SHURYGINA, Ye.A.

Using lithium ions for identifying montmorillonite in soils and clays. Pochvovedenie no.3:117-121 Mr '63. (MIRA 16:3)

1. Pochvennyy institut imeni V.V.Dokuchayeva.
(Montmorillonite) (Soils--Lithium content)

SHUYSHKINA, G. K.

USSR.

Desilication of water by means of caustic magnesia. V. K. Tkachenko, L. A. Chernova, and G. K. Shuyshkina. *Elek. Stantsii* 22, No. 12, 26-8(1951).—MgO, obtained by calcination of magnesite, is used to decrease the silica content of boiler feed water; the optimum dose is 5-7 mg. MgO to 1 mg. SiO_2, and there must be not less than 3 g./l. of fines (slimes). The time of interaction of the MgO and water should be not less than 2 hrs. V. H. Gottschalk

SHURYSHKINA, G.K.

CHERNOVA, L.A., inzhener; SHURYSHKINA, G.K., inzhener.

Chemical control of steam quality. Elek. sta. 26 no.1:52-54 Ja '55. (MLRA 8:3)
(Steam)(Electric power plants)

S/169/61/000/008/010/053
A006/A101

AUTHOR: Shuser, R. S.

TITLE: Experimental determination of damping periods and decrements of natural oscillations of buildings

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 8, 1961, 13, abstract 8A116 ("Tr. In-t seysmostoyk. str-va i seysmol. AN TadzhSSR", 1960, v. 8, 84 - 94, Tadzhik summary)

TEXT: The author studied oscillations of buildings during industrial explosions in quarries at 50 and 180 m distance from the building and at 20, 30, 40 kg charge weight. ВЭГИК (VEGIK) type seismographs and ГБ-III (GB-III) galvanometers were used to register the oscillations; they were placed into the galvanometer blocks. The oscillations were recorded on a 28 cm wide phototape with the aid of a ГС-II (GS-II) recorder. The 6-МХ (6-MKh) marine chronometer with a timing contact was employed to control the uniform operation of the recorder. The VEGIK devices were placed on the ground, on a socle and a window sill of the second story over one vertical to register the transverse component of the wall oscillations. Data of 8 explosions are presented. The period of

Card 1/2

Experimental determination of damping ... S/169/61/000/008/010/053
A006/A101

natural oscillations and the logarithmic damping decrement were determined from the rear sections of oscillation recordings when the agitating forces were absent and the proper damping oscillations remained which were equal to 0.31 and 0.24 sec respectively. The dynamical characteristics of a second building were determined with the aid of the same instruments during an earthquake of 2 - 3 intensity and microseisms.

M. Korf

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[Abstracter's note: Complete translation]

Card 2/2

SHUSER, R. S.

