

LEKTORSKIY, Dmitriy Nikolayevich, kand.tekhn.nauk; ALEKSEYEVA, Yelena  
Yefimovna; KAN, G.A., red.; KHIVRICH, Ye.D., red.izd-va;  
KORNYUSHINA, A.S., tekhn.red.

[New wood plastics] Novye drevesnye plasticheskie materialy.  
Moskva, Goslesbumizdat, 1960. 46 p. (MIRA 14:3)  
(Wood, Compressed)

LEKTORSKIY, I.N. [deceased]

Effect of caffeine and of diethylaminomethylcaffeine on conditioned reflexes in rats; an abstract. Farm. i toks. 20 no.6:71-72 N-D '57  
(MIRA 11:6)

1. Otdel farmakologii (zav. - prof. M.D. Mashkovskiy) Vsesoyuznogo nauchno-issledovatel'skogo khimiko-farmatseticheskogo instituta imeni S. Ordzhonikidze.

(REFLEX, CONDITIONED,

eff. of caffeine & diethylaminomethylcaffeine (Rus))

(CAFFEINE, effects,

caffeine & diethylaminomethylcaffeine, on conditioned reflexes in rats (Rus))

BOGDANOV, I. M. ; LEKPORSKIY, V. A.

Arithmetic - Problems, Exercises, Etc.

Computation of percentages in schools for working Soviet youth. Mat.v shkole No. 3, 1952.

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

LEKTORSKIY, V.A. (Moscow)

First mathematical methodology for teaching in schools for the  
working youth. Mat.v shkole no.3:80-82 My-Je '54. (MLRA 7:6)  
(Mathematics--Study and teaching) (Chekmarev, Iakov Fedorovich)

LEKTOVSKIY, A. I., Doc Agr Sci -- (diss) "Condition of pine forests in the Belorussian SSR and means of raising their productivity." Leningrad, 1960. 29 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Order of Lenin Forestry Engineering Inst im S. M. Kirov); 200 copies; free; bibliography at end of text (16 entries); (KL, 30-60, 139)

SOV/137-57-11-21304

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 97 (USSR)

AUTHOR: Lekus, I.D.

TITLE: The Utilization of Economical Rolled Shapes at the Chelyabinsk Tractor Plant (O primeneniі ekonomichnykh profiley prokata na Chelyabinskom traktornom zavode)

PERIODICAL: V sb.: Ratsionalizatsiya profiley prokata. Moscow, Profizdat, 1956, pp 370-372

ABSTRACT: A number of measures planned and introduced to convert the production of certain tractor parts to lightened shapes and shapes of regularly-repeated profile, including shapes produced by helical rolling, are listed.

B.Ye.

Card 1/1

BALZHI, M.F.; BEREZKIN, P.N.; GOL'DSHTEYN, Ya.Ye.; GAL'PERIN, Ye.B.;  
YEDLICHKO, V.V.; KERAS, A.F.; LEKUS, I.D.; POTEKUSHIN, N.V.;  
POZDNYSHEV, V.M.; SUBBOTIN, N.A.; SAVINTSEV, R.I.; TAMAROVSKIY,  
V.M.; SHEREMET'YEV, A.D.; BAKSHI, O.A., kand. tekhn. nauk,  
retsenzent; BONDIN, Ye.A., inzh., retsenzent; BOYKO, F.I., inzh.,  
retsenzent; VASIN, Yu.P., inzh., retsenzent; LAZAREV, A.A., inzh.,  
retsenzent; SOROKIN, A.I., inzh., retsenzent; KON'KOV, Arkadiy  
Sergeyevich, dots., red.; DUGINA, N.A., tekhn. red.

[Economy of metals in the machinery industry]Ekonomiia metallov  
v mashinostroenii. [By]M.F.Balzhi i dr. Moskva, Mashgiz, 1962.

235 p.

(MIRA 16:2)

(Machinery--Design and construction)

(Metals, Substitutes for)

VOLGIN, M.A., inzh.; BEZRODNYI, G.A., inzh.; LEKUS, L.P., inzh.

Automation of fuel supply systems in the Novo-Kemerovsk Thermal  
Electric Power Plant. Elek. sta. 34 no.6:78-80 Je '63.  
(MIRA 16:9)

(Electric power plants) (Fuel)



LEKUTIN, N.

Combines (Agricultural Machinery)

Revamping the straw shaker of threshing combine "Stalnets-6" MTS 12 no. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, September 1952 ~~1953~~, Unclassified.

Lekveyshvili, I. S.

7762      Kak vvelichit' urozhay tsitrusovykh kul'tur. tbilisi, izd-vo  
gruz. s.-kh in-ta, 1954. 24s. 19sm. (m-vo sovkhozov Груз.  
ssr. upr. s.-kh. propagandy). 2.000 ekz. bespl.-na Груз.  
yaz.-(55-2578) 634.3(47.922)

SO.      Knizhnaya Letopis', Vol. 7, 1955

LEKVEISHVILI, Irakli Spiridonovich; BERAIA, Yason Kalistratovich

[Subtropical crops] [Subtropicheskie kul'tury. Tbilisi,  
Ganatleba] 1965. 390 p. [In Georgian] (MIRA 18:8)

LEKVEYSHVILI, Irakliy Spiridonovich

[Subtropical crops; textbook for grades 9-11] [Subtropi-  
cheskie kul'tury; uchebnik dlia IX-XI klassov. Tbilisi,  
Gos. izd-vo uchebno-pedagog. lit-ry] 1962. 305 p.  
[In Georgian] (MIRA 17:5)

LIEKVINADZE, A. G.

PHASE I BOOK EXPLOITATION SOV/5683

Akademiya nauk Gruzinskoy SSR. Institut elektroniki, avtomatiki i telemekhaniki

Trudy (Academy of Sciences of the Georgian SSR. Institute of Electronics, Automation and Remote Control. Transactions) No. 1. Tbilisi, 1960. 126 p. 500 copies printed.

Ed. A. I. Eliashvili; Deputy Ed.: E. Ualamueridze; Tech. Ed.: A. Thodua.

PURPOSE: This collection of articles is intended for scientists and technical personnel concerned with electronics in general, and machine translations in particular.

COVERAGE: Four out of the nine articles concern machine translation from Georgian into Russian, and vice-versa. Two articles consider general problems of machine translation. The three remaining articles discuss various electronic devices. Articles 1, 3, and 4 are written in Georgian with summaries in Russian. The

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Academy of Sciences (Cont.)

SOV/5683

remaining articles are in Russian. No personalities are mentioned. References accompany most of the articles.

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Academy of Sciences (Cont.)	SOV/5683	
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· AVAILABLE: Library of Congress (TK7800.A45A14)

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JP/rsm/ec  
10-28-61

IMEDADZE, V.V.; LEKVINADZE, A.G.

Analysis of the operation of a thyatron switch. Trudy Inst.elek.  
avtom.i telem.AN Gruz.SSR 1:93-103 '60. (MIRA 14:6)  
(Electric switchgear) (Electronic calculating machines)  
(Automatic control)



LEKVINADZE, R.D.; BOKVA, M.L.; EDILASHVILI, V.Ya.

Deposition, composition, and genesis of bentonites in the  
Askanskoye deposit. Geol.sbor. [Kavk.] no.1:78-83 '59.  
(MIRA 13:1)

(Georgia--Bentonite)

EDILASHVILI, V.Ya.; BAKRADZE, I.V.; LEKVINADZE, R.D.

Potential of coal deposits in western Georgia. Geol.sbor.  
[Kavk.] no.1:105-115 '59. (MIRA 13:1)  
(Georgia--Coal geology)

LEKVENADZE, K.P., Cand Geo-Mineral Sci - (diss) "Geological structure of the area along the middle course of the Miona River," Tbilisi, 1960, 16 pp (OLAB Polytechnical Institute im V. I. Lenin) (KL, 34-60, 121)

LEKVINADZE, R.D.; EDILASHVILI, V.Ya.

Potentials of Oligocene manganese deposits of Georgia. Razved.i  
okh.nedr 28 no.4:8-13 Ap '62. (MIRA 15:4)

1. Kavkazskiy institut mineral'nogo syr'ya.  
(Georgia--Manganese ores)

ERKVINADZE, V.D.

