)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, p 153 (USSR)

ABSTRACT: The conference was held in December, 1957. The following papers were read: "General Relations and the Mechanism of Operation of Lubricants During Shaping of Metals by Applying Pressure" by V.I. Likhtman, S.Ya. Veyler (Institut fizicheskoy khimii AN SSSR - Institute of Physical Chemistry of the Ac.Sc.USSR); "Application of Principles of the Hydrodynamic Theory to the Process of Cold Stamping" by Ye.I. Isachenkov (NIAT); "New Stamping Lubricants for Deep and Particularly for Very Deep Drawing of Components made of Sheet Steel" by M.A. Sil'tsova (Gor'kovskiy avtozavod - Gor'kiy Automobile Works); "Lubricants for Stamping Sheet of Steel and of Various Alloys" by Yu.P. Davydov (VIAM);

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SOV/24-58-4-36/39

Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure Conference at the Institute for Mechanical Engineering of the Ac.Sc.USSR

"New Lubricants for Wire Drawing" by A.G. Smirnova (TsNIIChERMET); "Investigation of Technological Lubricants Applied for Hot Stamping of Metal Components" by S.A. Dovnar (Minskiy politekhnicheskiy institut im. I.V. Stalina - Minsk Polytechnical Institute imeni I.V. Stalin); "Investigation and Testing of Certain Technological Lubricants and Methods of Applying these on the Dies of Presses During Hot Stamping of Aluminium Alloys" by E.R. Shor (TsNIITMASh); "Lubricants Used in Shaping of Metal by Pressure" by Ye.B. Zhuravskiy (Aviatsionnyy zavod - Aviation Works). The data given in the individual papers show the increasing use of liquid, paste and solid technological lubricants and special coatings in highly efficient processes of shaping metals by applying pressure in the production of complicated components from various heavy and light non-ferrous alloys. The undertakings of the chemical and the oil industries have so far not organised the

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Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure
Conference at the Institute for Mechanical Engineering of the Ac.Sc.USSR

production of the appropriate lubricants and the instrument industry does not produce instruments for determining the main parameters of these lubricants. So far, investigations by individual institutes of the Ac.Sc.USSR on technological lubricants have not been carried out on a sufficiently large scale and have not been adequately co-ordinated. The same applies to other institutes.

S. Ya. Veyler (Institut fizicheskoy khimii AN SSSR - Institute of Physical Chemistry of the Ac.Sc.SSSR) reported on work in the field of lubricants for cold stamping. Since the result of this work is little known, it was proposed to devote to it a specially convened extended seminar at the Institute of Mechanical Engineering of the Ac.Sc.USSR.

Co-ordination was urged of the research work in the use of lubricants for shaping of metals by pressure and this

Application of Technological Lubricants and Special Coatings During Shaping of Metals by Applying Pressure
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task should be undertaken by the Laboratoriya obrabotki metallov davleniyem Instituta mashinovedeniya AN SSSR (Laboratory for Shaping of Metals by Pressure of the Institute of Mechanical Engineering of the Ac.Sc.USSR). The importance was pointed out of putting onto the market instruments for determining the main parameters of lubricants and also of automatic equipment for coating dies with technological lubricants. It is necessary to work out standard specifications for technological lubricants and also recipes and methods of analysis of such lubricants and to increase the manufacture by the industry of standard technological lubricants. At regular intervals, symposia should be published on technological lubricants and special coatings used in the shaping of metals by applying pressure.

Isachenkov, Ye. I.

25(1,5) PHASE I BOOK EXPLOITATION SOV/2294

Moscow. Dom nauchno-tekhnicheskoy propagandy imeni F.E. Dzerzhinskogo

Novoye v tekhnologii vysokoproizvoditel'noy listovoy shtampovki; sbornik trudov konferentsii (New Features in the Methods of High-productivity Sheet Metal Stamping; Collection of Conference Transactions) Moscow, Mashgiz, 1959. 228 p. 8,000 copies printed.

Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy RSFSR.

Resp. Ed.: V.T. Meshcherin, Doctor of Technical Sciences, Professor; Eds.: V.D. Golovlev, Candidate of Technical Sciences, Docent, and Ye.N. Lanskoy, Candidate of Technical Sciences, Docent; Ed. of Publishing House: G.N. Sokolev; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on Heavy Machine Building (Mashgiz): S.Ya. Golovin, Engineer.

PURPOSE: This collection of papers is intended for engineers and technicians in sheet metal stamping. It may also be useful to

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New Features (Cont.) SOV/2294

students of vuzes and tekhnikums.

COVERAGE: This collection deals with the design and features of some current problems in sheet metal stamping. Also discussed are processing methods still in the experimental stage. Several articles deal with the mechanization and automation of stamping processes and describe recently developed methods, such as explosion forming, the use of automatic rotary transfer lines, and press blocking with the use of radioactive isotopes. No personalities are mentioned. References follow several of the articles.

TABLE OF CONTENTS:

New Features (Cont.) SOV/2294

The author discusses labor productivity, shapes of workpieces, the materials used, stamping operations and technique, production lines, working speed, and the correct meaning of basic operational time.

Pikhtovnikov, R.V. [Doctor of Technical Sciences, Professor, Khar'kovskiy aviatsionnyy institut (Khar'kov Aircraft Institute)]. Use of an Explosive Wave for Drawing and Forming Medium and Large Parts in Small-scale Production 22

The author discusses experimental fabrication of shallow dish-type parts of an explosive wave caused by gunpowder, gasoline, or natural gas.

Koshkin, L.N. [Candidate of Technical Sciences]. New Possibilities in the Development of Sheet Metal Stamping in Connection With the Use of Automatic Rotary Transfer Machines 31

Mechanical and hydraulic rotary transfer machines are described. The flexibility of these machines allows facility of control, inclusion of chemical and heat treatment in the process, and smooth transition into fully automatic lines.

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New Features (Cont.) SOV/2294

Card 4/9

New Features (Cont.) SOV/2294

Card 5/9

Politekhnicheskiy institut, g. Gor'kiy (Gor'kiy Polytechnical Institute)]. Special Features of Blanking With an Increased Number of Strokes 131

The author describes research done on this process in the cold-stamping department of the "Trud" Plant and the laboratory of the Department of Machinery and Metal Forming, GPI imeni A.A. Zhdanov. A.A. Samoylov, department head, and N.S. Gilevich, process engineer, took part in the investigations made at the "Trud" Plant, and K.V. Semenov, Candidate of Technical Sciences, participated in the work done at GPI. The article describes changes in punch and die dimensions and clearances in relation to changes in the number of strokes per minute and the number of parts cut out. Optimum clearances, minimum resistances, punching forces and energy consumption at various working speeds are discussed.

New Features (Cont.)

SOV/2294

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New Features (Cont.)

PHASE I BOOK EXPLOITATION SOV/4961

Akademiya nauk SSSR. Institut mashinovedeniya

Tekhnologicheskiy smazki dlya obrabotki metallov davleniyem (Industrial Lubricants Used in Pressworking of Metals) Moscow, Mashgiz, 1960. 96 p. 5,000 copies printed.

Sponsoring Agency: Institut mashinovedeniya Akademii nauk SSSR.

Ed.: A. V. Korolev, Candidate of Technical Sciences; Ed. of Publishing House: G. N. Soboleva; Tech. Ed.: L. P. Gordeyeva; Managing Ed. for Literature on Heavy Machine Building: S. Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for scientific and technical personnel, production engineers, and students in schools of higher technical education and tekhnikums.

COVERAGE: The book contains articles analyzing the research on industrial lubricants used in pressworking of metals conducted by various institutes and plant laboratories. It is stated that these lubricants improve the metal-forming process and increase the wear resistance of tools (dies), thereby

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increasing the quantity and quality of production. Also included are papers discussed at an All-union convention on industrial lubricants held under the auspices of the Komissiya po tekhnologii mashinostroyeniya Instituta mashinovedeniya AN SSSR (Commission for Machine-Building Processes of the Institute of Science of Machines, AS USSR). No personalities are mentioned. References accompany some articles and are all Soviet.

TABLE OF CONTENTS:

S/137/61/000/001/008/043
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, p. 17, # 1D155

AUTHOR: Isachenkov, Ye.I.

TITLE: The Application of Principles of the Hydrodynamical Theory of Lubrication to Cold Press-Forming Processes

PERIODICAL: V sb.: "Tekhnol. smazki dlya obrabotki metallov davleniyem", Moscow, Mashgiz, 1960, pp. 3 - 14

TEXT: The author discusses factors influencing the mechanical effect of lubricants, intensifiers and extensifiers of external friction. Experiments are described on investigating the influence of viscosity on the lubricating effect of greases at high contact pressures. Increasing viscosity first reduces the stress during extrusion and, after having attained optimum reduction, increases again the stress. Optimum viscosity of the lubricant decreases with a higher extrusion speed and depends on the pressure between the blank and the extrusion rib of the die. When evaluating the lubricant, thermostability must be taken into account.

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PHASE I BOOK EXPLOITATION SOV/6161

Isachenkov, Yevgeniy Ivanovich

Shtampovka detaley iz nerzhaveyushchey stali (Stamping of Stainless Steel Parts). Moscow, Mashgiz, 1962. 53 p. (Bibliotechka shtampovshchika, vyp. 9) Errata slip inserted. 9,000 copies printed.

Ed. (Title page): V. P. Romanovskiy, Candidate of Technical Sciences; Ed.: V. Ye. Nedorezov, Candidate of Technical Sciences; Ed. of Publishing House: G. N. Kurepina; Tech. Ed.: A. A. Bardina; Managing Ed. for Literature on Machine-Building Technology (Mashgiz): Leningrad Department, Mashgiz; Ye. P. Naumov, Engineer.

PURPOSE: This booklet is intended for engineering personnel of stamping shops and industrial planning institutes.

COVERAGE: Technological fundamentals of stamping parts from stainless steel sheets are discussed, and various types of dies and special devices are described. No personalities are mentioned.

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Stamping of Stainless Steel Parts SOV/6161

There are 8 references: 7 Soviet, and 1 English.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

SUBJECT: Metals and Metallurgy

PHASE I BOOK EXPLOITATION SOV/6300

Isachenkov, Ye. I.

Shtampovka rezinoy i zhidkost'yu (Rubber and Liquid Die Forming) Moscow, Mashgiz, 1962. 327 p. Errata slip inserted. 6200 copies printed.

Reviewer: V. T. Meshcherin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: Yu. L. Markiz; Tech. Ed.: G. V. Smirnova; Managing Ed. for Literature on Hot-Working of Metals: S. Ya. Golovin, Candidate of Technical Sciences.

PURPOSE: This book is intended for engineering personnel of machine-building plants and scientific research institutes. It may also be useful to students at schools of higher technical education.

COVERAGE: The book reviews the basic principles and engineering prospects of rubber and liquid die forming processes, used in machine building for making parts from a metal sheet. It also explains the principles of classifying sheet parts and the various production processes. No personalities are mentioned. There are 64 references: 42 Soviet, 20 English, and 2 German.

S/902/62/000/000/015/015
E193/E383

AUTHOR: Isachenkov, Ye.I.

TITLE: Forming of radially-corrugated tubes (bellows) with the aid of a rubber punch

SOURCE: Novyye protsessy obrabotki metallov davleniyem; doklady Soveshch. po novym prots. obrab. met. davleniyem v mashinostr., 1960. Ed. by V. D. Golovlev. Moscow, Izd-vo AN SSSR, 1962. 181 - 187

TEXT: The principle of the process discussed in the present paper is demonstrated in Fig. 1б, showing the relative position of the die, tube, rubber punch and compressing piston before (I) and after (II) the forming operation. Formulas were derived for the magnitude of principal deformations in the tangential and meridian directions, for the wall-thickness of the tube in the corrugations and for the pressure required to form the corrugations. Analysis of the results obtained indicated that in applying the process under consideration it was necessary to reduce the friction between the die and the tube and increase the friction between the

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Forming of radially-corrugated tubes.. S/902/62/000/000/015/015
E193/E383

tube and the rubber punch. Under these conditions the compressive stresses due to the friction forces can approximate, or even exceed, the yield stress of the tube material. This makes the process particularly attractive owing to its simplicity and high quality of the finished product (good surface finish, minimum degree of work-hardening of the surface layer, minimum reduction in the tube-wall thickness). The pressure exerted by the rubber punch increases with increasing strength of the tube material, increasing wall thickness, increasing viscosity of the lubricant and increasing speed of the process; the pressure decreases sharply with increasing length of the effective contact between the rubber punch and the cylindrical part of the die. There are 2 figures.

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L 23054-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l)/

ACC NR: AP5028993 ETC(m)-6 JD/HW/DJ SOURCE CODE: UR/0182/65/000/009/0001/0008

AUTHOR: Isachenkov, Ye. I.; Mishunin, V. A.