Some tetramethoxythiacarbocyanenes. I. I. Levkoev, Z. P.
Cyanine Dyes. IX. V. V. Durmashkina, T. V. Krasnova, and R. S. Shuser (Cine-
Sytnik, S. V. Natanson, Leningrad). Zhur. Obshchei Khim. 24, 2034-9(1954); cf.
Photo Research Inst., to tetramethoxythiacarbocyanines deepens
C.A. 48, 2499a.---Transition from dimethoxy- hindrance to the electronic
the color of the dyes, probably owing to steric Treatment of 4.6 g.
interaction of the MeO and the polymethine chromophores. 3-acetamidoveratrole, m.
3-aminoveratrole with 6.4 ml. Ac_2O overnight gave 95% P_2S_5 and refluxed 25 min.
82-3 . This (1.95g.) in hot C_6H_6 was treated with 0.56 g. layer with 5% Na OH, 34%
yielding, after extn. with C_6H_6 and extn, of the org. Similarly was
3-thioacetamido-1, 2-dimethoxybenzene (I), M. 81 (from EtOH). I oxidized
prepd. 51% 4-thioacetamido 1,3-dimethoxybenzene (II), m. 89-90° . 2-methyl-4,5-dimethoxy-
in 8% KOH with $K_3Fe(CN)_6$ at 0-5° overnight gave 61% II gave 31% 2-methyl-4,
benzothiazole, m. 61.5-2° (from petr. ether). Similarly 2-Thioacetamido-
6-dimethoxybenzothiazole, m. 58-9° , picrate, m. 173-4° . dimethoxybenzothiazole, m.
1, 4-dimethoxybenzene gave similarly 75% 2-methyl-2,7- ethiodide, m. 221-2°
130-1° ; picrate, m. 155-6 ; methiodide, m. 209-10° ; Oxidation of 4-thio-
propiodide, m. 186-7° ; Me p-toluenesufonate, m. 149-50° . 2-methyl-5,6-dimethoxybenzolthiazole, m.
acetamidovertarole with K Fe(CN)6 gave 2-methylbenzothiazoles were heated
75-6° ; picrate, m. 204-5° . The dimethoxy- (130-5° for the prepn. of 3,3-
with 5% excess p-Me-$C_6H_4SO_3$Et 6 hrs. to 140-5° salts were heated 1 hr. at
dimethyl derivs.) and the resulting quaternary treatment the thiacarbocyanines
130-5° with pyridime and $C(OEt)_4$. After the usual

were pptd. as iodides with addn. of aq. KI. Thus were prepd. the following thiacarboxyanine iodides (substituents shown): 3,3'-diethyl-4,4',5,5'-tetramethoxy, 75%, red, m. 223-4° , avs. max. (in EtOH) 572 m ; 3,3'-diethyl-9-triethyl-tetramethoxy, 31%, green, m. 202-3° , 555; 3,3'-dimethyl-9ethyl-4,4',5,5'-tetramethoxy, 62%, red, m. 206-8° , 552; 3,3'-diethyl-4,4',6,'-tetramethoxy, 55%, violet, m. 248-50° , 574; 3,3'-diethyl-9-methyl-4,4',6,6'-tetramethoxy, 42%, brown-green, m. 174-6 , 562; 3,3'-diethyl-4,4',7,7'-tetramethoxy, 75%,blue violet, m. 224-5° , 564; 3,3'-diethyl-9methyl-4,4',7,7'-tetramethoxy, 35%, brown-red, m. 206-7° , 548; 3,3',9-triethyl-4,4'7,7'-tetramethoxy, 23,5%. green, m. 210-12° , 552; 3,3',9-ethyl-4,4;7,7'-tetramethoxy, 34% red-violet, m. 210-11° , 550; 3,3'-dimethyl-5,5',6,6'-tetramethoxy, 78%, green m, 249-50° , 596; 3,3'-diethyl 9-methyl-5,5'6,6'-tetramethoxy, 46%, blue-violet, m. 241-2° , 575; 3,3',9-methyl-5,5',6,6'-tetramethoxy, 34%, blue, m. 222-3° , 580; 3,3'-dimethyl-9-ethyl-5,5', 6,6'-tetramethoxy, 30%, red-brown, m. 236-7 , 576.

G. M. Losolapoff

ACC NR: AR6021239 SOURCE CODE: UR/0271/66/000/003/B061/B061

AUTHOR: Chernyavskiy, A. F.; Izokh, V. V.; Shushkevich, S. S.; Yefimchik, M. K.

TITLE: Dynamic systems based on tunnel diodes

SOURCE: Ref. zh. Avtomat telemekh i vychisl tekhn, Abs. 3B509

REF SOURCE: Tr. 6-y Nauchno-tekhn. konferentsii po yadern. radioelektron. T. 1. M., Atomizdat, 1964, 161-197

TOPIC TAGS: time measurement, multichannel analyzer, tunnel diode, dynamic system

ABSTRACT: The authors examine multichannel 15 time analyzers which use the vernier method of time interval to digital code conversion. 16 Highly reliable, small, and low-power consuming converters based on semiconductor elements are described. Two types of tunnel diode dynamic memory units are used as cycling generators in these systems. The operation of the basic circuits is described and their corresponding timing diagrams are supplied. [Translation of abstract] 4 illustrations and bibliography of 5 titles. V. S.