Device for locating damages in cables. Truly G.I. no. 5.1046  
'63. (U.S.S.R.)

NESOV, V.D., inzh., red.; KULAKOV, D.V., arkh., red.; LELADZE,  
G.D., arkh., red.;

[Construction specifications and regulations] Stroitel'-  
nye normy i pravila. Moskva, Stroiizdat. Pt.2. Sec.L.  
ch.4.[Schools of general education and boarding schools;  
design specifications] Obshcheobrazovatel'nye shkoly i  
shkoly-internaty; normy proektirovaniia (SNiP II L. 4-62).  
1964. 33 p. (MIRA 17:9)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po de-  
la... stroitel'stva. 2. Gosstroy SSSR (for Nesov). 3. Gosu-  
darstvennyy komitet po grazhdanskomu stroitel'stvu i ar-  
khitekture pri Gosstroye SSSR (for Kulakov). 4. Nauchno-  
issledovatel'skiy institut obshchestvennykh zdaniy i so-  
oruzheniy Gosudarstvennogo komiteta po grazhdanskomu  
stroitel'stvu i arkhitkтуры pri Gosstroye SSSR (for  
Leladze).

LELAKOWSKA, J.

Ternary binegative-positive systems. I. A new kind of a ternary saddle azeotrope. A. Orszagh, J. Lelakowska, and M. Bekdowicz (Univ. Warsaw). *Bull. acad. polon. sci. Sér. sci., Chim., géol. et géograph.* 6, 419-25 (1968) (in English).—The saddle ternary azeotrope contains  $\text{CHCl}_3$  (I) 78.65, iso-PrBr (II) 14.79, and  $\text{HCOOBz}$  (III) 8.55 mole % and b.  $61.974^\circ$ , as was found in combined distn. and ebulliometric measurements with a differential Świętoślowski ebullimeter. B.ps. of binary azeotropes were (mole % content given in brackets): I(65.7)-II, neg.,  $62.2^\circ$ ; II-I(80.03), neg.,  $62.7^\circ$ ; II-III(70.0), pos.,  $53.0^\circ$ . The saddle azeotrope is thus formed with two pairs of components showing neg. deviations from Raoult's law. Accordingly, the surface of b.ps. vs. compns. has a "top-ridge line" which connects the points of binary neg. azeotropes, and a "valley line." J. Stecki

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SWIETOSLAWSKI, W.; ORSZAGH, A.; LELAKOWSKA, J.

The ternary binegative-positive systems. II. General properties of  
binegative-positive systems. Bul Ac Pol chem. 6 no.8:509-511 '58.  
(REAI 9:6)

1. Institute of Physical Chemistry, Polish Academy of Sciences.  
Laboratory of Technology, Warsaw University. Presented by  
W. Swietoslowski.

(Systems (Chemistry))

(Azeotropes)



ORSZAGH, A.; LELAKOWSKA, J.

The ternary binegative-positive systems. III A new method of determining the azeotropic point in ternary systems. *Bul Ac Pol chim.* 6 no.8:513-516 '58. (EEAI 9:6)

Department of Technology, Warsaw University. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W. Swietoslowski.  
(Systems (Chemistry)) (Azeotropes)

ORSZAGH, A.; LELAKOWSKA, J.; RADECKI, J.

The ternary binegative-positive systems. IV On the ternary binegative-positive azeotrope formed by phenol, phenyl acetate, and glycol diacetate. In English. *Bul Ac Pol chim* 6 no.9:605-610 '58. (EAI 9:6)

1. Department of Technology, Warsaw University. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W. Swietoslowski.

(Phenol) (Phenyl acetate) (Ethylene glycol diacetate)  
(Azeotropes) (Systems (Chemistry))

LELAKOWSKA, J.

The ternary binegative-positive system. V. On the boiling temperature surface of the system formed by chloroform, isopropyl bromide and some aliphatic esters. *Bul Ac Pol chim* 6 no.10:645-651 '58. (EPAI 9:6)

1. Basic Raw Materials Department, Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W. Swietoslowski.  
(Chloroform) (Bromopropane)  
(Esters) (Aliphatic compounds)

POLAND

LELAKOWSKA, Krystyna

Institute of Tele- and Radio Engineering (Instytut Tele- i  
Radiotechniczny)

Warsaw, Przegląd elektroniki, No 8, Aug 1966, pp 390-93

"Methods of optimum distribution design of thin film elements  
on substrate plates."

L 41194-66 EWP(e) WH

ACC NR: AP6018323

(A)

SOURCE CODE: PO/0015/66/000/001/0011/0013

AUTHOR: Lelakowska, KrystynaORG: Television and Radio Engineering Institute, Warsaw (Instytut Tele- i Radiotechniczny)TITLE: Investigating the applicability of glass and ceramic materials in making miniaturized electrical components

SOURCE: Szkło i ceramika, no. 1, 1966, 11-13

TOPIC TAGS: glass property, ceramic material, microelectronic thin film

ABSTRACT: The author discusses the use of glass and ceramics as the substrates for microelectronic circuits. The ceramic materials studied included alundum ceramics produced by the Industrial Electronics Institute (Pr nr 1, 5, 19 and 22),  $Al_2O_3$  of varying degrees of purity, alundum ceramics L-5-1 and L-5-2, forsterite and steatite ceramics (Sc-2, D-52/6, Sp-1 and N-47/12) produced by the L-5 Radio Ceramics Laboratory. The types of glass included Polish soda and soda-lime glasses, borosilicate glasses SL 411 and FK 5, insulation glass and heat-hardened glass as well as the following types of non-Polish glasses: "Rasotherm", alkali-free types KG-4 and PSKS-6 and the low-alkali glasses "Multal" and "Eutal" produced by the VUEK Plants in Czechoslovakia. The surface smoothness of plate specimens made from the various types of

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ACC NR: AP6018323

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materials was studied and their dielectric losses were determined. The resistivity of the specimens was measured as a function of temperature in the 25-125°C range. A 340-power Zeiss interference microscope was used for determining surface irregularities. An electron microscope was also used for studying surface structure. The glass surfaces showed irregularities of less than 0.05  $\mu$ , the smoothest being KG-4. Irregularities of 0.5-4  $\mu$  were observed on the ceramic surfaces. The electrical parameters of the various materials are tabulated. The results show that the best materials from the standpoint of electrical characteristics are KG-4 and PSKS-6<sup>15</sup> glasses produced by the Zeiss Optical Factory and also borosilicate glasses from foundries in Polanica, Jelenia Gora and Krosno. The best ceramic material was forsterite produced by the L-5 Radio Ceramic Research and Development Laboratory. In addition to its excellent electrical characteristics, forsterite has a high coefficient of thermal expansion which makes it useful for combinations with metals. Orig. art. has: 4 figures, 4 tables.

SUB CODE: 11, 09/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 002

Card 2/2 m.c. P

LELASHVILI, M.

Urgent problems of the trade unions of Georgia. Okhr.truda i  
sots. strakh. 3 no.4:21-27 Ap '60. (MIRA 13:6)

1. Predsedatel' Gruzinskogo respublikanskogo soveta profsoyuzov,  
chlen prezidiuma Vsesoyuznogo tsentral'nogo soveta profsoyuzov.  
(Georgia--Industrial hygiene)

LELASHVILI, M.

Public food service needs the help of trade unions. Sov. torg.  
33 no.5:17-18 My '60. (MIRA 13:11)

1. Predsedatel' Gruzinskogo respublikanskogo soveta profsoyuznov,  
Tbilisi.  
(Georgia--Restaurants, lunchrooms, etc.)



LELASHVILI, M.

In the struggle to fulfill the seven-year plan ahead of time.  
Sov. profsoiuzy 17 no.8:20-22 Ap '61. (MIRA 14:3)

1. Predsedatel' Gruzinskogo respublikanskogo soveta profsoyuzov.  
(Georgia--Trade unions)(Georgia--Economic conditions)

LELASHVILI, M. (Tbilisi)

So that everybody would feel satisfied. Sov. profsoiuzy  
18 no.21:31-33 N '62. (MIRA 15:11)

1. Predsedatel' Gruzinskogo respublikanskogo  
soveta professional'nykh soyuzov.  
(Georgia—Health resorts, watering places, etc.)  
(Georgia—Trade unions)

ACCESSION NR: AT4040444

S/2748/63/004/000/0097/0113

AUTHORS: Lelashvili, Sh. G.; Khundadze, T. G.; Tsintsadze, Sh. A.