ORG: none

55
53
B

TITLE: Prospects for intensifying the processes of cold pressing

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 9, 1965, 1-8

TOPIC TAGS: cold forging, metal pressing, lubricant, extrusion, plasticity, material deformation, metallurgic research

ABSTRACT: Despite its great promise, the cold-pressing (extrusion) process still is not employed on an adequate scale in machine building, particularly in the fabrication of parts from high-strength nonferrous and ferrous alloys. This problem can be resolved by accomplishing the following tasks: 1. Development of a hydrodynamic lubricating regime and the elimination of the considerable energy losses due to galling. The hydrodynamic theory of friction makes possible a sufficiently complete description of the basic patterns of the effects accompanying various conditions of cold forging. 2. Uniform propagation throughout the blank of the conditions of flowage arising in the surface layer of the blank during forming; this is accomplished by compressing the blank so that the hydrostatic pressure in the zones of free flowage of the material would be commensurate with the deformation resistance of the material of the

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2

blank. 3. Selection of an optimal blank-forming regime corresponding to a minimum of the required forming energy. Each of these conditions is extremely effective in intensifying the various processes of cold forming, but the maximum effect in forming high-strength and low-plasticity metals and alloys can be produced only if all three conditions are simultaneously satisfied. Processes for which all three conditions may be satisfied are exemplified by cold forming with counter-pressure by a solid or, particularly, a liquid. Thus, the main trend in the intensification of cold-pressing processes should be based on the regulation (with the aid of lubricants of optimal viscosity) of the forces of contact friction, the development of optimal stress-strain diagrams and the selection of energetically optimal cold-forging regimes. Orig. art. has: 10 figures and 1 table.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF:007/ OTH REF: 000

Card 2/2

ISACHENKOV, YE. K.; PIKHTOVNIKOV, R. V.

Sheet Metal Work

Effect of the speed of deformation on the process of stamping parts from steel sheet, Vest. mash., 32, No. 5, 1952.

9. **Monthly List of Russian Accessions**, Library of Congress, October 1952. Unclassified.

ISACHKIN, B.Ya. (Penza).

Using slide rules in computation lessons. Mat. v shkole no.6:54-61 N-D '58. (MIRA 11:12)
(Slide rule)

ISACHKIN, B.Ya. (Penza)

Solving quadratic equations with the slide rule. Mat. v shkole no.3:61-63 My-Je '59. (MIRA 12:9)
(Equations, Quadratic) (Slide rule)

KONTOROVICH, P.G.; KURBATOV, V.A. (Sverdlovsk); GUTMAN, A.Ya. (Moskva); DEYNEGA, A.V. (Kiyev); ISACHKIN, B.Ya. (Penza); NETRONINA, N.G. (Tambov); PONOMAREV, V.S. (Izhevsk); SELIVANOV, D.P. (Korsun'-Shevchenkovskiy, Cherkasskaya obl.); KOLIKOV, A.F. (Kalinin); SHOR, Ya.A. (Moskva); IVANOV, M.I. (Tula)

Discussion of the new mathematics curricula. Mat. v shkole no.3: 4-20 My-Je '59. (MIRA 12:9)
(Mathematics)

ISACHKIN, B.Ya. (Penza)

Lessons on calculations with the aid of the slide rule in the 10th grade. Mat. v shkole no.5:35-41 S-O '59. (MIRA 13:2)
(Slide rule)

ISAACHKIN, B.Ya. (Penza)

Special aspects of teaching mathematics in the evening (staggered) secondary schools. Mat.v shkole no.4:58-60 Jl-Ag '62. (MIRA 15:11)

(Mathematics--Study and teaching)

ISACHKIN, B.Ya. (Penza); MALININ, V.V. (Leningrad); BOGDANOV, I.M.; SENNOVSKAYA, F.V., obshchestvennyy metodist; ASKEROV, K. (Baku)

Draft program for mathematics in grades 9 to 11 of evening (staggered) secondary schools of general education. Mat. v shkole no.3:57-59 My-Je '63. (MIRA 16:7)

1. Inspektor po shkolam rabochey molodezhi Kalininskogo rayona Moskvy (for Bogdanov).
(Mathematics—Study and teaching)

BUSILA, V.T.; POP, O.; VASILESCU, I.; TOPCIU, Vl.; POPIAN, R.; CUCURUZ, L.; ALEXANDRESCU, R.; ISACSON, I.; SON, C.; CRAVCEVSCHI, V.; ZILBERMAN, L.; FITARAU, A.; JICMAN, M.

Clinical study of leptospirosis. Stud. cercet. inframicrobiol., Bucur. 8 no.2:259-280 1957.

1. Communicare prezentata la Institutul de inframicrobiologie al Academiei R.P.R. in sedinta din 5 marte 1956.

(LEPTOSPIROSIS

pathol. & epidemiol. of L. pomona, L. canicola & other leptospiral infect. in Rumania, case reports & review)

ISADNOV, P. P.

Fishing - Implements and Appliances

Drop hammer with head for driving in seine stakes. Ryb. khoz., 28, No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

1. ISADOV, P. M.

2. USSR (600)

4. Iron - Analysis

7. Qualitative detection of iron in ores and minerals by means of trituration. Nauch. biul Len un No. 30 1952.

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

AUTHORS: Glotov, V.V., Lysenko, M.A., Parshina, V.M., Sokolova, N.A., Isadskaya, T.A., Engineers SOV/118-58-12-9/17

TITLE: The Economical Effectiveness of a Centralized Electric Power Supply for Lumbering Sites (Ekonomicheskaya effektivnost' tsentralizovannogo elektrosnabzheniya na lesozagotovkakh)

PERIODICAL: Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1958, Nr 12, pp 29 - 35 (USSR)

ABSTRACT: The article deals in detail with the calculation of the operational expenses at lumbering sites, using electric power instead of oil driven engines. The research leads to the conclusion that under definite conditions, the electrification of the lumbering industry proves to be economically more efficient as compared with the utilization of oil-fuelled mechanisms. There are 7 tables, and 1 graph.

Card 1/1

GULAMOV, R.G.; ZAYKO, G.I.; ZOTOV, A.N.; ISADZHANOVA, Kh.K.; SOKOLOV, Yu.A.; SHKLOVER, A.Ya.; TSUKERMAN, M.P.; USTIMENKO, I.L., red.; BAKHRIYAROV, A., tekhn.red.

[Tashkent; concise reference book] Tashkent; kratkii spravochnik. Izd.2., dop. Tashkent, Gos.izd-vo Uzbekskoi SSR, 1958. 190 p. (MIRA 13:3)

(Tashkent--Guidebooks)

Card 1/1

BOIADZHIEVA, M.; MILEV, M.; ISAEV, Iv.

Experience with the preparation of complexes in the form of dry extracts and tablets. II. Nauch. tr. vissh. med. inst. Sofia 39 no.5: 133-138 '60.

1. Predstavena ot prof. T. Trandafilov, rukovoditel na Katedrata po tekhnologiia na lekarstvenite formi i galenovi preparati.

(TABLETS) (PHARMACY)

BOIADZHIEVA, M.; MILEV, M.; ISAEV, Iv.

Experience with the preparation of complexes in the form of liquid extracts, dry concentrates and tablets. I. Nauch. tr. vissh. med. inst. Sofia 39 no.5:139-143 '60.

1. Predstavena ot prof. T. Trandafilov, rukovoditel na Katedrata po tekhnologiia na lekarstvenite formi i galenovi preparati.

(PHARMACY) (TABLETS)

ISAEV, Iv.; BOIADZHIEVA, M.

Production of galenic and neo-galenic preparations and experience with the isolation of active substances from Leonurus cardiaca, Nauch. tr. vissh. med. inst. Sofia 39 no.5:145-152 '60.

1. Predstavena ot prof. T. Trandafilov, rukovoditel na Katedrata po tekhnologiia na lekarstvenite formi i galenovi preparati.

(PLANTS MEDICINAL)

ISAEV, Iv.; BOIADZHIEVA, M.; MILEV, M.

Production of tablets of Leonurus cardiaca alone and in combination with nuleovasan, phenylurea and other drugs. Nauch. tr. vissh. med. inst. Sofia 41 no.4:33-37 '62.

1. Predstavena ot prof. d-r T. Trandafilov.
(ANTICONVULSANTS) (ANTIHYPERTENSIVE AGENTS)
(HYPNOTICS AND SEDATIVES) (PLANTS, MEDICINAL)

PASKOV, D.; ZHELIAZKOV, D.; ISAEV, Iv.; BOIADZHIEVA, M.; MILEV, M.

Production and pharmacological analysis of a purified Digitalis ambigua cardiac preparation. Nauch. tr. vissh. med. inst. Sofia 41 no.4:39-50 '62.

1. Predstavena ot prof. P. Nikolov.
(DIGITALIS GLYCOSIDES)

Laboratory for Physiology of [illegible]

ISAEVA, M.

First step toward inventiveness. Nauka i tekh z mladezh 13 no.12:8-9 D '61.

ISAGALIYEVA, M.M.

Penicillin for treating progressive paralysis. Trudy Inst.kraev.pat. AN Kazakh.SSR 1:123-132 '52. (MLRA 10:2)
(PENICILLIN) (PARALYSIS)

L 07227-67 EWP(j) IJP(c) RM/DS

ACC NR: AP6026502 SOURCE CODE: YU/0002/66/000/004/0209/0213

30
29
8

AUTHOR: Ipaguljanc, V. I. (Academician; Professor); Desukki, A.

ORG: Moscow Institute for Oil and Gasoline Chemistry, Moscow (Moskovski institut za naftu i petrokemiju)

TITLE: Polymerization of certain unsaturated hydrocarbons in presence of cation exchange resins

SOURCE: Kemija u industriji, no. 4, 1966, 209-213

TOPIC TAGS: ion exchange resin, hydrocarbon, unsaturated hydrocarbon, polymerization, catalytic polymerization, polyisobutylene

ABSTRACT: The article is a translation of a lecture given in September of 1965 which dealt with the polymerization of tertiary unsaturated hydrocarbons in presence of cation exchange KU-2 resins. The polymerization of isobutylene and isoamylene yields generally unsaturated dimers and trimers, whereas the polymerization of α-methystyrene and its homologues yields mostly saturated dimers with some unsaturated trimers. Optimum conditions for polymerization are given, and it is shown that α-methylstyrene and its homologues show differing tendencies toward polymerization. The polymerization of p,α-dimethylstyrene, p-ethyl-α-methylstyrene, and p-isopropyl-α-methylstyrene in presence of cation exchangers has been studied for the first time as was the

Card 1/2 UDC: 661.715.3.095.264

L 07227-67

ACC NR: AP6026502

copolymerization reaction of α-methylenstyrene with isobutylene and isoamylenes. Compounds were identified by infrared and ultraviolet rays. Orig. art. has: 7 tables and 2 figures.

SUB CODE: 07/ SUBM DATE: none

Card 2/2

POPOV, N.F.; ISAGULOV, T.I.

Using metal supports in soft ground. Nauch. trudy KNIUI no.14:153-162 '64. (MIRA 18:4)

YERSHOV, V.Z. [IErshov, V.Z.]; ISAGULOVA, O.Z. [Isahulova, O.Z.]