SUB CODE: 09

Card 1/1 UDC: 681.142.621

BARATS, S.S., kandidat meditsinskikh nauk; IL'INA-PETROVA, S.S.; SHUSHAKOV, A.P.

Morbidity among the professors and instructors in the schools of higher learning. Sov.zdrav. 15 no.5:49-50 S-O '56. (MIRA 10:1)

1. Iz mediko-sanitarnoy chasti Ural'skogo politekhnicheskogo instituta imeni S.M.Kirova (Nauchnyy konsul'tant - prof. B.P.Kushelevskiy, glavnyy vrach S.S.Il'ina-Petrova)

(VITAL STATISTICS
morbidity among professors & instructors in universities in Russia)

(TEACHERS, dis.
same)

ORLOV, N.V.; NEVRAYEV, G.A.; ABROSIMOVA, Ye.K.; BAKHMAN, V.I.; KRYUCHKOVA,
N.P.; MALAKHOV, A.M.; OVSYANIKOVA, K.A.; SEROV, S.I.; FEDOTOV,
I.F.; SHEFER, D.G.; SHUSHAKOV, A.P.

V.V. Epshtein; obituary. Vop. kur. fizioter. i lech. fiz. kul't.
25 no. 5:478-479 S-O '60. (MIRA 13:10)
(EPSHTEIN, VLADIMIR VASIL'EVICH, 1902-1960)

SHUSHAKOV, A.P.

Weather classification for sanatorium and health resort purposes. Vop. kur., fizioter. i lech. fiz. kul't. 26 no. 2:175-177 Mr-Ap '61. (MIRA 14:4)

1. Iz Sverdlovskogo instituta kurortologii i fizioterapii.
(CLIMATOLOGY, MEDICAL)

SHUSHAKOV, A.P. (Sverdlovsk)

Dosimetry of ion treatment. Vop.kur.,fizioter. i lech. fiz. kul't. 28 no.2:137-139 Mr-Ap'63. (MIRA 16:9)
(AIR IONIZED--THERAPEUTIC USE)

SHUSHAKOV, S. D. Cand. Geolog-Mineralog Sci.

Dissertation: "Procedures Governing the Seismographic Exploration of the Tuymazy-Type Structures." Moscow Order of the Labor Red Banner Petroleum Inst. imeni Academician I. M, Gubkin. 3 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947. (Project #17836)

1. SHUSHAKOV, S. D.

2. USSR (600)

"Methods of Determination of Mean Velocities from Hodographs of Reflected Waves." Prikladnaya geofizika, Issue 4, 1948 (117-129)

9. Meteorologiya i Gidrologiya, No. e, 1949. [redacted] Report U-2551. 30 Oct 52

SHUSHAKOV, S. D.

Shushakov, S. D. "On a method of seismic surveying under the conditions of the Tuymazinsk petroleum region," (With editorial notes,) Prikl. geofizika, Issue 5, 1948, p. 18-39)

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No.3, 1949)

SHUSHAKOV, S.D.

Multiple reflection of waves. Prikl.geofiz. no.20:3-25 '58.
(MIRA 11:11)

(Seismology)

SHUSHAKOV, S.D.

Dynamic characteristics of short refracted waves detected by the modeling method. Trudy Sakh.kompl.nauch.-issl. inst. AN SSSR no.10:123-130 '61. (MIRA 15:6)

(Seismic waves)

S/169/63/000/001/026/062
D263/D307

AUTHOR: Shushakov, S.D.