TITLE: Magnetic internal memory and its input unit for automatic control computers

SOURCE: AN GruzSSR. Institut elektroniki, avtomatiki i telemekhaniki. Trudy\*, v. 4, 1963, 97-113

TOPIC TAGS: computer memory, computer storage device, ferrite memory matrix, magnetic storage, computer input device

ABSTRACT: Two types of internal magnetic memories, with original input units containing ferrites and transistors, were developed at the Institut elektroniki, avtomatiki i telemekhaniki AN GruzSSR. The memories are used in the automatic control for the pressure-rollers of blooming mills. The two memories operate by half-current coincidence and by dynamic magnetization, respectively. A simple and ef-

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ACCESSION NR: AT4040444

fective method for stabilizing the writing currents was obtained for the second variant, with the dependence of the writing-pulse amplitude on the supply voltage eliminated (even if the voltage varies by 50%), and without the use of any stabilized voltages or supplementary elements. The operating principles and the main blocks of both systems are described in detail. The input unit is designed to insert three-digit decimal numbers into the internal memory, but the number of digits can be increased without essential modifications. The input decimal number is set in manually with a telephone dial and is converted sequentially into a binary number by a system comprising blocking-generator pulse shapers and ferrite-transistor flipflops. The logic and the operating sequence of the input unit are described in detail. It is claimed that the simplicity, reliability, and compactness of this internal memory make it suitable for use in many systems for programmed control of manufacturing processes, and the simplicity, reliability, and operating convenience of the input unit make it suitable for use in various computers, particularly of the

Card 2/6

ACCESSION NR: AT4040444

control and information type. Orig. art. has: 17 figures.

ASSOCIATION: Institut elektroniki, avtomatiki i telemekhaniki AN  
GruzSSR (Institute of Electronics, Automation, and Telemechanics,  
AN GruzSSR)

SUBMITTED: 00

ENCL: 03

SUB CODE: DP

NR REF SOV: 004

OTHER: 000

Card 3/6

LELICHITSKY V. R.

Case of successful treatment of poisoning with 1.3 Gm morphia  
Klinitcheskaya Meditsina 1947, 1

3883 The morphia had been introduced intravenously by mistake. The treatment included artificial respiration (Silvester and Schafer), lobeline, atropine, and repeated gastric lavage with potassium permanganate. The pupils were dilated for 30 minutes, then narrowed, and dilated again after atropine had been administered. Pyrexia up to 39° was noted. The patient regained consciousness after 18 hours, and fully recovered after 48 hours.

Van der Molen - Terwolde  
(Sec. VI)

SO: Section II Vol. 1<sup>2</sup> No. 7-12

38328 LEL'CHITSKIY, V. N.

Ekspirator dlya lecheniya spontannogo klapannogo pnevmotoraksa.  
Problemy tuberkuleza, 1949, No 6, s. 57-60

LEL'CHITSKIY, V.N., kandidat meditsinskikh nauk (Odessa).

Application of Lel'chitskii's expirator in spontaneous valvular  
pneumothorax developing from pulmonary perforation in echinococcosis.  
Klin.med. 21 no.12:70-71 D '53. (MLRA 7:1)

1. Iz basseynovoy tuberkuleznoy bol'nitsy Chernomorskogo vodzdrav-  
otdela. (Lungs--Hydatids) (Pneumothorax)



LEL'CHITSKIY, V.N., kandidat meditsinskikh nauk (Odessa)

Camphor oil embolism. Klin.med. 33 no.12:76-78 D '55. (MLRA 9:5)

1. Iz basseynovoy tuberkuleznoy bol'nitsy (glavnyy vrach P.P. Kharyukov) Chernomorskogo vodzdravotdela (nach. M.Z.Pankova)  
(TUBERCULOSIS) (EMBOLISM) (CAMPHOR)

DEMIDAS, V.V.; IRZHEVSKAYA, G.I.; LEL'CHITSKIY, V.N., kand.med.nauk

Spontaneous pneumothorax in infants during the first months of life. *Pediatrics* 38 no.11:70-73 N '60. (MIRA 14:2)

1. Iz kafedry rentgenologii i radiologii (zav. - prof.Ye.D. Dubovyy) kliniki detskikh bolezney lechebnogo fakul'teta (zav. - dotsent V.P.Chrenyuk) Odesskogo meditsinskogo instituta (direktor - prof.I.Ya.Deyneka).

(PNEUMOTHORAX in inf. & child)  
(INFANT NEWBORN diseases)

FOMINA, K., master-povar (Novokuybyshevsk, Kuybyshevskaya obl.); KAPUSTIN, K.;  
LEL'CHUK, A., inzh.-tekhnolog

The role of the foreman in production. Obshchestv.pit. no.10:13-15  
0 '62. (MIRA 15:11)

1. Obshchestvennyy kontroler upravleniya trgovli, Chelyabinsk  
(for Kapustin). 2. Trest obshchestvennogo pitaniya, Dushanbe  
(for Lel'chuk).

(Restaurant management)

LEL'CHUK, Yu.L.; SCKOLOVICH, V.B.; SKRIPOVA, L.L.; LEL'CHUK, Kh.A.;  
CHASHCHINA, O.V.

Solubility of silver bromate in aqueous solutions of nitrates and  
sulfates of manganese, cobalt, nickel, and copper. Izv.TPI 111: 51-54  
'61. (MIRA 16:9)

1. Predstavleno professorom doktorom khimicheskikh nauk A.G.  
Strombergom.  
(Silver bromate) (Electrolyte solutions)

TRONOV, B.V.; LEL'CHUK, Kh.A.

Kinetics of nitrobenzene nitration by 100% nitric acid and the study of  
the system by other methods of physicochemical analysis. Izv.TPI III:  
6-11 '61. (MIRA 16:9)  
(Nitrobenzene) (Nitration)

LEL'CHUK, Kh.A.; TRONOV, B.V.

Kinetic study of the nitration of some aromatic compounds in a nitrobenzene solution. Izv.TPI 11:12-15 '61. (NERA 16:9)  
(Aromatic compounds) (Nitration)

STROMBERG, A.G.; LEL'CHUK, Kh.A.

Kinetic study of the mechanism of nitration of aromatic compounds  
by nitric acid, Izv. TPI 126:106-112 '64. (MIRA 18:7)

LEL'CHUK, L.; SADOVENKO, N.

Grinding bushings by means of rotating centers. Tekh. sov.  
kolkh., RTS, sovkhos. 20 no.23:6-7 D.'59. (MIRA 13:3)  
(Grinding and polishing)



LEL'CHUK, L.; MARUSHCHAK, I.

Restoration of springs. Tekh. sov. kolkh. RTS, sovkhos. 20 no.23:7-9  
D '59. (MIRA 13:3)

(Tractors--Springs)

KOBRIN, M., kand. tekhn. nauk; IMNEVSKIY, I., kand. tekhn. nauk;  
BOGDANOV, Yu., inzh.; LEL'CHUK, L., inzh.

Increasing the strength of frames by hammer hardening. Avt.  
transp. 43 no.2:26-28 P '65. (MIRA 18:6)

LEL'CHUK, L.M., inzh.

Maintenance and storage of tools at the Velikiy Glubochek  
Repair and Supply Station. Mekh.sil'.hosp. 10 no.11:17-18  
N '59. (MIRA 13:3)  
(Velikiy Glubochek--Repair and supply stations)

LEL'CHUK, L.M., inzh.

Technology of machinery repair. Mekh.sil'.hosp. 11 no.2:  
19-20 F '60. (MIRA 13:6)  
(Agricultural machinery--Maintenance and repair)

LEL'CHUK, L.M., inzh.

Second use of bronze bushings. Mekh. sil'. hosp. 11  
no.6:22 Je '60. (MIRA 13:11)  
(Bearings (Machinery))

KOBRIN, M.M., kand.tekhn.nauk; LEL'CHUK, L.M.