Jurassic sediments overlying the coal-bearing layer of the Lvov-Volyn' Carboniferous and materials on their stage. Visnyk L'viv.un. Ser.geol. no.1:21-24 '62. (MIRA 16:7)
(Lvov-Volyn Basin--Geology, Stratigraphic)

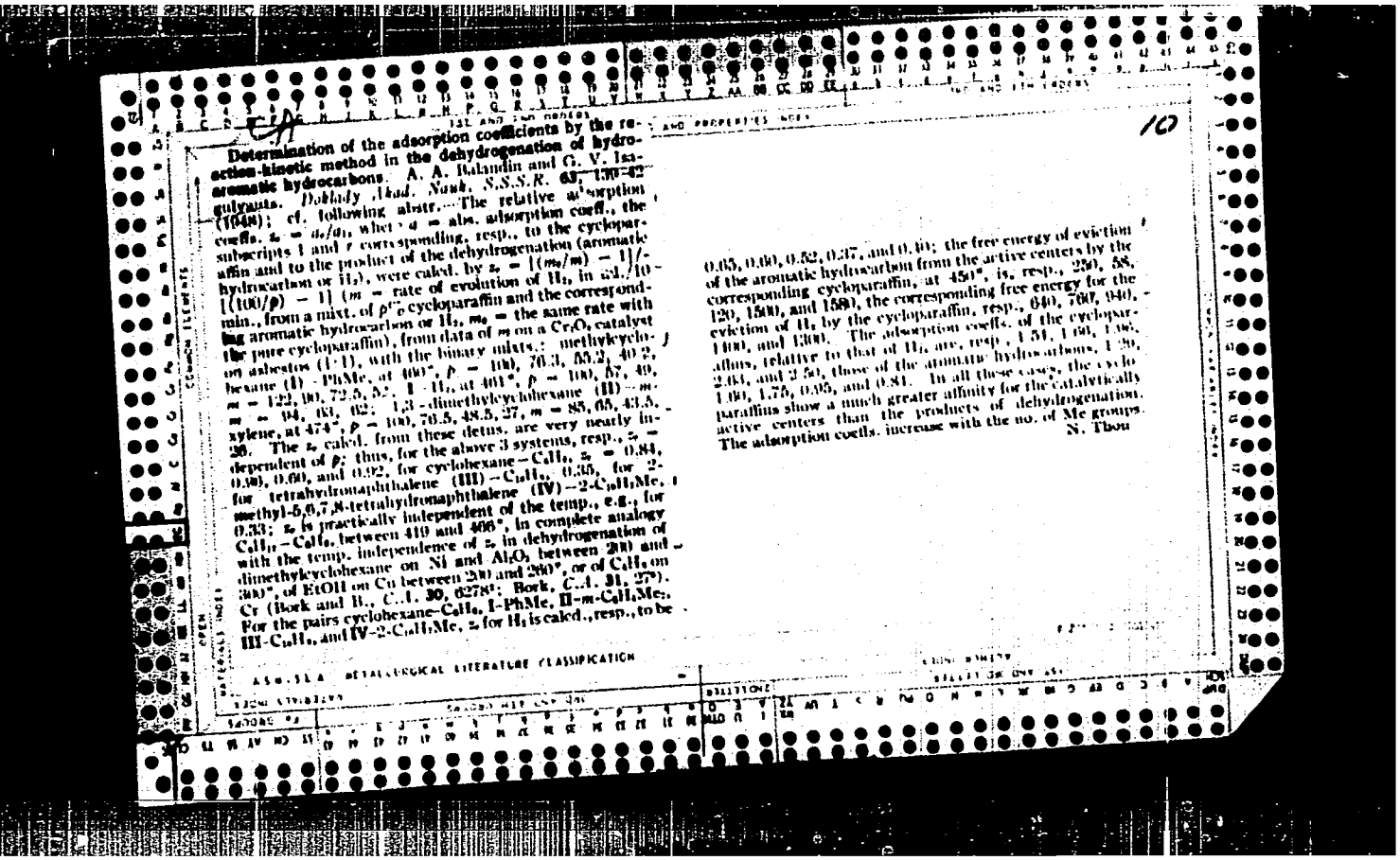
ISAGULOVA, Ye.Z.

Hystrichospheridia in Jurassic deposits of the Lvov-Volyn' Coal Basin. Dokl. AN SSSR 148 no.5:1156-1158 F '63. (MIRA 16:3)

1. L'vovskiy gosudarstvennyy universitet im. Ivana Franko. Predstavleno akademikom V.N.Sukachevym.
(Lvov-Volyn' Basin—Paleobotany)

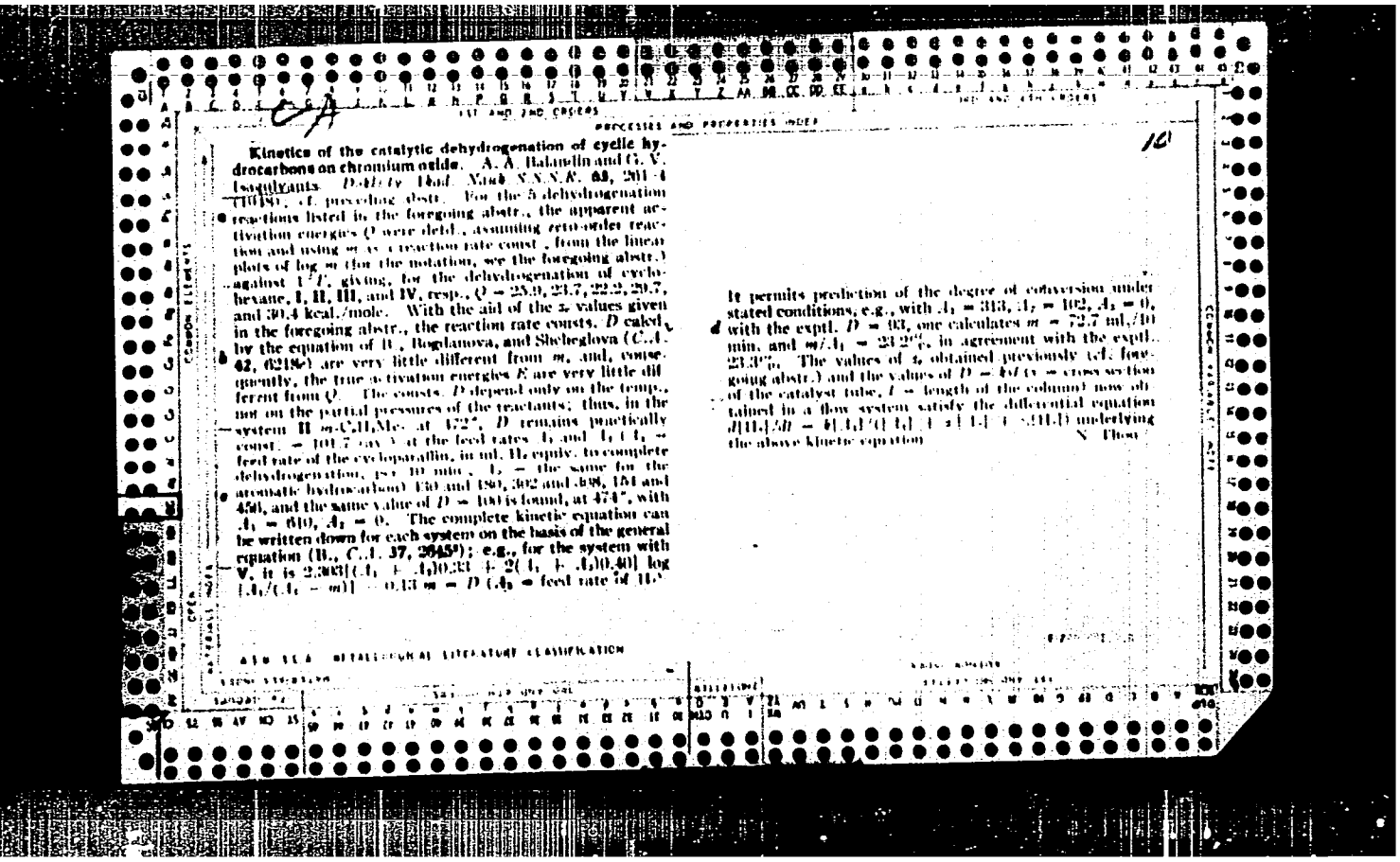
ISAGULOVA, Yo.Z.

Palynological characteristics of Middle Jurassic sediments in the southwestern margin of the Russian Platform and Carpathian piedmont fault. Vest. L'vov. un. Ser. geol. no.2: 36-40 '64. (MIRA 19:1)



Determination of the adsorption coefficients by the reaction-kinetic method in the dehydrogenation of hydroaromatic hydrocarbons. A. A. Balandin and G. V. Isagulyants. *Doklady Akad. Nauk. S.S.S.R.* **63**, 179–82 (1948); cf. following abstr.—The relative adsorption coeffs. $z_r = a_r/a_1$, where a = abs. adsorption coeff., the subscripts 1 and r corresponding, resp., to the cycloparaffin and to the product of the dehydrogenation (aromatic hydrocarbon or H_2), were calcd. by $z_r = [(m_0/m) - 1]/[(100/p) - 1]$ (m = rate of evolution of H_2 in ml./10 min., from a mixt. of p% cycloparaffin and the corresponding aromatic hydrocarbon or H_2, m_0 = the same rate with the pure cycloparaffin), from data of m on a Cr_2O_3 catalyst on asbestos (1:1), with the binary mixts.: methylcyclohexane (I)–PhMe, at 400°, p = 100, 70.3, 55.2, 40.2, m = 122, 90, 72.5, 52; I–II, at 401°, p = 100, 67, 49, m = 94, 63, 42; 1,3-dimethylcyclohexane (II)–m-xylene, at 474°, p = 100, 70.5, 48.5, 27, m = 85, 65, 43.5, 26. The z_r calcd. from these detns. are very nearly independent of p; thus, for the above 3 systems, resp., z_r = 0.84, 0.90, 0.60, and 0.92; for cyclohexane–C_6H_6, z_r = 0.55, for 2-methyl-5,6,7,8-tetrahydronaphthalene (III)–C_6H_6, 0.35, for 2-methyl-5,6,7,8-tetrahydronaphthalene (IV)–2-C_6H_5Me, 0.33; z_r is practically independent of the temp., e.g., for C_6H_{12}–C_6H_6, between 419 and 466°, in complete analogy with the temp. independence of z_r in dehydrogenation of dimethylcyclohexane on Ni and Al_2O_3 between 280 and 360°, or of C_6H_{12} on Cr (Bork and B., *C.A.* **30**, 6278°; Bork, *C.A.* **31**, 27°). For the pairs cyclohexane–C_6H_6, I–PhMe, II–m-$C_6H_4Me_2$, III–C_6H_6, and IV–2-C_6H_5Me, z_r for H_2 is calcd., resp., to be 0.65, 0.60, 0.52, 0.37, and 0.40; the free energy of eviction of the aromatic hydrocarbon from the active centers by the corresponding cycloparaffin, at 451°, is, resp., 220, 58, 120, 1500, and 1580, the corresponding free energy for the eviction of H_2 by the cycloparaffin, resp., 640, 760, 940, 1100, and 1300. The adsorption coeffs. of the cycloparaffins, relative to that of H_2 are, resp., 1.51, 1.66, 1.86, 2.03, and 2.50, those of the aromatic hydrocarbons, 1.50, 1.90, 1.75, 0.95, and 0.81. In all these cases, the cycloparaffins show a much greater affinity for the catalytically active centers than the products of dehydrogenation. The adsorption coeffs. increase with the no. of Me groups.

N. Thon



Kinetics of the catalytic dehydrogenation of cyclic hydrocarbons on chromium oxide. A. A. Balandin and G. V. Isagulyants. *Doklady Akad. Nauk S.S.S.R.* **68**, 291–4 (1949). Cf. preceding abstr. For the 5 dehydrogenation reactions listed in the foregoing abstr., the apparent activation energies Q were detd., assuming zero-order reaction and using m as a reaction rate const., from the linear plots of log m (for the notation, see the foregoing abstr.) against $1/T$, giving, for the dehydrogenation of cyclohexane, I, II, III, and IV, resp., Q = 25.9, 23.7, 22.2, 20.7, and 20.4 kcal./mole. With the aid of the z values given in the foregoing abstr., the reaction rate consts. D calcd. by the equation of B., Bogdanova, and Shcheglova (*C.A.* **42**, 6218e) are very little different from m, and, consequently, the true activation energies E are very little different from Q. The consts. D depend only on the temp., not on the partial pressures of the reactants; thus, in the system II–*m*-$C_6H_4Me_2$ at 472°, D remains practically const. = 101.7 cu. ft. at the feed rates l_1 and l_2 (l_1 = feed rate of the cyclopentane, in ml. H_2 equiv. to complete dehydrogenation, per 10 min., l_2 = the same for the aromatic hydrocarbon) 130 and 180, 302 and 348, 151 and 450, and the same value of D = 101 is found, at 474°, with A_1 = 610, A_2 = 0. The complete kinetic equation can be written down for each system on the basis of the general equation (B., *C.A.* **37**, 2645[9]); e.g., for the system with V, it is $2.303[(A_1 + A_2)0.33 + 2(A_1 + A_2)0.40]$ log $[A_1/(A_1 - m)] - 0.13\,m = D$ (A_2 = feed rate of H.

It permits prediction of the degree of conversion under stated conditions, e.g., with A_1 = 313, A_2 = 102, A_3 = 0, with the expt. D = 93, one calculates m = 72.7 ml./10 min. and m/A_1 = 23.2%, in agreement with the expt. 23.3%. The values of z obtained previously (cf. foregoing abstr.) and the values of $D = kf(z$ = cross section of the catalyst tube, l = length of the column) now obtained in a flow system satisfy the differential equation $d[H_2]/dl = k[A_1]^n([A_1] + z[A_2] + z[H_2])$ underlying the above kinetic equation. N. Thon

USSR/Chemistry -- Cyclohexane, Jan 49
Dehydrogenation
Chemistry -- Naphthalene, Decahydro

"The Orientation of Decalin and Cyclohexane Molecules on Oxide and Metallic Catalyzers During Dehydrogenation," Acad A. A. Balandin, G. V. Isagulyants, 4 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 2

Experimentally confirms that cyclohexane must dehydrogenate faster than decalin when their molecules are smoothly oriented on catalyzer's surface, which might be expected on basis of multiplet theory. Submitted 20 Nov 48.

25/49T6

ISAGULYANTS, G. V., KEYER, N. P., KLIMENOK. B. V.

Ethanes

Preparation of acetylene and ethane tagged by radiocarbon C 14. Dokl. AN SSSR 85, No. 5, 1952.