TITLE: Some results of regional seismic studies in the region of Susunayskaya Depression on Sakhalin

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 1, 1963, 3, abstract 1G20 (Geologiya i geofizika, 1962, no. 7, 53-65 (summary in Eng.))

TEXT: A description is given of methodical and geological results obtained from seismic studies in the southern part of Sakhalin. The effectiveness of grouping a large number of seismic receivers during seismic depth-soundings is demonstrated. The characteristics of the application of traveling explosions and other methodical questions are considered. As a result of the above work new characteristics of the structure of the terrestrial crust have been found, for the region studied. New data were obtained concerning tectonics of the sedimentary deposits in the region.

[Abstracter's note: Complete translation]

Card 1/1

[illegible]

SHUSHAKOV, Ye.V., inzh. (Krasnoyarsk)

Ballast distributor for lifting switch boxes. Put' i put.khoz. no.12:18-19 D '57. (MIRA 10:12)

(Ballast (Railroads))

SHUSHAKOV, Ye.V., inzh.(g. Krasnoyarsk)

Mechanized cinder removal equipment. Put' i put.khoz. no.10:23-24
O '58. (MIRA 11:12)

(Railroads--Equipment and supplies)

AKHMEDOV, Mustafa Isa; SHUSHALY, Mamed Amrakh

[How we obtain high wheat yields; the Lenin Collective Farm of the Kazakh Regional Administration] Biz neche iuksek bugda mehsulu koturuŕuk; Gazakh isteh-salat idaresinin Lenin adyna kolkhozu. Baky, Azerneshr. 1964. 21 p. [In Azerbaijani] (MIRA 17:5)

1. Predsedatel' Kolkhoza im. Lenina Kazakhskogo proizodstvennogo upravleniya (for Akhmedov).

FUKSON, M.N.; SHUSHAN, F.B.

Gauze filters on a spiral frame for large diameter boreholes. Osn., fund. i mekh.grun. 5 no.6:28-29 '63. (MIRA 16:12)

SHUSHANSKAYA, T.I.

Methods of conducting students' independent work in chemistry classes during the demonstration of motion pictures in evening (staggered) schools. Uch.zap.MGPI no.225:100-107 '64.
(MIRA 18:12)

SHUSHANIYA, P.G.

Treatment with spermine of certain gynecological hemorrhages. Sovet. med. No. 2:22-23 Feb 52. (CIML 21:5)

1. Professor, Head of the Obstetric-Gynecological Department of Tbilisi Medical Institute.

SHUSHANIYA, P.G., professor.

Etiology, pathogenesis, and clinical aspects of functional metrorrhagia. Akush. i gin. no.3:3-7 My-Je '55 (MLRA 8:10)
(MENORRHAGIA, AND METRORRHAGIA
etiol. & clin. aspects)

SHUSHANIYA, P.G., prof., zasluzhennyy deyatel' nauk Gruzinskoy SSR.

Estrogen therapy in prematurity [with summary in English]. Akush. i gin. 34 no.3:49-54 My-Je '58. (MIRA 11:6)

(LABOR
premature, estrogens in prev. & ther. (Rus))
(ESTROGENS, ther. use
prev. & ther. of premature labor (Rus))

124-58-9-10263

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 122 (USSR)

AUTHOR: Shushaniya, V. R.

TITLE: On a Relationship Between Angular and Linear Deformations (K voprosu o zavisimosti mezhdu uglovoy i lineynoy deformatsiyami)

PERIODICAL: Tr. Tul'sk. mekhan. in-ta, 1958, Nr 8, pp 170-172

ABSTRACT: Bibliographic entry

1. Materials--Deformation

Card 1/1

SHUSHANIYA, V.R.; GOLOVIN, S.A.