Fatigue testing of motortruck frames on stands. Avt.prom. 29  
no.1:25-28 Ja '63. (MIRA 16:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh  
konstruktsiy i Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy  
tekhnologicheskii institut remonta i ekspluatatsii mashinno-  
traktornogo parka.

(Motortrucks--Frames--Testing)

ZAKS, M.N.; LEL'CHUK, L.M.

Characteristics of the torsion of a motor-vehicle frame in case  
of a shift of the axis of rotation from the plane of the frame.  
Avt.prom. 31 no.5:33-35 My '65. (MIRA 18:5)

1. Mytishchinskiy mashinostroitel'nyy zavod i Gosudarstvennyy  
vsesoyuznyy nauchno-issledovatel'skiy tekhnologicheskiy institut  
remonta i ekspluatatsii mashinno-traktornogo parka.

ARONOV, N.B.; LEL'CHUK, M.I.

Preparing malt slurry with less formalin. Spirt.prom.21 no.2:19-  
20 '55. (MLBA 8:10)

1. Moskovskiy spirtovyy trest.  
(Fermentation)



LEL'CHUK, M.M.

GULYAYEV, S.P.; LEL'CHUK, M.M.

Use of disc-knife crushers in processing unthreshed grains. Spirt.  
prom. 23 no.3:27-28 '57. (MLRA 10:6)

1. Mosspirtotrest.  
(Grain) (Distilling industries--Equipment and supplies)

LEL'CHUK, M.M.

Simplified preparation of yeast. Spirt. prom 24 no. 4:26-27 '58.  
(MIRA 11:7)

(Yeast)

LEL'CHUK, M.M.; GLEYZNER, S.A.

Operational experience of alcohol plants. Spirt.prom. 25  
no.1:9-10 '59. (MIRA 12:2)  
(Moscow Province--Distilling industries)

LEL'CHUK, M.P.

Finite groups with a "small" number of classes of isoorder solvable  
nonradical subgroups. Sib. mat. zhur. 6 no.5:1037-1045 S-0 '65.  
(MIRA 18:10)

LEL'CHUK, B. YA.

Medicine

Diagnosis and treatment of sterility in women, (Rostov,n-D.) Rostizdat, 1946.

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

LEL'CHUK, P. Ya.

Lel'chuk, P. Ya. "Problems of diagnosing gonorrhoea in women", Sbornik nauch. trudov (Rost. obl. nauch.-issled. akushersko-ginekol. in-t), Issue 8, 1948, p. 5-11

So: U-3261, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).

LEL'CHUK, P. Ya.

Lel'chuk, P. Ya. "Penicillin therapy of female gonorrhoea", Sbornik nauch. trudov. (Rost. obl. nauch.-issled. skushersko-ginekol. in-t), Issue 8, 1948, p. 77-81.

So: U-3261, 10 April 1953 (Letopis 'Zhurnal 'nykh Stat'y, No. 12, 1949).

LEL'CHUK, P. Ya.

Lel'chuk, P. Ya. "Ways of cooperation between the obstetrician and the pediatrician" (Paper read at the joint inter-oblast meeting of the pediatricians of the South of the RSFSR and the obstetrician-gynecologists, 10 March 1948), Sbornik nauch. trudov (Rost. obl. nauch.-issled. akushersko-ginekol. in-t), Issue 8, 1948, p. 95-100.

SO: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).



LEL'CHUK, P. Ya.

Lel'chuk, P. Ya. and Ryabenko, I. A. "An analysis of the work of the permanent delivery stations in the cities of Rostov Oblast in 1946", (Author's summary of the paper), Sbornik nauch. trudov (Rost. obl. nauch.-issled. akushersko-ginekol. in-t), Issue 8, 1948, p. 207-09.

SC: U-3261, 10 April 1953 (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).

LEL'CHUK, P. Ya.

Lel'chuk, P. Ya. and Ryabenko, I. A. "An analysis of the work of the permanent gynecological stations in the cities of Rostov Oblast in 1946", (Authors' summary of the paper), Sbornik nauch. trudov (Rest. obl. nauch.-issled. akusherkol-ginekol. in-t), Issue 8, 1948, p. 209-10.

SC: U-3261, 10 April 1953 (Letopis 'Zhurnal 'nykh Statey, No. 12, 1949).

LEL'CHUK, P.Ya.

Measures in prevention of cancer of the cervix uteri. Sovet. med.  
16 no. 6:42-44 June 1952. (CLML 22:4)

1. Professor, Head of the Department of Obstetrics and Gynecology  
of Rostov-on-the-Don Medical Institute.

LEL'CHUK, P. Ya.

Problem of therapy of juvenile hemorrhages. Akush. gin. no.5:68-70.  
(CIML 25:4)  
Sept-Oct 1953.

1. Professor. 2. Of the Obstetric-Gynecological Clinic (Head -- Prof.  
P. Ya. Lel'chuk), Rostov Medical Institute.

LEL'CHUK, P. Ya.

LEL'CHUK, P. Ya., professor.

Climacteric metrorrhagia. Akush. i gin. no. 3:15-19 My-Je '55.  
(MLRA 8:10)

1. Iz akushersko-ginekologicheskoy kliniki Rostovskogo  
meditsinskogo instituta.

(CLIMACTERIC, FEMALE, compl.  
metrorrhagia)

(MENORRHAGIA AND METORRHAGIA  
in climacteric)

LELCHUK, P. YA.; (Rostov, USSR)

Chirurgische Behandlung des prainvasiven Collumcarcinoms.

Report submitted for the 3rd World Congress, Intl. Federation of Gyneology  
and Obstetrics, Vienna, Austria, 3-9 Sep 1961.

LEL'CHUK, P.Ya., prof.

Climacteric hemorrhages in uterine fibromyoma. Vop.okh.mat.i det.  
7 no.7:65-68 J1 '62. (MIRA 15:11)

1. Iz kafedry akusherstva i ginekologii (zav. - prof. P.Ya.Lel'chuk)  
Rostovskogo gosudarstvennogo meditsinskogo instituta.  
(UTERUS---TUMORS) (HEMORRHAGE UTERINE) (CLIMACTERIC)

LELICHUK, A.Ya., prof.; SHUKROVICHAYA, Y.I., assistant

Immediate results of treating cancer of the ovaries with  
combined method. Sbor. nauch. trud. Rost. gos. univ. 1981.  
no.21:8.-87. 103.