Radioactive acetylene was prepd from barium carbide contg C^{14} and water. Radioactive ethane was prepd from the tagged acetylene by means of hydrogenation over a Ni catalyst at room temp. Submitted by Acad A. N. Frum 12 Jun 52.

239T13

9. Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

ISAGULYANTS, G. V., KETYER, N. T., and LITMENON, B. V.

"Preparation of Acetylene and Ethane Tagged with C^{14}," Sb. po Obshch, Khimii. Izd-vp AN SSSR, M. -L., Vol 2, pp 1566-1569, 1953

Developed a laboratory method for the preparation of acetylene tagged with C^{14}. Method consists of heating radioactive barium carbonate with magnesium to prodice radioactive barium carbide. The barium carbide then yields radioactive acetylene when treated wiht water, and the acetylene can be hydrogenated over a nickel catalyst to give radioactive ethane. (RZhKhim, No 22, 1954)

Sum. No. 681, 7 Oct 55

ISAGULYANTS G. V.; KEYER N. P.; and KLIMENOK B. V.

Preparation of Acetylene and Ethane Tagged with Radioactive Carbon C^{14}., Page 1566, Sbornik statey po obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Inst of Physical Chemistry, Acad Sci USSR

ISAGULYANTS, G. V.

11 Aug 53

USSR/Chemistry - Isotopes

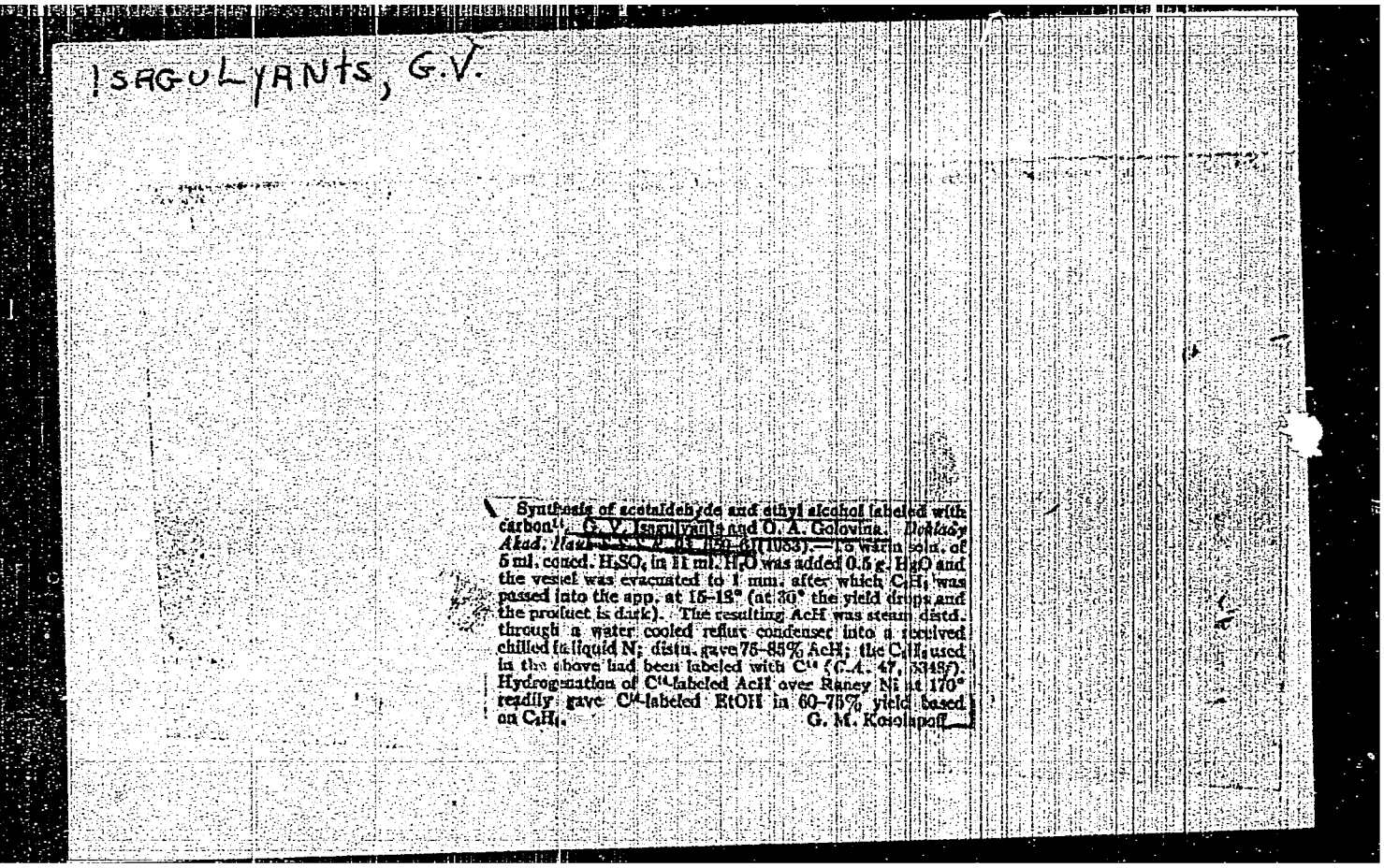
"The Preparation of Caproic Acid Tagged with Radioactive C^{14} in the Carboxyl Group,"

G.V. Isagulyants, Ye.A. Andreyev, and N.A. Kosolapova

DAN SSSR, Vol 91, No 5, pp 1123-1124

Using the Grignard reaction prepd caproic acid having C^{14} in the carboxyl group. Reacted amyl-Mg-bromide with $C^{14}O_2$ prepd from $BaC^{14}O_3$. Yield of caproic acid was 91% of theoretical. Presented by Acad A.N. Frumkin 13 Jun 53.

266T8



ISAGULYANTS, G.V.

Synthesis of acetaldehyde and ethyl alcohol labeled with carbon[14]. G. V. Isagulyants and O. A. Golovina. *Doklady Akad. Nauk S.S.S.R.* 91, 859-61(1953).—To warm soln. of 5 ml. concd. H_2SO_4 in 11 ml. H_2O was added 0.5 g. HgO and the vessel was evacuated to 1 mm. after which C_2H_2 was passed into the app. at 15–18° (at 30° the yield drops and the product is dark). The resulting AcH was steam distd. through a water cooled reflux condenser into a receiver chilled in liquid N; distn. gave 75–85% AcH; the C_2H_2 used in the above had been labeled with C^{14} (*C.A.* 47, 3348f). Hydrogenation of C^{14}-labeled AcH over Raney Ni at 170° readily gave C^{14}-labeled EtOH in 60–75% yield based on C_2H_2.

G. M. Kosolapoff

ISAGULYANTS, G.V.

PHASE I BOOK EXPLOITATION 1181

Akademiya nauk SSSR. Institut fizicheskoy khimii

Problemy kinetiki i kataliza. [t] IX: Izotopy v katalize (Problems of Kinetics and Catalysis. [v] 9: Isotopes in Catalysis) Moscow, Izd-vo AN SSSR, 1957. 442 p. 3,500 copies printed.

Eds: Roginskiy,S.Z., Vinogradova, O.M., Keyer, N.P. and Yanovskiy, M.I., Corresponding Members, USSR Academy of Sciences; Ed. of Publishing House: Vasserberg, V.E.

PURPOSE: This book is for specialists interested in the theoretical and practical problems of the application of isotopes in catalysis.

COVERAGE: This collection of articles forms volume 9 of "The Problems of Kinetics and Catalysis." Most of the papers were presented at the Conference on Isotopes in Catalysis which took place in Moscow, March 31 - April 5, 1956. Scientists from the Academy of Sciences of

Card 1/14 3

of the USSR, the Ukrainian Academy of Sciences, institutes of the chemical and petroleum industries, and several vuzes took part. Scientists from the six people's republics China, GDR, Poland, Czechoslovakia, Hungary and Rumania also participated. This conference was the first of its sort not only in the Soviet Union, but internationally. Several articles which could not be included in the program of the conference are given in the text. Each article has figures, tables, and a bibliography.

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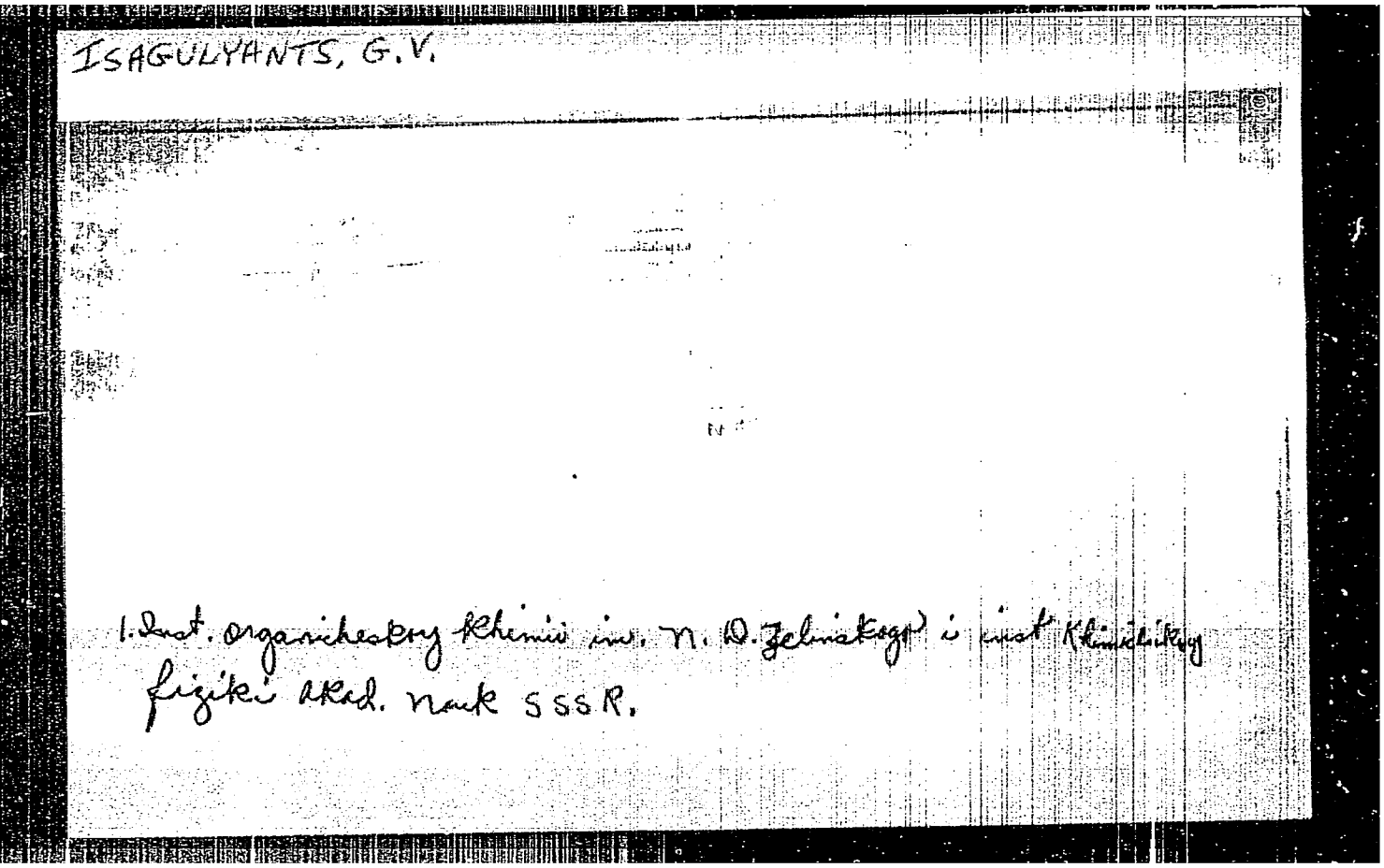
Card 3/4

ISAGULYANTS, G. V., BOGDANOVA, O. K., BALANDIN, A. A., MEYMAN, M. B., and POPOV, Ye. I.

"Application of radio-carbon in investigating the mechanism of consecutive reactions of butene-butylene-divinyl," a paper submitted at the International Conference on Radioisotopes in Scientific research, Paris, 9-20 Sep 57.



BALANDIN, A.A.; NEYMAN, M.B.; BOGDANOVA, O.K.; ISAGULYANTS, G.V.; SHCHEGLOVA, A.P.; POPOV, Ye.I.

Process of carbon dioxide formation in obtaining divinyl from butane-butylene mixtures. Izv.AN SSSR.Otd.khim.nauk no.3:270-278 Mr '57. (MLRA 10:5)

1.Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR i Institut khimicheskoy fiziki Akademii nauk SSSR.
(Carbon dioxide) (Butane) (Butylene)

ISAGULYANTS, G.V.

BALANDIN, A.A.; NEYMAN, M.B.; BOGDANOVA, O.K.; ISAGULYANTS, G.V.; SHCHEGLOVA, A.P.; POPOV, Ye.I.