Effect of the temperature of hardening on the internal friction in carbon steel. Fiz. met. i metalloved. 11 no. 5:809-811 My '61. (MIRA 14:5)

1. Tul'skiy mekhanicheskiy institut.
(Steel—Hardening) (Internal friction)

[illegible]

Effect of the operating length of a specimen and of its heating on the fatigue life of steel under pure bending. Zav. lab. 30 no.5:599-600 '64. (MIRA 17:5)

1. Tul'skiy politekhnicheskiy institut.

L 6887-65 EPA(s)-2/EWT(m)/EWP(q)/EWP(b) Pt-10 AFWL/AS(mp)-2/ASD(m)-3/SSD
AFETR/RAEM(t) JD/MJW
ACCESSION NR: AR4044219 S/0137/64/000/006/I042/I042

68

SOURCE: Ref. zh. Metallurgiya, Abs. 6I246

AUTHOR: Golovin, S. A.; Epshteyn, L. Ye.; Shushaniya, V. R.

TITLE: Internal friction, 18 electrical resistance, 18 and mechanical properties 18 of hardened steels after tempering 18 in a furnace and during heating with an electric current

CITED SOURCE: Sb. Relaksats. yavleniya v met. i splavakh. M., Metallurgizdat, 1963, 147-149

TOPIC TAGS: hardened steel, tempering, electric heating, hardening method, work hardening, internal friction, electrical resistance, mechanical property

TRANSLATION: Investigates the mechanism of work hardening of hardened fittings of steel 5 18 and 34GS 18 during electric heating. Static tests for extension were conducted on an Amsler tensile testing machine; as samples were used fitting rods 14 mm in diameter and 450 mm long. Internal friction was measured on type RKF MIS-3 vacuum relaxation oscillator at a frequency of ~1 cps; electrical resistance was measured on a double bridge of type MOD-49. Wire samples 0.8 - 0.9 mm in diameter

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ACCESSION NR: AR4044219

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and 160 mm long for investigation of the indicated properties were prepared by the method of cold drawing; after drawing, the samples were subjected to full annealing in a vacuum. The temperature curves of internal friction are recorded after water-quenching of the samples from 900° and also after tempering at 170-400° which was conducted for 0.5 hours during furnace heating, and up to 30 sec during heating by an electric current. For all samples, on the temperature curve of internal friction is an internal-friction peak at 200°, the height of which serves as a measure of the concentration of dislocations. The height of this peak and the value of the electrical resistance decrease with increasing tempering temperature. The change in the height of the internal-friction peak and specific electrical resistance is in good agreement with the curves of the mechanical properties under the same conditions of heat treatment both for rods of the fitting and for wire samples. The height of the internal-friction peaks after electrical tempering, after subtracting the background, is significantly higher than after tempering in a furnace, basically due to the lowering of the high-temperature branch of the background of internal friction. There is briefly formulated the mechanism of increased work hardening of hardened steel during electrical tempering.

Card 2/3

L 6887-65
ACCESSION NR: AR4044219

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Electrical resistance decrease more abruptly during electrical tempering than during furnace tempering, which is associated with more complete separation of C from martensite. Essentially greater width and height of the internal-friction peaks for electrically tempered steel testify to the higher concentration of dislocations. During electrical tempering there also forms a greater amount of carbide deposits than during furnace tempering, which cause substantial work hardening of the steel.

SUB CODE: MM ENCL: 00

Card 3/3

PROCESSES AND PROPERTIES INDEX

SHUSHANOV, V.A.

B

26

A New Type of Topochemical Reaction. (In Russian.) M. B. Neiman and V. A. Shushanov. *Doklady Akademii Nauk SSSR* (Reports of the Academy of Science of the USSR), v. 60, June 11, 1948, p. 1347-1350.