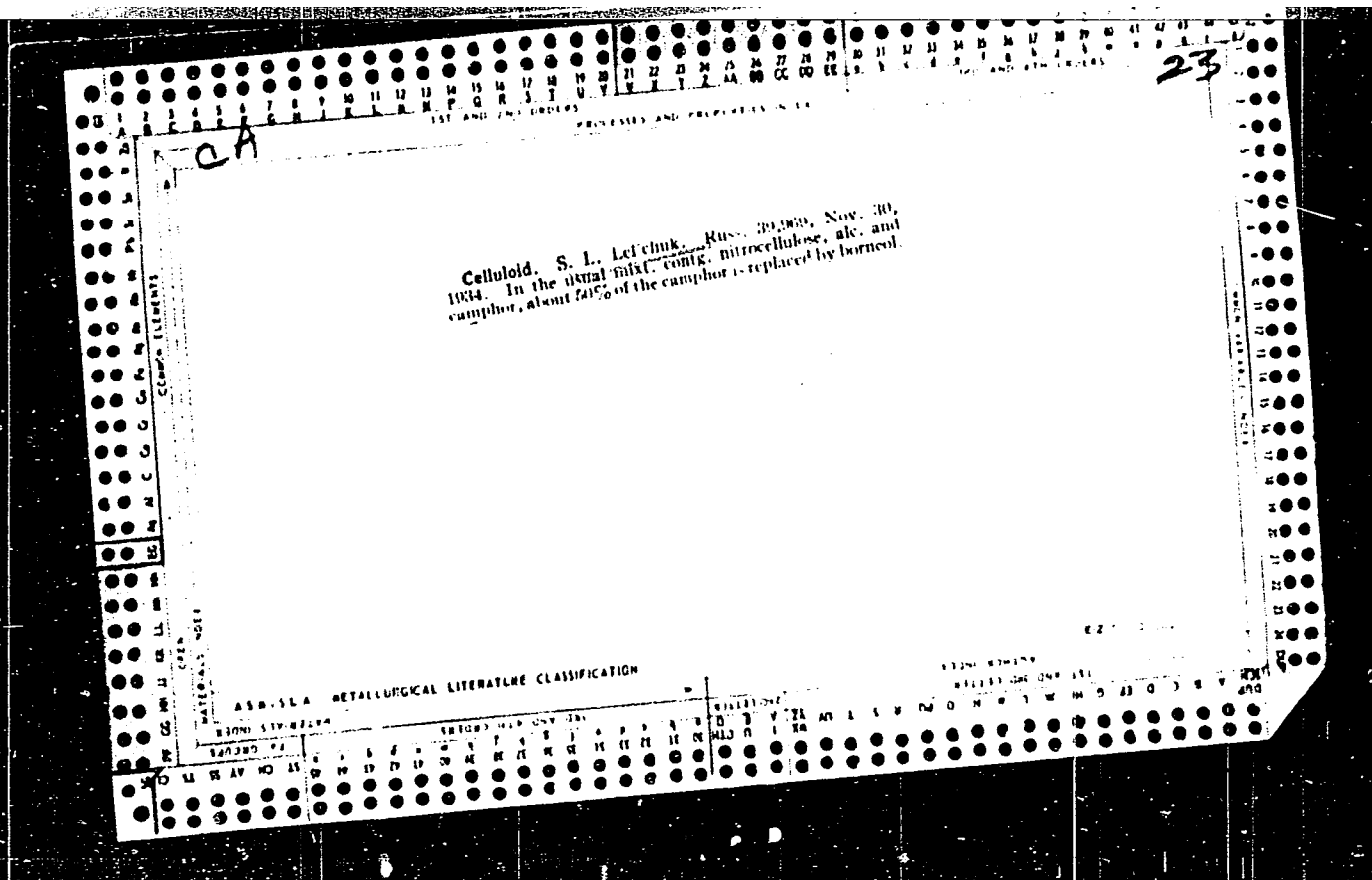
1. In kafedry akusherstva i ginekologii (prof. A.Ya. Lelichuk)  
Rostovskogo gosudarstvennogo instituta.



GOFMAN, G.Ye., prof.; ZHELEZNOV, B.I., kand. med. nauk; KLENITSKIY, Ya.S., prof.; LEL'CHUK, P.Ya., prof.; MARKINA, V.P., dots.; NOVIKOVA, L.A., prof.; PETROVA, Ye.N., prof.; POKROVSKIY, V.A., prof.; FRINOVSKIY, V.S., prof.; PERSIANINOV, L.S., prof., otv. red.; IL'IN, I.V., red.; LYUDKOVSKAYA, N.I., tekhn. red.

[Multivolume manual on obstetrics and gynecology] Mnogotomnoe rukovodstvo po akusherstvu i ginekologii. Moskva, Medgiz. Vol.5. [Tumors of female genitalia] Opukholi zhenskikh polovykh organov. 1962. 314 p. (MIRA 16:8)

1. Chlen-korrespondent AMN SSSR (for Novikova, Persianinov).  
(GENERATIVE ORGANS, FEMALE--TUMORS)



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*LELCHUK, S.*

*OR*

Processes and Properties Index

Alcoholysis of esters. I. S. Lel'chuk and A. Popova. *Org. Chem. Ind. (U. S. S. R.)* 3, 148-53(1937).--Siberian pine-needles oil, contg. 2% borncol acetate (I), after distg. off of the pinene fraction gave a product contg. 70-85% I. This product was treated with 2-3 vols. of EtOH and BuOH in the presence of 2-20% (by vol.) of concd. HCl and H<sub>2</sub>SO<sub>4</sub> at various temps. and periods of time, giving *l*-rotary borncol (II), m. 204° (Call.) and AcOEt and AcOEt<sub>2</sub>, resp. The optimum conditions are: a) completed in 1 hr. The optimum conditions are: a) concn. of 5% HCl with 2 vols. of EtOH at 70-80°, and b) vols. of BuOH at 110° for 4 hrs. By this method the decompn. results in 91.9% II (of the available I) with EtOH and 84.1% II with BuOH. About 20 references. Chas. Blanc.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

INDEX

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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Cu

PROCESSES AND PROPERTIES INDEX

Catalytic production of esters from alcohols. S. L. LeF'chuk and M. V. Veltistova. *Org. Chem. Ind. (U. S. S. R.)* 4, 147-52 (1937); cf. Doigov, Koton and LeF'chuk. *C. A.* 30, 2174\*.--Following the previous procedure, 85% EtOH was passed over Cu with and without the addition of  $Cr_2O_3$ ,  $Al_2O_3$ ,  $MnO$ ,  $MgO$  and  $TiO_2$ . At 275° and a circulation rate of 15 cc./hr. over 25 cm. (25 cc.) catalyst, Cu gave in the 1st run 28.4% AcOEt, 4.92% AcOH, 15.37% AcH and a gas contg. 85%  $H_2$ . The stability of the Cu catalyst was improved and the AcOEt yield somewhat increased by adding 2%  $Cr_2O_3$ . An equally good yield was obtained with the contact mixt. contg. 20%  $Al_2O_3$ , though it is mechanically unstable. Results, superior to Cu-Ce and equal to Cu-Zr, were obtained with the contact mixt. of Cu with 10%  $Al_2O_3$  and 2%  $Cr_2O_3$ , giving a condensate contg. 45% AcOEt, 8.4% AcOH and 7% AcH with 60% utilization of the alc. in the first run and 75% in 3 recirculations. The catalyst activity was reduced by 7% after 100 hrs. of use, and was completely restored by oxidation with atm.  $O_2$  and reduction with  $H_2$ . Chas. Blanc

METALLURGICAL LITERATURE CLASSIFICATION

GROUPS: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

PERIODS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PROCESSES AND PROPERTIES INDEX