Dehydrogenation of butane - butylene mixtures using tagged atoms. (MIRA 11:3)
Probl. kin. i kat. 9:45-60 '57.
(Dehydrogenation) (Butane)

ISAGULYANTS, G.V.

Discussion. Probl. kin. i kat. 9:215-216 '57. (MIRA 11:3)
(Dehydrogenation) (Butane) (Butylene)

BAIANDIN, A. A., XE BOGKANOVA, O. K., ISAGULYANTS, G. V., NEYMAN, Yu. V., and POPOV, Ye. I
(Inst. of Organic Chem. AS USSR.)

"Investigation of the Mechanism of Successive Reactions Butane-Butylene-Divinyl by Using Radioactive Carbon C^{14}." p. 52.

Isotopes and Radiation in Chemistry, Collection of papers of 2nd All-Union Sci. Tech. Conf. on Use of Radioactive and Stable Isotopes and Radiation in National Economy and Science, Moscow, Izd-vo AN SSSR, 1958, 380pp.

This volume published the reports of the Chemistry Section of the 2nd AU Sci Tech Conf on Use of Radioactive and Stable Isotopes and Radiation in Science and the National Economy, sponsored by Acad Sci USSR and Main Admin for Utilization of Atomic Energy under Council of Ministers USSR Moscow 4-12 Apr 1957.

ISAGULYANTS G. V.

62-1-6/29

AUTHORS: Balandin, A. A., Bogdanova, O. K., Isagulyants, G. V., Neyman, M. B., Popov, Ye. I.

TITLE: The Application of Radioactive Carbon in the Comparison Between the Dehydrogenation Velocities of Butane and Butylene (Primeneniye radiougleroda dlya sravneniya skorostey degidrogenizatsii butana i butilena).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1, pp. 18-23 (USSR)

ABSTRACT: The investigation (with the application of C^{14}) was carried out by means of a special catalyst under conditions especially favorable for the obtaining of divinyl. Since it turned out that divinyl can be formed from butylene and that butane cannot be transformed into divinyl, it was concluded that the reaction (divinyl from butane) passes only through the stage of the formation and desorption of butylene. Therefore the desorption of butylene cannot be a final stage of the entire reaction. The authors report on the carrying out of the investigation: The correlation between the dehydrogenation velocity of butane and butylene in divinyl at the chromium catalyst was found by means of computations corresponding to the experimental data obtained already before. It was

Card 1/2

shown that the ratio of the velocities of the dehydrogenation of butane in butylene and of butane in divinyl is for both catalysts of the same order and corresponds to the ratio 20:1. In the experiments with chromium catalysts the velocity ratio in the formation of divinyl from butane corresponded to 1:1000 and in the experiments with an alumochromium catalyst to 1:25. Furthermore it was confirmed that the formation of divinyl from butane takes place over the stage of the formation of butylene. It was shown that the constants (in the denominator of the kinetic equation of dehydrogenation) represent adsorption coefficients. There are 6 figures, 4 tables, and 5 references, 4 of which are Slavic.

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

SUBMITTED: January 4, 1957

Card 2/2 1. Butane-Dehydrogenation 2. Butylene-Dehydrogenation 3. Carbon isotopes (Radioactive)-Applications 4. Chromium catalyst-Applications

Isagulyants, G. V.

AUTHORS: Balandin, A. A., Isagulyants, G. V., Popov, Ye. I., 62-2-18/28
Derbentsev, Yu. I., Vinogradov, S. L.

TITLE: The Application of Radioactive Carbon for the Investigation of the Dehydration Mechanism of Ethyl Alcohol Over Aluminum Oxide (Primeneniye radiougleroda dlya issledovaniya mekhanizma degidratsii etilovogo spirta nad okis'yu alyuminiya).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 2, pp. 233-235 (USSR).

ABSTRACT: The problem of the above-mentioned dehydration mechanism has long been discussed in publications. Various authors assume that the formation of ethylene takes place over the stage of the formation of the diethyl ether. Others, however, think that ethylene and ethers form as a result of 2 independent parallel reactions. For the purpose of solving this problem the authors performed the dehydration of ethylene alcohol with addition of diethyl ether. See formulae (2),(3),(4). As the final result of the performed reactions showed, alcohol, ether and ethylene possess a spicific radioactivity (see figure 1). The authors determined: the dehydration velocity of ethyl alcohol and ether in ethalene as well as the common

Card 1/2

The Application of Radioactive Carbon for the Investigation of the Dehydration Mechanism of Ethyl Alcohol Over Aluminum Oxide. 62-2-18/28

conversion of alcohol and ether over aluminum oxide at 300° C. They found that ethylene forms in two different ways: directly from alcohol, and over ether. There are 2 figures, 1 table, and 8 references, 6 of which are Slavic.

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

SUBMITTED: September 21, 1957

AVAILABLE: Library of Congress

1. Carbon Isotopes (Radioactive)-Applications 2. Ethanol-Dehydration 3. Aluminum oxide-Applications

Card 2/2

,5(3)

AUTHORS: Balandin, A. A., Isagulyants, G. V. SOV/62-58-11-5/26

TITLE: Dehydrogenation of Some Hydroaromatic Hydrocarbons on a Chromium Catalyst (Degidrogenizatsiya nekotorykh gidroaromaticheskikh uglevodorodov nad khromovym katalizatorom)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 11, pp 1303-1309 (USSR)

ABSTRACT: In the present paper the authors especially tried to establish equal conditions of reaction for various hydrocarbons. For this reason the data determined may be compared qualitatively as well as quantitatively with each other. The authors applied the running-thru method. The general scheme of the apparatus corresponded to a similar scheme described in reference 1. The catalyst was produced according to the method described in reference 4. Its activity was constant and was controlled after dehydrogenation of cyclohexane. Dehydrogenation of cyclohexane, Dekalin, methyl cyclohexane, 1,3-dimethyl cyclohexane, Tetralin, 2-methyl-5,6,7,8-tetrahydro naphthalene was investigated on the chromium catalyst. The 4 compounds mentioned last were investigated for the first time. The

Card 1/3

activation energies of cyclohexane, methyl cyclohexane, 1,3-dimethyl cyclohexane, Tetralin, and methyl Tetralin were determined on the chromium oxide. The hydrocarbons similar in structure - cyclohexane, methyl cyclohexane, dimethyl cyclohexane, and Dekalin - are characterized by similar constants of the Arrhenius equation which, however, do not agree. The occurrence of methyl groups in the cyclohexane ring slightly reduces these constants. At high temperatures this leads to a considerable difference in dehydrogenation velocity. Tetralin and methyl Tetralin can be dehydrogenated at a greater number of active places than cyclohexane and its homologs. Dehydrogenation is in this case characterized by greater constants of the Arrhenius equation. For the dehydrogenation of all hydrocarbons mentioned the factors of the exponential functions are logarithmically dependent on the activation energy. The distribution constant is the same in all cases. There are 7 figures, 10 tables, and 5 references, 3 of which are Soviet.

Dehydrogenation of Some Hydroaromatic Hydrocarbons on a Chromium Catalyst SOV/62-58-11-5/26

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

SUBMITTED: May 14, 1957

Card 3/3

S/081/62/000/001/007/067
B156/B101

AUTHORS: Minachev, Kh. M. Isagulyants, G. V., Kondrat'yev, D. A.

TITLE: Investigation of the poisoning of a platinum catalyst, in reforming conditions, by thiophene containing the radioactive isotope S^{35}

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 73-74, abstract 1B540 (Sb. "Khimiya seraorgan. soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh, v. 4". M., Gostoptekhizdat, 1961, 160-165)

TEXT: The general laws for the poisoning of platinized Al_2O_3 containing 5% Pt by thiophene labeled with radioactive sulfur, when dehydrogenating cyclohexane in a flow system at an H_2 pressure of 20 atm and a temperature of 450°C, are studied. Radiochemical analysis enabled the sulfur content of the catalyst to be determined, this varying between 0.063 and 0.14% according to the concentration of thiophene in the initial mixture. The activity of

Card 1/2

Investigation of the poisoning ...

the catalyst decreases linearly as its sulfur content is increased. The process of regeneration of the catalyst is accompanied by the removal of sulfur from it, but full activity is restored when the catalyst still contains ~40% of the sulfur which it contained before regeneration began. [Abstracter's note: Complete translation.]

Card 2/2

33491

S/195/61/002/005/016/027
E030/E185

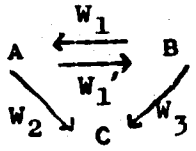
5.1190

AUTHORS: Isagulyants, G.V., and Balandin, A.A.

TITLE: The use of radiocarbon (C^{14}) in studying the mechanism of parallel-consecutive catalytic processes

PERIODICAL: Kinetika i kataliz, v.2, no.5, 1961, 737-740

TEXT: The use of radiocarbon is proposed to determine the stages and process of forming products in parallel-consecutive reactions, the general scheme of which is represented by:



(II)

where A is the initial product, B and C the products formed during the process. Three typical cases arise: for a reaction rate $W_2 \simeq 0$, C is formed consecutively from A with B as intermediate; for $W_3 \simeq 0$, B and C are formed from A in parallel but

Card 1/5

The use of radiocarbon (C^{14}) ....

independent of each other; and when all the rates are commensurable, C is a product of a consecutive-parallel reaction. The formulae for the rates W_i are:

$$W_1 = \frac{d\beta}{d\tau} \cdot \frac{C_2}{(\alpha - \beta)} ; \quad W_1' = \frac{d\alpha}{d\tau} \cdot \frac{C_1}{(\alpha - \beta)} ; \qquad (1)$$

$$W_3 = \frac{C_3(d\gamma/d\tau) + (\gamma - \alpha)(dC_3/d\tau)}{\beta - \alpha} ; \quad W_2 = \frac{dC_3}{d\tau} - W_3 ;$$

where α, β, γ are the specific activities and C_1, C_2, C_3 the concentrations of A, B, C, respectively; τ is the contact time. The authors were able to observe the above discussed cases in many processes by adding to the initial product A a small quantity of B or C marked with C^{14} and determining the changes in concentration and specific radioactivity in relation to contact time. One of these processes was that of the decomposition of ethyl alcohol investigated by the authors together with Ye.I. Popov and Yu.I. Derbentsev (Ref.3: Izv. AN SSSR, Otd.khim. n., 1958, 233). The decomposition was carried out in the

The use of radiocarbon (C^{14}) ...

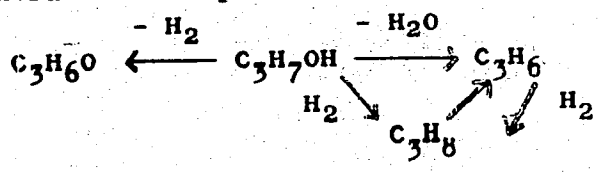
temperature range 275 - 400 °C with aluminium oxide as catalyst. It occurs in two directions: into ethylene and into ethyl ether. At the lower temperatures, decomposition into ethylene was much slower than the dehydration reaction (reversible) into ethyl ether. As the temperature rose, the decomposition rate of ethyl alcohol into ethylene rose until at 400 °C it became comparable with that of the ether reaction. Thus, the concentrations of both alcohol and ether show maxima. As the temperature rises the ether maximum is produced not only by the direct alcohol-ethylene reaction, but also by decomposition of the ether to ethylene. At 400 °C where there is 100% conversion to ethylene, 80% of the ethylene is produced from the alcohol and 20% from the ether. The dehydrogenation of cyclohexane to cyclohexene and to benzene is another similar process (Ref.5: Yu.I. Derbentsev, A.A. Balandin, G.V. Isagulyants, Kinetika i kataliz, v.2, 741, 1961). A pure consecutive process occurs in the dehydrogenation of butane-butene mixtures on chromium catalysts. Both the butane and butenes are converted directly to butadiene, the conversion rate from butane being about 3 times faster than from butene.

Card 3/5

S/195/61/002/005/016/027
E030/E185

The use of radiocarbon (C^{14}) ....

An unexpectedly interesting system is the decomposition of isopropyl alcohol on a vanadium trioxide catalyst. The catalyst was obtained by passing hydrogen over the trioxide at 417°. The general scheme possible is:



(III)

By using radioactive propylene (up to 29 000 imp./min on $BaCO_3$), and by separating propane, propylene, and the catalysate, and determining their activities, it was shown that propylene is not converted to isopropyl alcohol at 315°, and that propane is formed, not from propylene, but from the isopropyl alcohol. There are 1 table and 10 references; 8 Soviet-bloc and 2 non-Soviet-bloc. The English language references read as follows:
Ref.8: V.J. Komarevsky, J.Amer.Chem.Soc., v.69, 238, 1947.

Card 4/5

33492

S/195/61/002/005/017/027
E030/E185

11.0132

AUTHORS: Derbentsev, Yu.I., Balandin, A.A., and Isagulyants, G.V.