Topochemical reactions take place on the boundaries between two phases and generally are connected with the formation new phases. As a typical example of such reactions, that of NaSn with ethyl bromide to produce tetraethyl tin, sodium bromide, and metallic tin, was studied.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SHUSHANSKAYA, T.I., uchitel'nitsa

Use of motion pictures and slides in the teaching of chemistry.
Khim.v shkole 14 no.3:39-42 My-Je '59. (MIRA 12:9)

1.Srednyaya shkola No.473 g.Moskvy.
(Chemistry--Study and teaching) (Visual aids)

SHUSHANSKAYA, T.I., uchiltel'nitsa

Independent work of students with textbooks in adult schools. Khim. v shkole 17 no.1:58-63 Ja-F '62. (MIRA 15:1)

1. Shkola rabochey molodezhi No.112, g. Moskva.
(Chemistry--Study and teaching)

ROZHANSKIY, N.

Books on physics to be published by the chief editor's office for literature on physics and mathematics of the "Nauka" Publishing House in 1966. Usp. fiz. nauk 87 no.4:737-739 D '65.
(MIRA 19:1)

[illegible]

"Forced Oscillations of a Nonlinear System of Regulation With Two Degrees of Freedom." Sub 13 Dec 51, Sci-Res Inst of Mechanics and Mathematics, Moscow Order of Lenin State U imeni M. V. Lomonosov.

Cand. Phys.-Mathematical Sci.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

FUKS, Boris Abramovich, prof.; BAKHSHIYAN, F.A., prof.; ANDRIYEVSKIY, F.P., dotsent; MIROSHKOV, R.K., dotsent; NAGAYEVA, V.M., dotsent; SOBOLEV, N.A., dotsent; SOKOLOV, A.M., dotsent; SHAPIRO, Z.Ya., dotsent; SHUSHARA, G.N., dotsent; KAPLAN, I.B., starshiy prepodavatel'; POLOZKOV, A.P., starshiy prepodavatel'; POLOZKOV, D.P., starshiy prepodavatel'; TOPAZOV, N.G., starshiy prepodavatel'; SHCHERBAKOV, S.S., starshiy prepodavatel'; Prinimali uchastiye: GOL'DENVEYZER, A.L., prof.; BARANENKOV, G.S., dotsent; BERMAN, Ya.R., dotsent; LUNTS, G.L., dotsent; SHESTAKOV, A.A., dotsent; GMURMAN, V.Ye., starshiy prepodavatel'; Rozental', M.I., assistent; SOKOLOVA, L.A., assistent. ROZANOVA, G.K., red.izd-va; KUZ'MINA, N.S., tekhn.red. (Continued on next card)

FUKS, Boris Abramovich--(continued) Card 2.

[Higher mathematics; methodological instructions and control assignments for the students of correspondence technical schools of university level] Vysshaia matematika; metodicheskie ukazaniia i kontrol'nye zadaniia dlia studentov zaochnykh vysshikh tekhnicheskikh uchebnykh zavedenii. Izd.9. Pod red. B.A.Fuksa. Moskva, Gos.izd-vo "Sovetskaia nauka," 1958. 179 p. (MIRA 12:9)

1. Russia (1923- U.S.S.R.) Ministerstvo vysshego obrazovaniya. Metodicheskoye upravleniye.
(Mathematics--Study and teaching)

SHUSHARIN, S.S.

Shusharin, S.S. "On the re-recording of phonograms," report 78, Trudy NIKFI (Nauch.-issled. kino-foto-in-t), Issue 7, 1947, (column title: 1944), p. 153-61 - Bibliog: 14 items

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

SHUSHARIN, S.S.

Copying a sound track. Trudy NIKFI no.7:153-161 '47. (MIRA 11:6)

1. Laboratoriya zvukozapisi Nauchno-issledovatel'skogo kino-foto-instituta, Moskva.

(Sound--Recording and reproducing)
(Motion-picture projection--Equipment and supplies)

TSITRIN, O.N.; SHUSHARIN, S.S.

Conversion of frequency-modulation waves of a low frequency. Trudy NIKFI no.7:167-172 '47. (MIRA 11:6)

1. Laboratoriya zvukozapisi Nauchno-issledovatel'skogo kino-foto-instituta, Moskva.

(Sound waves)

YAZYKOVA, Alla Alekseyevna; PISAREV, Yu.A., doktor ist. nauk, otv. red.; SHUSHARIN, V.P., red.