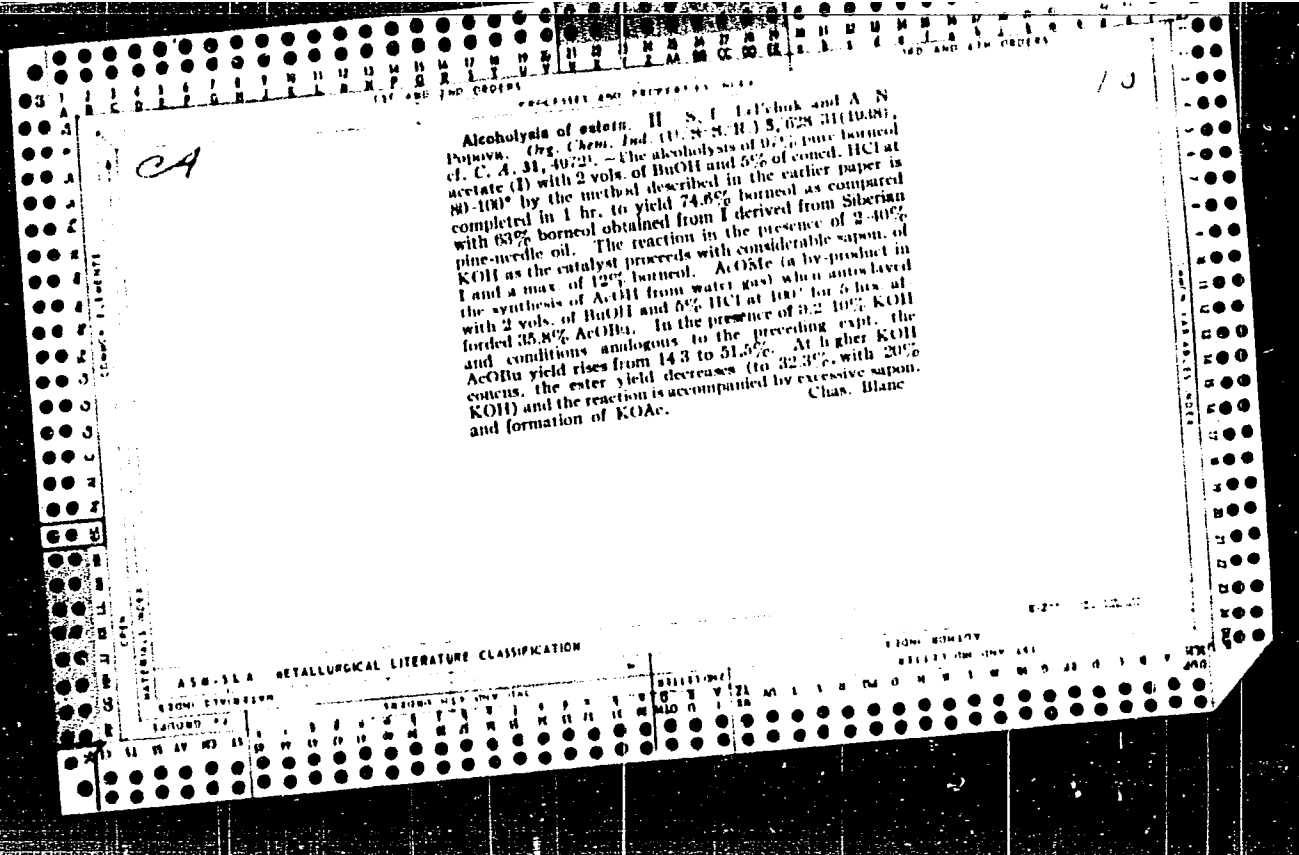
Combined production of acetic acid and ethyl acetate by catalytic decomposition of ethyl alcohol at ordinary pressure. S. L. Le'chuk and M. V. Veltistova. *Org. Chem. Ind. (U. S. S. R.)* 4, 245-53(1937); cf. Dolgov, Koton and Le'chuk, *C. A.* 30, 1027<sup>a</sup>, 5177<sup>a</sup>, and preceding abstr.—It is shown that in the catalytic esterification of alc. with a Cu catalyst by the previous method the AcOH yield can be considerably increased by raising the temp. to 300° and introducing water vapors for the hydration of the AcH formed in the catalysis:  $AcH + H_2O = AcOH + H_2$  (cf. Goldschmidt, *et al.*, *C. A.* 28, 2073<sup>b</sup>). Because of the excessive diln. of the condensate and comparatively rapid deactivation of the Cu-Cr<sub>2</sub>O<sub>3</sub> catalyst, the procedure is considered commercially impractical. More promising is the method of passing the AcH and uncondensed gaseous portion through a 2nd reaction chamber over the Cu catalyst. By this method 47.7% AcH contg. 8% H<sub>2</sub>O was converted into AcOH at 300-25°. Approx. 35 references. Chas. Blanc

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A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.





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*Cu*

Catalysts for the synthesis of esters from alcohols. S  
I. Lel'chuk, M. V. Veltistova and E. A. Borisova. *J. Applied Chem. (U. S. S. R.)* 11, 56-60 (in French (1938)).—An addn. of  $Cr_2O_3$  and  $Al_2O_3$  to the Cu catalyst increased its activity and stability. In all cases the Cu catalyst was prepd. by pptg.  $CuO$  from  $Cu(OAc)_2$  with  $NaOH$  at 65-70°, washing the ppt. from alkali and, then,  $Cr_2O_3$  and  $Al_2O_3$  (freshly prepd.) were added. The best catalyst was of the compn. Cu-10%,  $Al_2O_3$ -2%,  $Cr_2O_3$  which converted 83.9% of alc. of 185 cc. per l. of catalyst per hr. The above catalyst has a stability and activity equal to the catalysts contg. rare elements. Data are tabulated and plotted. Five references. A. A. Podgorny

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS

COMMON RARE EARTH METALS

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

GROUPS

PERIODIC TABLE





1ST AND 2ND GROUPS  
PROCESSES AND PROPERTIES INDEX

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

COMMON ELEMENTS  
OPEN  
MATERIALS INDEX

Synthesis of acetates of higher alcohols by catalytic dehydrogenation. M. V. Veltistova and S. L. Le'chuk. *Org. Chem. Ind. (U. S. S. R.)* 6, 657-60(1930); *Ch. C. A.* 32, 20834. --Preliminary results on the esterification of BuOH and AmOH with 1-3 mols. EtOH at 250-300° by the method and over the catalysts previously described. The dehydrogenation of BuOH and AmOH in the mixture proceeds at a nearly equal rate to give complex mixts. of the corresponding Et, Bu and Am acetates, butyrates and valerates and aldehydes. With increasing mol. proportion of EtOH the yields of esters increase and those of acids and aldehydes decrease. The gaseous products contain about 2% CH<sub>4</sub> and 1.5% of unsatd. hydrocarbons. Chas. Blanc

1 / C

ASIA-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND GROUPS  
3RD AND 4TH GROUPS  
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PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

CONCERN ELEMENTS

CA Synthesis of acetic acid under high pressure. S. I. Lel'chuk and A. Z. Karpov. *Org. Chem. Ind.* (U. S. S. R.) 7, 210 (1949). - CO was compressed to 300 atm, mixed with MeOH obtained from water gas, the mixture was heated to 300-350°, passed through the catalyst, and then through a condenser and receiver while the gases were recirculated. The ratio of CO/MeOH in moles was 0.011. The catalyst consisted of H<sub>3</sub>PO<sub>4</sub> + activated charcoal and addns. of CrPO<sub>4</sub>, uranyl nitrate, Ti nitrate, and also H<sub>3</sub>PO<sub>4</sub> + CrPO<sub>4</sub> and phosphomolybdic acid. The catalysts and the yields of HOAc in the condensate were, resp., H<sub>3</sub>PO<sub>4</sub> + CrPO<sub>4</sub> (I) 14.3, H<sub>3</sub>PO<sub>4</sub> + uranyl nitrate (II) 17.30, H<sub>3</sub>PO<sub>4</sub> + Ti nitrate (III) 18.2, H<sub>3</sub>PO<sub>4</sub> + CrPO<sub>4</sub> (IV) 14.4 and phosphomolybdic acid (V) 11.9%. The activity of catalysts III and IV decreased from the start of the reaction while V, I and II reached max. activity after 15, 0 and 12 hrs., resp. The synthesis was also carried out by passing the water gas through a MeOH catalyst and afterward through an HOAc catalyst in the same app. The condensate consisted of an aq. layer contg. the HOAc and a hydrocarbon layer. Using a catalyst of H<sub>3</sub>PO<sub>4</sub> + CrPO<sub>4</sub>, the activity reached a max. after 10 hrs. but the yield was 1/2 that in the above 2-stage synthesis. The hydrocarbon layer contained about 42% satd. and 40% unsatd. + aromatics. By increasing the space velocity of the gas the content of low-boiling hydrocarbons increased. Catalysts contg. H<sub>3</sub>PO<sub>4</sub> + H<sub>2</sub>WO<sub>4</sub> produced higher contents of aromatics with increasing addns. of H<sub>2</sub>WO<sub>4</sub>, whereas the unsatd. were decreased and the satd. remained const. The catalyst contg. Sb and catalyst II yielded products contg. 59.5 and 72.1% aromatics, resp. The single-stage synthesis should be further developed but more stable and easily regenerated catalysts should be tried. B. Z. Kamich

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

33001 33002 33003 33004 33005 33006 33007 33008 33009 33010 33011 33012 33013 33014 33015 33016 33017 33018 33019 33020 33021 33022 33023 33024 33025 33026 33027 33028 33029 33030 33031 33032 33033 33034 33035 33036 33037 33038 33039 33040 33041 33042 33043 33044 33045 33046 33047 33048 33049 33050 33051 33052 33053 33054 33055 33056 33057 33058 33059 33060 33061 33062 33063 33064 33065 33066 33067 33068 33069 33070 33071 33072 33073 33074 33075 33076 33077 33078 33079 33080 33081 33082 33083 33084 33085 33086 33087 33088 33089 33090 33091 33092 33093 33094 33095 33096 33097 33098 33099 33100

LEL'CHUK, S. L.