TITLE: Investigation of the role of cyclohexene in the heterogeneous catalytic dehydrogenation of cyclohexane, using radiocarbon

PERIODICAL: Kinetika i kataliz, v.2, no.5, 1961, 741-747

TEXT: The dehydrogenation of cyclohexane on chromia and rhenium catalysts has been studied, using C^{14}. Chromia was chosen as an oxide catalyst, favourable for doublet dehydrogenation, and rhenium as a metallic catalyst suitable for a sextet dehydrogenation, where the conversion rate of cyclohexene by this process is negligible. The chromium oxide in 2-mm pellets was obtained from ammonium bichromate. Before every experiment the rhenium catalyst, prepared by the method previously described (Ref.8: A.A. Balandin, Ye.I. Karpeyskaya, A.A. Tolstopyatova, Zh. fiz. khimii, v.33, 2471, 1959) was kept for one hour in hydrogen at 480 °C. A continuous flow reactor was used, with varying initial concentrations of cyclohexane (obtained by hydrogenation of benzol),

Card 1/3

Investigation of the role of ....

33492
S/195/61/002/005/017/027
E030/E185

benzol, and marked cyclohexene (activity 470 pulses/minute mg $BaCO_3$) obtained from C^{14} marked phenol. The catalysates were analysed chromatographically on a 7m long spiral column of diatomaceous earth, of which the first half was impregnated with dinonylphthalata, and the second half with dioctylsebacate; the outlet from the column was led either to a thermal conductivity detector or for quantitative analysis to a bubbler with obaryta water, in order to obtain barium carbonate. The radioactivity of targets made from this carbonate was measured with an end window counter, and samples taken after 15 min. On the chromia catalyst, benzole was formed by a parallel-consecutive process; conversion of cyclohexane into benzole is 1.5 times faster than the conversion of cyclohexene; a considerable part being formed from adsorbed and desorbed cyclohexene and it is obviously a doublet mechanism of dehydrogenation. On the rhenium catalyst, there is no consecutive process at all and cyclohexane is converted directly into benzole by a sextet mechanism. The differing behaviour on the two types of catalyst is striking; on chromia it is dehydrogenated to benzole, but on rhenium it is

Card 2/3

ISAGULYANTS, G.V.; BALANDIN, A.A., akademik; POPOV, Ye.I.

Determination of relative adsorption coefficients by isotopic dilution. Dokl. AN SSSR 139 no.1:139-141 Jl '61. (MIRA 14:7)
(Adsorption) (Radioactive tracers)

ZAKHARYCHEVA, I. I.; ISAGULYANTS, G. V.; BAIANDIN, A. A.

Formation of ethane during decomposition of ethyl alcohol on titanium dioxide. Izv. AN SSSR. Otd. khim. nauk no.1:179-180 '63. (MIRA 16:1)

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

(Ethane) (Ethyl alcohol)

MINACHEV, Kh. M.; ISAGULYANTS, G. V.

"Investigation of catalyst poisoning and hydrocarbons conversion mechanism in reforming process."

report submitted to 3rd Intl Cong on Catalysis, Amsterdam, 20-25 Jul 64.

ISAGULYANTS, G.V.; RYASHENTSEVA, M.A.; DERBENTSEV, Yu.I.; MINACHEV, Kh.M.; BALANDIN, A.A.

Role of cyclohexene in the dehydrogenation and isomerization of cyclohexane under conditions of reforming. Neftekhimiia 4 no.2:229-235 Mr-Ap '64 (MIRA 17:8)

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ISAGULYANTS, G.V.; BALANDIN, A.A.; POPOV, Ye.I.; DERBENTSEV, Yu.I. (Moscow)

C^{14} tracer study of the dehydration mechanism of ethyl alcohol on aluminum oxide. Zhur. fiz. khim. 38 no.1:20-27 Ja'64. (MIRA 17:2)

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DERBENTSEV, Yu.I.; MARKOV, M.A.; ISAGULYANTS, G.V.; MINACHEV, Kh.M.; BALANDIN, A.A., akademik; Prinimala uchastiye SHCHUKINA, O.K.

Mechanism of cyclohexane dehydrogenation over holmium oxide studied with the use of radiocarbon C^{14}. Dokl. AN SSSR 155 no.1:128-131 Mr '64. (MIRA 17:4)

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ISAGULYANTS, G.V.; DERBENTSEV, Yu.I.; KLABUNOVSKIY, Ye.I.; BALANDIN, A.A.

Mechanism underlying the catalytic dehydration of 2-butanol on the surface of aluminum oxide. Izv. AN SSSR. Ser. khim. no.6:985-990 Je '64. (MIRA 17:11)

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ISAGULYANTS, G.V.; RYASHENTSEVA, M.A.; DERBENTSEV, Yu.I.; MINACHEV, Kh.M.; BALANDIN, A.A.

Mechanism of cyclane isomerization on bifunctional catalysts. Izv. AN SSSR. Ser. khim. no.8:1555-1556 Ag '64. (MIRA 17:9)

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GADZHI-KASYMOV, V.S.; GUDKOV, B.S.; ISAGULYANTS, G.V.; BATAEVA, A.A.

Manifestation of a bifunctional character of α - Cr_2O_3 surface in catalytic conversions of cyclohexane. Izv. AN SSSR. Ser. Khim. no.6:1121 '66. (MIRA 18:6)

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ISAGULYANTS, G.V.; KOMAROVA, Ye.N.; BALANDIN, A.A., akademik

Dehydrogenation mechanism of six-membered cycloalkanes. Dehydrogenation of methylcyclohexane on an aluminum-chromium catalyst. Dokl. AN SSSR 164 no.6:1307-1310 O '65. (MIRA 18:10)

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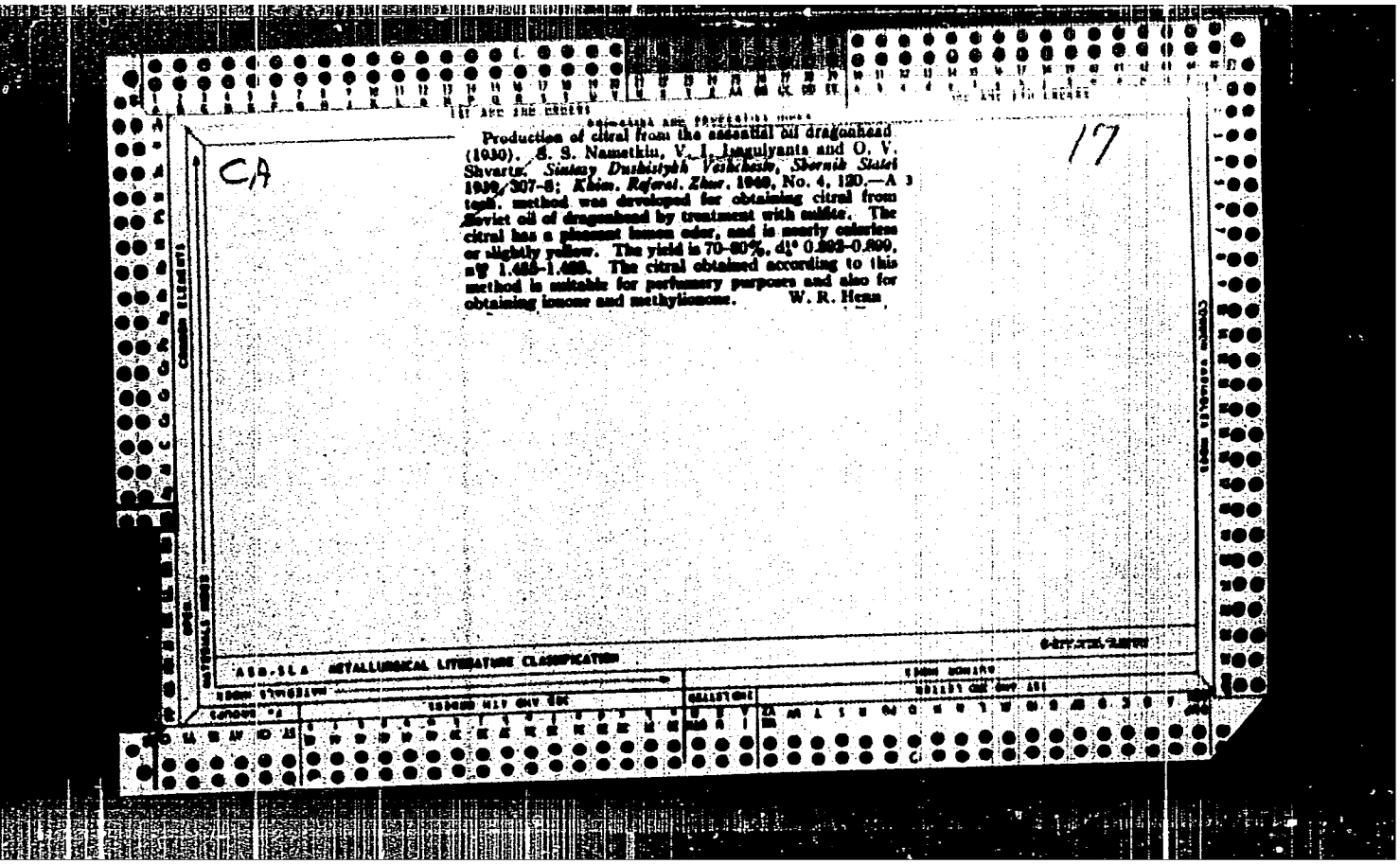
Study of the mechanism of alcohol and ether dehydration over an aluminopotassium sulfate catalyst using radiocarbon C-14. Zhur. fiz.khim. 39 no.10:2611-2614 O '65.

(MIRA 18:12)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.
Submitted August 27, 1964.



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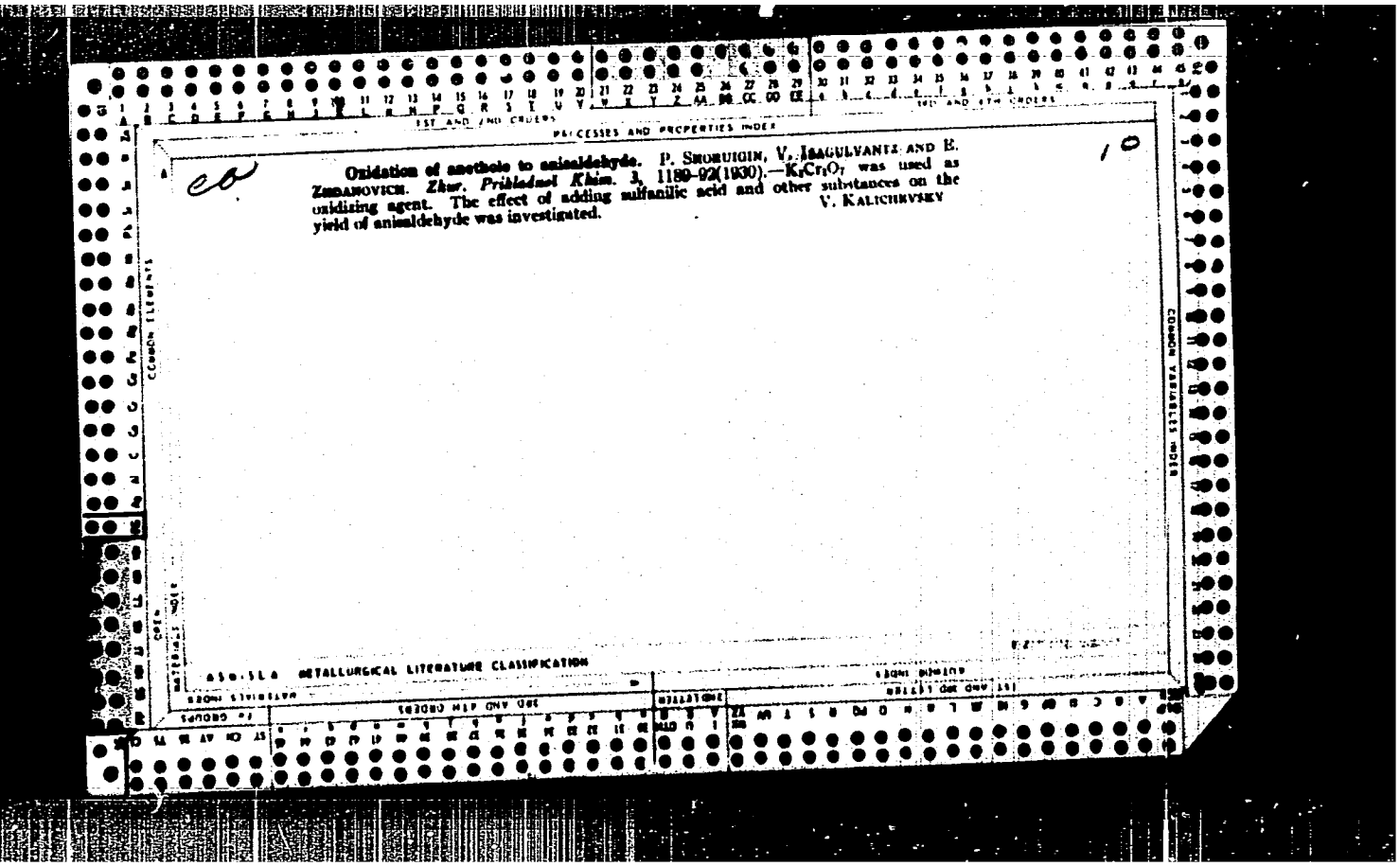
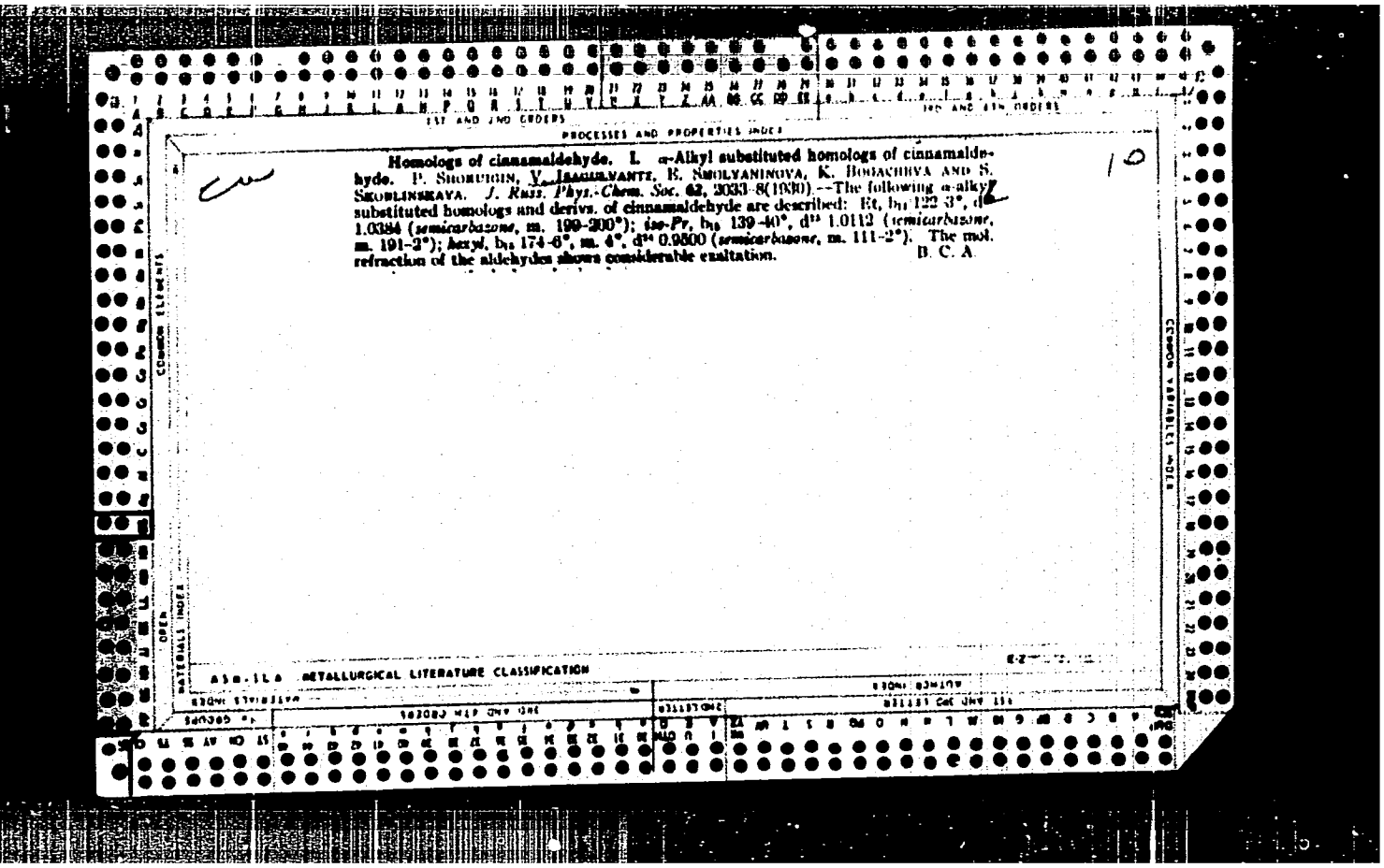
Production of citral from the essential oil dragonhead (1930). S. S. Nametkin, V. I. Izmailyants and O. V. Shvarts. *Sintezy Dushistykh Veshchestv, Sbornik Statei* 1939, 307-8; *Khim. Referat. Zhur.* 1940, No. 4, 120.—A 3 tech. method was developed for obtaining citral from Soviet oil of dragonhead by treatment with sulfite. The citral has a pleasant lemon odor, and is nearly colorless or slightly yellow. The yield is 70–80%, d_4^{15} 0.893–0.899, n_D^{20} 1.488–1.489. The citral obtained according to this method is suitable for perfumery purposes and also for obtaining ionone and methylionone. W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



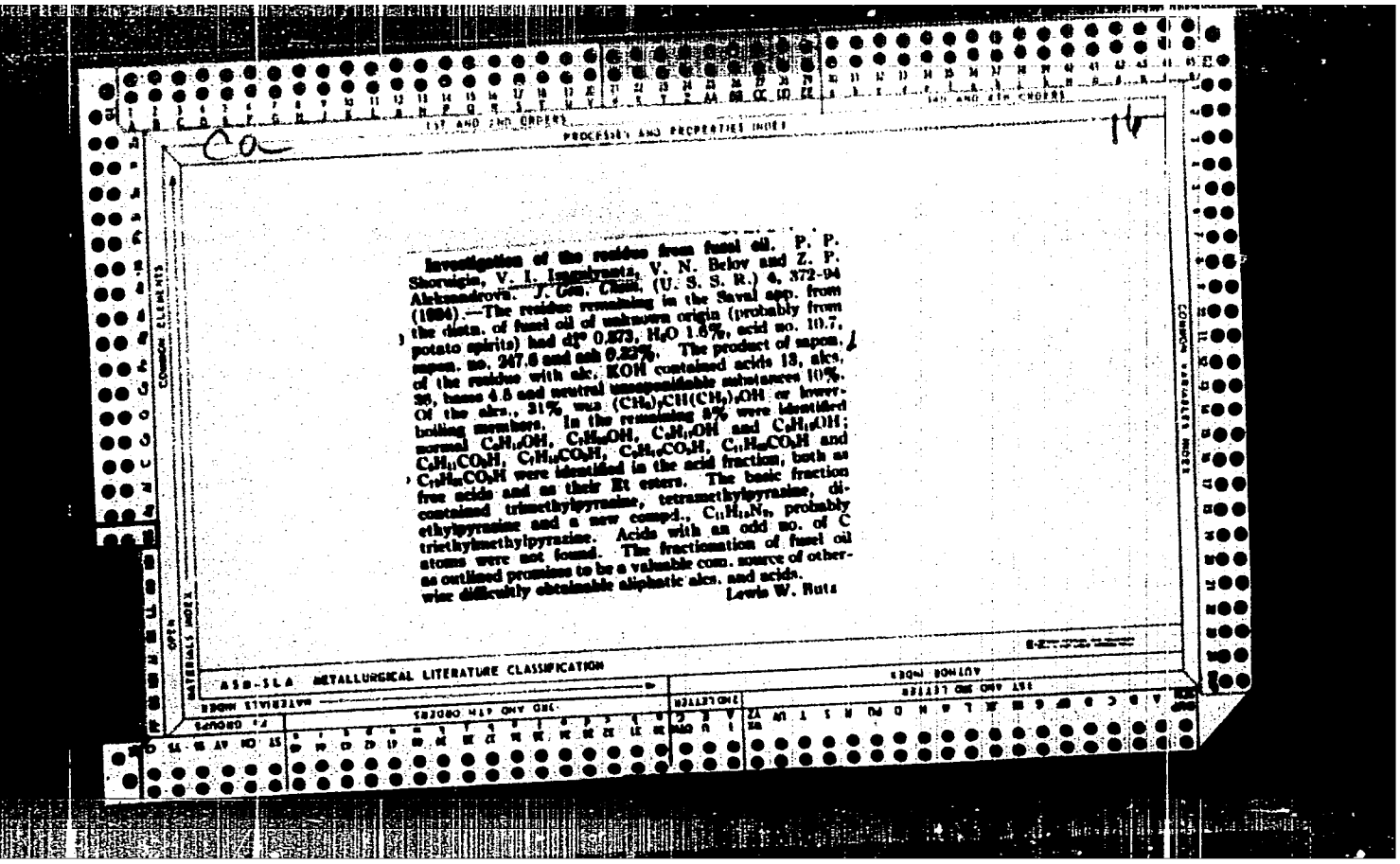
Oxidation of anethole to anisaldehyde. P. SHORIGIN, V. ISAGULYANTS AND E. ZHDANOVICH. *Zhur. Prikladnoi Khim.* 3, 1189–92(1930).—$K_2Cr_2O_7$ was used as oxidizing agent. The effect of adding sulfanilic acid and other substances on the yield of anisaldehyde was investigated. V. KALICHEVSKY



PROCESSES AND PROPERTIES INDEX

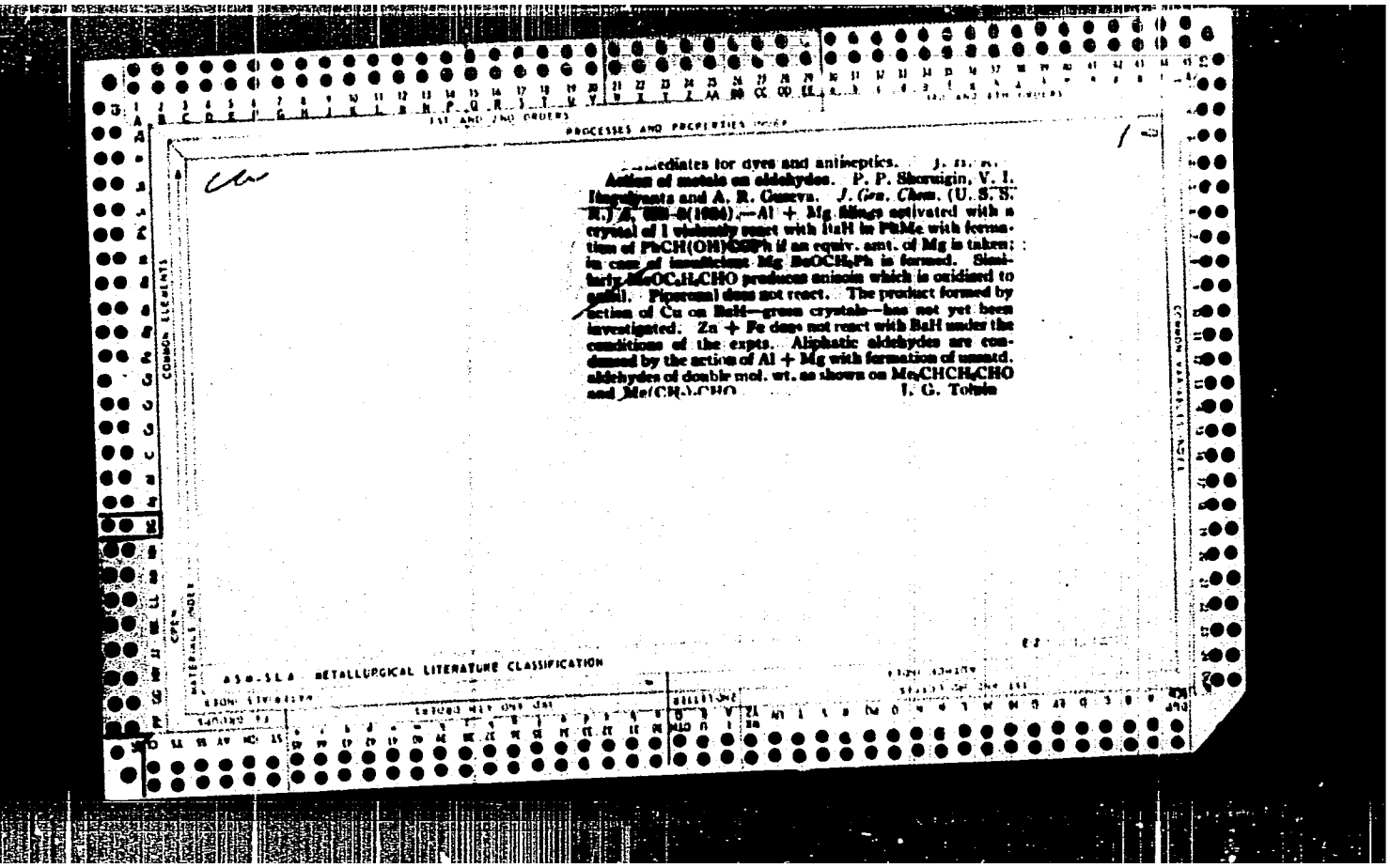
Homologs of cinnamaldehyde. I. α-Alkyl substituted homologs of cinnamaldehyde. P. Shorygin, V. Ivashchenko, E. Shulyaninova, K. Bogachova and S. Skoblinskaya. *J. Russ. Phys.-Chem. Soc.* **62**, 2033-8(1930).--The following α-alkyl substituted homologs and derivs. of cinnamaldehyde are described: Et, b_{11} 122.3°, d^{15} 1.0384 (*semicarbazone*, m. 199-200°); *iso-Pr*, b_{10} 139-40°, d^{15} 1.0112 (*semicarbazone*, m. 191-2°); *hexyl*, b_{11} 174-6°, m. 4°, d^{15} 0.9500 (*semicarbazone*, m. 111-2°). The mol. refraction of the aldehydes shows considerable exaltation. B. C. A.