"Solubility (25°C) in the System NaF-- AlF<sub>3</sub>-- H<sub>2</sub>O (The Chemical Composition of Cryolite)," Dokl. AN SSSR, 41, No.3, 1943

Inst. General and Inorganic Chemistry, AS USSR

PROCESSES AND PROPERTIES

A-1

BC

Dehydrogenation of ethyl alcohol over mixed catalysts. S. L. Leitschuk, A. A. Balandiz, D. N. Vaskevitch, and I. I. Groer (*J. Appl. Chem. Russ.*, 1944, 17, 60-64; cf. A., 1941, I, 52).—Dehydrogenation of EtOH to AcOH and EtOAc over Cu-Al<sub>2</sub>O<sub>3</sub> (10%)-CaO (4%) and Cu-Al<sub>2</sub>O<sub>3</sub> (10%)-TiO<sub>2</sub> (50%) is studied at 250-350°. CaO is ineffective as promoter; TiO<sub>2</sub> increases the yield of EtOAc. The optimum temp. for formation of EtOAc is 285° when the condensate contains 38.7% at a flow rate 300 l. per hr. Yields of EtOH and EtOAc decreased with increasing flow rate. Overall reactions obey a second-order law; rate coeffs. ( $k_{100^\circ} \times 10^{-3}$ ) are 8.8 and 3.1 for the formation of EtOH and 1.4 and 7.1  $\times 10^{-3}$  for the formation of EtOAc using respectively CaO and TiO<sub>2</sub> promoters. The corresponding Arrhenius parameters are 19.1, 17.0, 14.5, and 5.8 kg.-cal. per mol.

E. A. B.

ASM-SIA METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS: C O S P N H B F AL SI MN CR NI CO FE CU NI ZN BR IN SN PB Tl

OPEN MATERIALS INDEX: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

ADVANCED INDEX: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z





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Aliphatic carboxylic acids. S. L. Lel'chuk and A. P. Belen'kaya. U.S.S.R. 66,181, Apr. 30, 1970. In the production of aliphatic carboxylic acids by oxidation of alcohols or aldehydes in the gaseous phase and in the presence of  $H_2O$ , a Cu alloy, contg. Cr, Ti, or Pd as activator, is used as catalyst. The catalyst is air-oxidized at 300-400°C. M. Hosh

ASM-SIA METALLURGICAL LITERATURE CLASSIFICATION

GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
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**Kinetics of the direct esterification of alcohol. I. Effect of promoters on the reaction velocity.** S. L. Leitchuk, D. N. Vaskevich, A. P. Helen'kaya, and F. A. Dashkovskaya (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1946, 191-201; cf. C. I. 42, 4436. (1) Expts. were made with 90% alc. at the const. space velocity of 400 ml./l. catalyst. The catalysts were prepd. by pptg. with alkali from Cu acetate and the nitrate of the corresponding promoter, washing to neutral, and drying at 100°. From analyses of the products obtained at 250, 275, and 300°, the amts. of the primarily formed AcH, AcOH, and AcOEt were calcn. on the basis of the assumed reaction mechanism (I) EtOH + AcH + H<sub>2</sub>O → AcOH + H<sub>2</sub>, (II) AcOH + H<sub>2</sub>O → EtOH + AcOEt + H<sub>2</sub>O; the original amt. of AcH was obtained by multiplying the final ester and acid by 0.823 and 0.770, resp., and adding to the amt. of AcOH found in the product; similarly, the original amt. of AcOH is obtained by multiplying the final ester by 0.685 and adding to the AcOH found in the products. The yields of reactions I, II, and III, detd. in this way, satisfy the Arrhenius linear relation between log k and 1/T (assuming the yield to represent the reaction velocity k), on Cu-Zn, Cu-Fe, Cu-Zr, and Cu-Ce catalysts, and permit calcn. of the apparent activation energies E. Reaction IIa obviously plays a secondary role. (2) Only elements of the 4th and 6th group of the periodic system promote the Cu catalysis of the direct esterification. Elements of the 4th group have little effect, as they promote decompn. of AcH into CO and CH<sub>4</sub>. For elements of the 3rd group, the yield y of ester increases linearly with the at. no. For each catalyst (amt. of promoter in % of the wt. of Cu), y at 275° (in wt. %), E of reactions I, II, and III (kcal./mole), and the primary yields (in wt. % of reactions I, II, and III, are given in the following: Cu, 12.3, 3.5, 4.05, 3.8, 30.0, 15.5, 12.3; Ag (5) 0.2, 0.7, 0.3, 0.2; Be (1.8) 9.9, 8.0, 8.4, 30.5, 12.7, 0.0; Mg (1.0) 4.8, 5.1, 0.7, 4.5, 33.0, 10.0, 4.8; Zn (0.5) 5.0, 3.6, 9.5, 3.4, 37.9, 12.5, 0.0; Al (5.0) 12.3, 0.0, 0.9, 1.1, 39.2, 18.8, 15.8; In (0.2) 6.4, 4.5, 5.5, 31.3, 11.0, 0.4; Tl 1.0) 0.7, 5.85, 0.1, 2.3, 41.7, 7.6, 0.7; La (0.2) 10.7, 8.1, 11.95, 4.1, 45.4, 16.0, 10.7; Ce (0.2) 33.7, 3.55, 7.1, 0.15, 37.6, 28.7, 33.7; Ti (4.0) 28.0, 5.2, 5.8, 4.05, 31.1, 18.4, 21.8; Zr (0.0) 30.8, 5.85, 7.05, 0.0, 32.5, 20.7, 30.7; Th (0.2) 31.3, 0.1, 7.8, 3.75, 40.0, 10.0, 11.2; V (0.2) 1.1, 2.8, 3.0, 1.05, 1.1; Cr (2.0) 31.0, 1.2, 6.3, 4.1, 47.0, 22.1, 22.8; U (0.1) 35.7, 44.8, 13.15, Mn (4) 6.1, 40.9, 7.9, 4.7; Fe 5.8, 8.0, 11.0, 13.15, 35.5, 14.6, 5.8; Co (0.5) [at 255°] 10.0, 3.0, 8.15, 25.0, 13.0, 14.0; Ni (0.5) [at 255°] 11.0, 7.1, 3.0, 8.15, 25.0, 14.0, 16.0. If the total y obtained with the various catalysts is plotted against E of reactions I, II, and III, the curve, in each case, passes through a max. situated, for I, in the region 3.5-6.0, for II at 6.2-7.7, for III at 4.5-6.5 kcal./mole. (3) If the total y is plotted as a function of the ratio y<sub>I</sub>/y<sub>III</sub> of the yields (rates) of reactions I and II, y is seen to decrease linearly with increasing y<sub>I</sub>/y<sub>III</sub> from y<sub>I</sub>/y<sub>III</sub> = 0.80 to 2.0; at this point (corresponding to Cr, Al) there is a discontinuous drop of y, followed by further linear decrease with a somewhat less steep slope. Consequently, the condition of a high y is y<sub>I</sub> < y<sub>III</sub>. As a function of y<sub>I</sub>/y<sub>III</sub>, the total y decreases continuously with increasing values of that ratio. In other words, best y will be attained with catalysts for which y<sub>I</sub> < y<sub>III</sub>. Combination of the two requirements gives y<sub>I</sub> < y<sub>III</sub> < y<sub>III</sub>. (4) Plots of y against the ratios of the activation energies of the steps E<sub>I</sub>/E<sub>III</sub> and E<sub>II</sub>/E<sub>III</sub> also show distinct maxima, in the regions E<sub>I</sub>/E<sub>III</sub> = 0.8-1.1 and E<sub>II</sub>/E<sub>III</sub> = 0.8-1.1.



LEL'CHUK, S. L.