A59-11A METALLURGICAL LITERATURE CLASSIFICATION



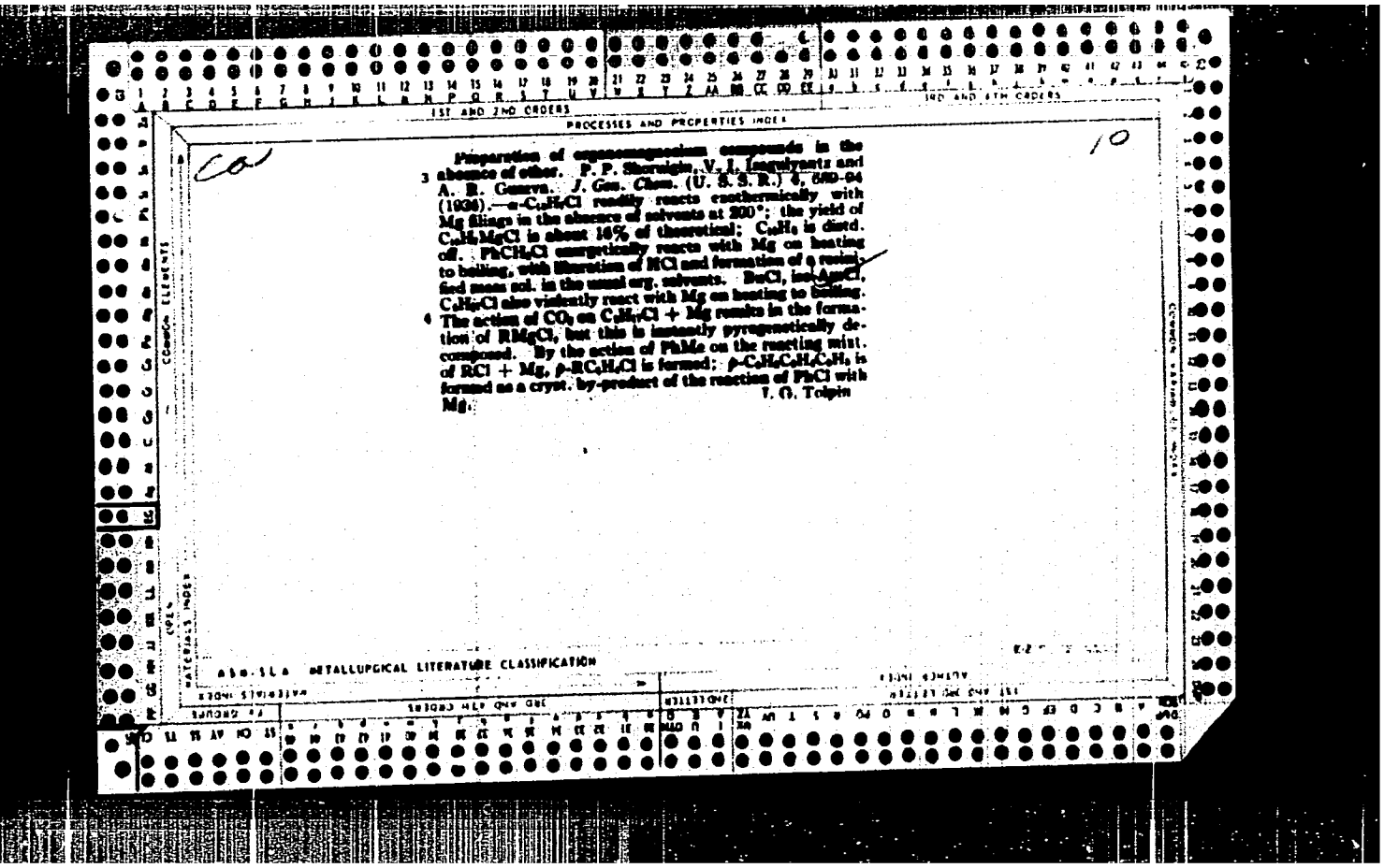
Investigation of the residue from fusel oil. P. P. Shorygin, V. I. Ingebrants, V. N. Below and Z. P. Alekseandrova. *J. Gen. Chem.* (U. S. S. R.) 4, 372-94 (1934).—The residue remaining in the Saval app. from the distn. of fusel oil of unknown origin (probably from potato spirits) had d_4^{20} 0.873, H_2O 1.6%, acid no. 10.7, saponn. no. 247.6 and ash 0.23%. The product of saponn. of the residue with alc. KOH contained acids 13, alcs. 36, bases 4.8 and neutral unsaponifiable substances 10%. Of the alcs., 31% was $(CH_3)_2CH(CH_2)_2OH$ or lower-boiling members. In the remaining 69% were identified normal $C_5H_{11}OH$, $C_6H_{13}OH$, $C_7H_{15}OH$ and $C_8H_{17}OH$; $C_5H_{11}CO_2H$, $C_7H_{15}CO_2H$, $C_8H_{17}CO_2H$, $C_{11}H_{23}CO_2H$ and $C_{13}H_{27}CO_2H$ were identified in the acid fraction, both as free acids and as their Et esters. The basic fraction contained trimethylpyrazine, tetramethylpyrazine, diethylpyrazine and a new compd., $C_{11}H_{14}N_2$, probably triethylmethylpyrazine. Acids with an odd no. of C atoms were not found. The fractionation of fusel oil as outlined promises to be a valuable com. source of otherwise difficultly obtainable aliphatic alcs. and acids.

Lewis W. Butz



...ediates for dyes and antiseptics. J. ...
Action of metals on aldehydes. P. P. Shorygin, V. I. Ingerlyants and A. R. Gantsva. *J. Gen. Chem.* (U. S. S. R.) *9*, 1889–96 (1939).—Al + Mg filings activated with a crystal of I violently react with BuH in PhMe with formation of PhCH(OH)CHPh if an equiv. amt. of Mg is taken; in case of insufficient Mg BuOCH$_2$Ph is formed. Similarly MeOC$_6$H$_4$CHO produces anisoin which is oxidized to anisil. Piperonal does not react. The product formed by action of Cu on BuH—green crystals—has not yet been investigated. Zn + Fe does not react with BuH under the conditions of the expts. Aliphatic aldehydes are condensed by the action of Al + Mg with formation of unsatd. aldehydes of double mol. wt. as shown on Me$_2$CHCH$_2$CHO and Me(CH$_2$)$_3$CHO. I. G. Tolpin

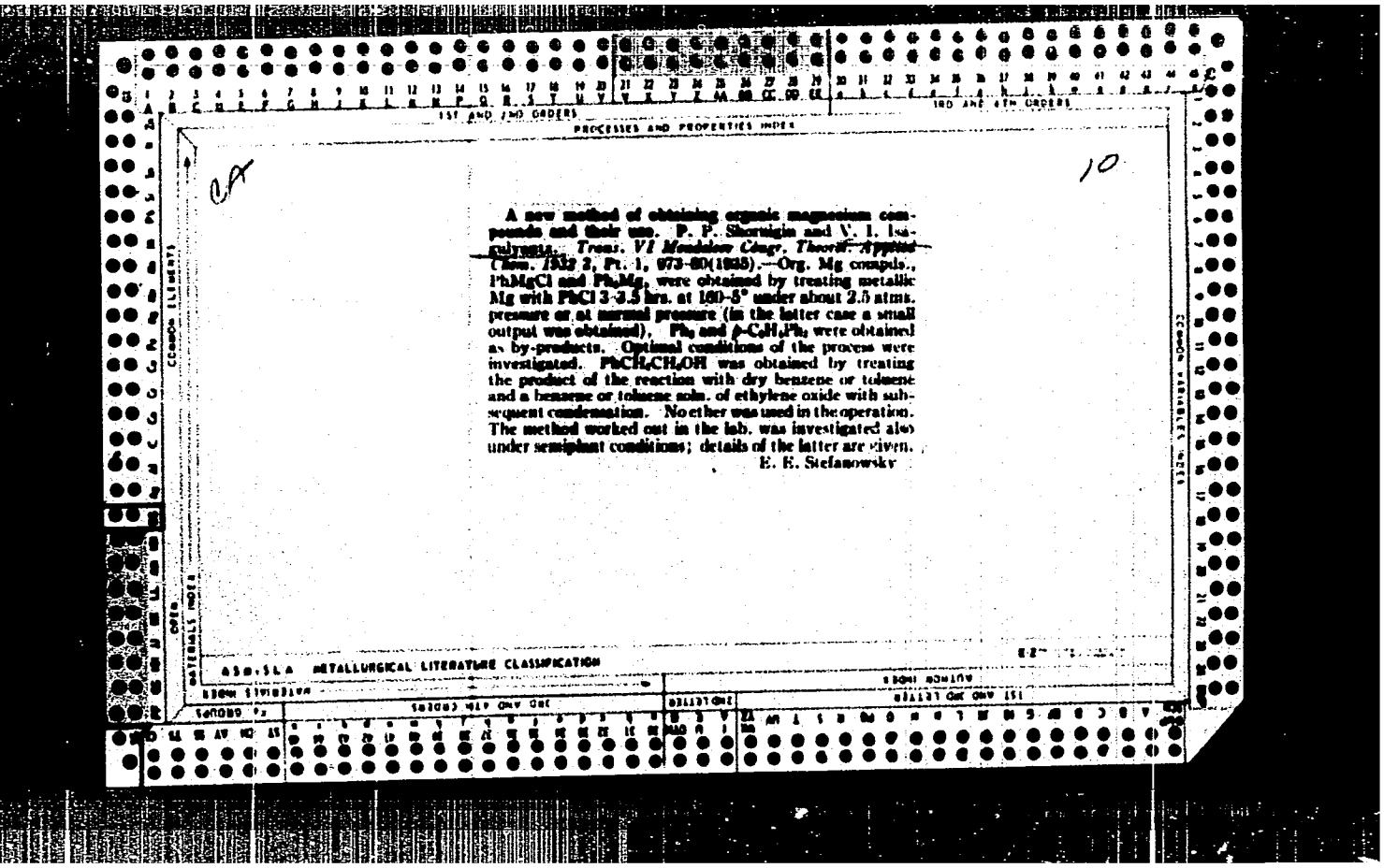
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Preparation of organomagnesium compounds in the absence of ether. P. P. Shorygin, V. I. Izgaryants and A. R. Gantsva. *J. Gen. Chem.* (U. S. S. R.) 6, 689-94 (1936).—*o*-$C_6H_4Cl_2$ readily reacts exothermically with Mg filings in the absence of solvents at 200°; the yield of C_6H_5MgCl is about 16% of theoretical; C_6H_6 is distd. off. $PhCH_2Cl$ energetically reacts with Mg on heating to boiling, with liberation of HCl and formation of a resinified mass sol. in the usual org. solvents. BuCl, iso-AmCl, C_6H_5Cl also violently react with Mg on heating to boiling. The action of CO_2 on C_6H_5Cl + Mg results in the formation of $RMgCl$, but this is instantly pyrogenetically decomposed. By the action of $PhMe_2$ on the reacting mixt. of RCl + Mg, *p*-RC_6H_4Cl is formed; *p*-$C_6H_5C_6H_4C_6H_5$ is formed as a cryst. by-product of the reaction of PhCl with Mg.

T. G. Tolpin



PROCESSES AND PROPERTIES INDEX

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A new method of obtaining organic magnesium compounds and their use. P. P. Shorygin and V. I. Isagulyants. *Trans. VI Mendeleev Congr. Theoret. Appiied Chem.* 1932 2, Pt. 1, 973-80(1935).—Org. Mg compds., PhMgCl and Ph_2Mg, were obtained by treating metallic Mg with PhCl 3-3.5 hrs. at 160-5° under about 2.5 atms. pressure or at normal pressure (in the latter case a small output was obtained), Ph_2 and p-$C_6H_4Ph_2$ were obtained as by-products. Optimal conditions of the process were investigated. $PhCH_2CH_2OH$ was obtained by treating the product of the reaction with dry benzene or toluene and a benzene or toluene soln. of ethylene oxide with subsequent condensation. No ether was used in the operation. The method worked out in the lab. was investigated also under semiplant conditions; details of the latter are given.
E. E. Stefanowsky

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