"Synthesis of Butyl Acetate from Butyl Alcohol and Acetaldehyde," Inst. Org.  
Chem AS USSR, Moscow, Khim. prom., No.9, 1946

CA

Catalytic conversion of paraffins into aromatic hydro-  
carbons. S. L. Lel'chuk and D. N. Vaskevich. U.S.S.R.  
09,887, Dec. 31, 1947. The conversion is catalyzed by  
Cr-Al fused (solid) or shaped catalyst. M. Hosh

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1ST AND 2ND ORDER REACTIONS AND PROPERTIES INDEX

KINETICS OF THE REACTION OF DIRECT ESTERIFICATION OF ALCOHOL. III. EFFECT OF THE COMPOSITION OF POLYCOMPONENT CATALYSTS ON THE KINETICS OF THE REACTION. S. L. LAFCHUK, D. N. VASKOVICH, A. P. BELCHAYA, and F. A. DASHKOVSKAYA (Acad. Sci. U.S.S.R., Moscow). *Bull. Acad. Sci. U.S.S.R., Class. Chem.* 1947, 235-8 (in Russian); *sci. C.A.* 22, 7862. — The effects of the introduction of a 3rd component into a Cu-based binary catalyst were studied on the direct esterification reaction, assumed to proceed over the stages: (I)  $RCH_2OH \rightarrow RCHO + H_2$ , (II)  $RCHO + H_2O \rightarrow RCOOH + H_2$ , (III)  $RCH_2OH + RCOOH \rightarrow RCH_2OCOR + H_2O$ . At 275°, space velocity 600 ml. EtOH/l. catalyst/hr., the simple Cu catalyst gave an ester yield of  $\gamma = 12.3\%$ , the binary Cu + 2% Co, 37%. Under the same conditions, the effects of a 3rd component (wt. % relative to Cu) were: BaO (10)  $\gamma = 4.7\%$ ;  $Al_2O_3$  (5) 19.8%;  $MnO$  (3) 3.82%; Ag (5) 0.58%; Ni (5) 11.3% (the last at 250°). In all these cases, a 3rd component lowered  $\gamma$  markedly. However, although in the case of Ag (a dehydrogenating agent) the ternary catalyst has an activity lower than either Cu + Cu or Cu + Ag, the activity of the ternary catalyst with  $Al_2O_3$  (a condensing agent) lies below that of Cu + Cu but above Cu +  $Al_2O_3$ . Thus, whereas addn. of Ag results in copassivation, the ternary catalyst with  $Al_2O_3$  has an activity intermediate between the activities of its constituent binary pairs. If the 3rd component is a condensing agent, the activity of the ternary catalyst shows increase with its concn. This is actually shown by catalysts Cu + 10%  $Al_2O_3$  +  $TiO_2$ : at 275°, with  $TiO_2$  1, 2, and 5%,  $\gamma = 22.5, 26.9,$  and  $30.6\%$ . In this instance of coactivation, the activity of the ternary catalyst is higher than that of either of the pairs Cu +  $Al_2O_3$  or Cu +  $TiO_2$ . Similarly, in the case of a passivating 3rd component, the activity of the ternary catalyst decreases with increasing concn., e.g., Cu + Co + Ni, at 275°, Ni 0, 5, and 10%,  $\gamma = 20, 11,$  and  $5.8\%$ ; the ternary catalysts are less active than either Cu + 10%  $Al_2O_3$  + or Cu + Ni 14.3%. The ternary Cu +  $Al_2O_3$  +  $Cr_2O_3$  is more active than either Cu +  $Al_2O_3$  or Cu +  $Cr_2O_3$ ; addn. of Ni (a dehydrogenating agent) as a 4th component lowered the activity: at 275°, Ni 0, 0.02, 0.1, and 1.0%,  $\gamma = 31.4, 25.2, 27.2,$  and  $20.6\%$ . At the same time, the activation energy of step III increases, from 4.4 to 8.0 kcal./mole for Ni from 0 to 1.0%; that of step I decreases from 6.5 to 2.5 for Ni from 0 to 1.0%. Addn. of a 3rd component to Cu + 10%  $Al_2O_3$  ( $\gamma = 22.5\%$ ) gave the activities:  $Cr_2O_3$  (2) 27.7%;  $TiO_2$  (5) 30.6%;  $CdO$  (4)  $\gamma = 22.8\%$ . Although  $CdO$  has but little effect on the activity and the activation energy of step III is high (14.3 kcal.), the  $Cr_2O_3$  and  $TiO_2$  ternary catalysts are clear instances of coactivation (activation energies of III, 2.4, 5.75, and 5.75 kcal.); these ternary catalysts have a higher activity than either of the constituent binary pairs.

N. THOM

ASS-11A METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

COMMON ELEMENTS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PA 8T38

LELCHUK, S. L.

Feb 1947

USSR/Catalysts  
Alloys

"Structure of Skeleton Catalysts and Their Production," G. G. Urazov, L. I. Kefely,  
S. L. Lelchuk, 3 pp

"CR Acad Sci" Vol LV, No 6

Selective removal of one of the constituents of an alloy to obtain a skeleton  
structure and produce a larger surface in the alloy catalyst.

8T38

URAZOV, G. G., KEFELI, L. M., and LEL'CHUK, S. L.

"An Investigation into the Structure of the Nickel Skeleton Catalyst," Dok. AN,  
55, No. 8, 1947

CA

Fundamental questions of the genesis of skeleton catalysts. S. L. Leitchuk. *Doklady Akad. Nauk S.S.S.R.* 56, 1023 (1947); *Chem. Zentr.* 1948, I, 17; cf. C.I. 41, 1940h, 7082a. - In the production of skeleton catalysts from readily volatile components sufficient mixing is obtained in the kryptol furnace so that treatment in the high-frequency furnace is unnecessary. Rapid cooling of the melt gives a more active catalyst for the dehydration of alc. (to AcOEt) than cooling in the furnace. The degree of washing of the catalyst required depends on whether the sol. component activates or passivates the reaction. In the former case the optimum degree of washing should be detd. The activity of the Cu-Al-Cr catalyst investigated increased as the washing out of the Al was continued. M. G. Moore



LEL'CHUK, S. L.; PETROV, D. A., KEFELI, L. M.

"Investigation of the Structure of the Copper Skeleton Catalyst," Dok. AN, 57,  
No. 6, 1947

USSR/Chemistry - Catalysts

11 Apr 52

"Concerning the Pyrophoric Properties of Skeleton Nickel Catalyst," L. M. Kerfeld, S. L. Lel'chuk, Phys Chem Inst Ineni Karpov

"Dok Ak Nauk SSSR" Vol LXXXIII, No 5, pp 697-699

Pyrophoric nickel catalyst does not "burn" in the air after the hydrogen adsorbed on it has been removed. However, upon removal of hydrogen it also loses its catalytic activity, and this activity cannot be restored by treating the catalyst with hydrogen. X-ray investigations demonstrated that

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USSR/Chemistry - Catalysts (Contd)

11 Apr 52

the structure of the Ni-lattice is not changed by the removal of hydrogen; consequently, hydrogen must be absorbed on the surface.

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LEL'CHUK, S. L.

USSR/Chemistry - Catalysts

May 52

"The Structure of Skeleton Catalysts,"  
L. M. Kefell, S. L. Lel'chuk, G. S. Zhdanov's  
Lab, Phys Chem Inst Imeni Karpov

"Dokl Ak Nauk SSSR" Vol 84, No 2, pp 285-288

Authors state that X-Ray diagrams and other  
evidence show that when a solid soln such as  
CuAl<sub>3</sub>, NiAl<sub>3</sub>, Cu<sub>2</sub>Mg, or Cu-Zn has one of its  
components leached out, there is a regrouping  
of the atoms of the remaining metal into the

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metal's original lattice, forming a single-  
phase, finely dispersed catalyst. State that  
Ni<sub>2</sub>Al<sub>3</sub>, when treated with alkali, regroups to  
form a cubic lattice and not a hexagonal one  
as other authors believed it to be. Oxidation  
of a Ni catalyst is possible when it comes in  
contact with air, since the adsorbed hydrogen,  
being in atomic form, combines with the oxygen  
and the heat from this reaction causes a par-  
tial oxidation. Note that this can be avoided  
by slowly oxidizing the hydrogen under water.  
Presented by Acad G. G. Urazov 12 Mar 52.

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LEL'CHUK, S. L.

LEL'CHUK

S. L.

An x-ray study of the structure of skeleton catalysts. L. M. Kofelt and S. L. Lel'chuk. *Russk. Akad. Nauk. Ser. Khim. Nauk. Primenenie v Khim. Prom. (Moscow-Leningrad). Sbornik* 1953, 78-84; *Referat. Zhur. Fiz.* 1953, No. 4778. — The phase compit. and dispersion of Cu and Ni skeleton catalysts obtained by leavitation of alloys CuAl<sub>3</sub> and NiAl<sub>3</sub> was studied. Reasons for the pyrophoric nature of the Ni skeleton catalyst are discussed. M. Ketner

M  
D  
1953