[The People's Rumania] Narodnaia Rumyniia. Moskva, Nauka, 1965. 116 p. (MIRA 18:8)

CA

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Polarographic analysis of sulfidic compounds. II. Elemental sulfur and disulfides. M. I. Gerber and A. D. Shusharina (Leningrad Inst. of High Pressure). *Zhur. Anal. Khim.* **5**, 262-71(1950); cf. C. A. **43**, 6943i.—The method is used to det. S and disulfides. Sublimed S was detd. polarographically in 90% alc. in the presence of 0.05 *N* H_2SO_4, in 85% alc. in the presence of 0.02 *N* $N(CH_3)_4I$, and in a mixt. of benzene and alc. In the presence of H_2SO_4 the reduction potential of S was −0.2 v. At −0.45 v. a max. was observed and at −1.2 v. diffusion current started. Above 0.6 millimoles per l. S could not be detd. because the Hg at the bottom became coated with a film of HgS. To det. S in kerosene distillate, a mixt. of benzene and EtOH each 50%, by vol. was used as solvent and AcOH and Na acetate as electrolytes. O must be carefully eliminated in these detns. Of the disulfides detd. were: *n*-dibutyldisulfide, diisoamyldisulfide, *n*-dinonyldisulfide, α-diphenylethyldisulfide, and diphenyldisulfide. When the −S−S− group was linked to a phenyl radical its reduction potential was −0.5 v., and when linked to an alkyl radical the reduction potential was −1.25 v. M. Hosch

BRODSKAYA, N.I.; GERBER, M.I.; TEODOROVICH, V.P.; SHUSHARINA, A.D.

Regenerating solutions of oxythioarsenic compounds. Zhur. prikl. khim. 30 no.11:1588-1593 N '57. (MIRA 11:2)

1. Leningradskiy nauchno-issledovatel'skiy institut po pererabotke nefti i polucheniyu iskusstvennogo topliva.
(Solution (Chemistry)) (Arsenic compounds) (Sulfur)

GERBER, M.I.; TEODOROVICH, V.P.; SHUSHARINA, A.D.

Rate of absorption of hydrogen sulfide by soutions of arsenic trioxide and sodium carbonate. Zhur. prikl. khim. 31 no.10:1478-1483 O '58.
(MIRA 12:1)

1. Leningradskiy nauchno-issledovatel'skiy institut po pererabotke nefti i polucheniyu iskusstvennogo zhidkogo topliva.
(Hydrogen sulfide) (Absorption)

GERBER, M.I.; TEODOROVICH, V.P.; SHUSHARINA, A.D.

Investigation of the rate of absorption of hydrogen sulfide by solutions containing arsenic and soda. Zhur.prikl.khim. 31 no.11: 1624-1627 N '58. (MIRA 12:2)

1. Leningradskiy nauchno-issledovatel'skiy institut po pererabotke nefti i polucheniyu iskusstvennogo zhidkogo topliva.
(Hydrogen sulfide) (Solution (Chemistry)) (Absorption)

NAGMETZHANOV, K.; SHUSHBAYEV, S.

Generalized complete orthonormalized system in an L_2 (0,1) space. Vop. vych. mat. i tekh. no.1:88-92 '64. (MIRA 18:8)

SHUSHBAYEV, S.

Fourier series in an orthonormalized system. Vop. vych. mat. i tekh. no.1:104-112 '64.

Approximation of integrals by integral sums. Ibid.:113-120

Some special orthonormalized sequences. Ibid.:121-128
(MIRA 18:8)

BOYARSKIY, Aron Yakovlevich; SHUSHERIN,Petr Pavlovich; BURTAKOV, A.B., redaktor; BROVKIN, P.G., tekhnicheskiy redaktor.

[Demographic statistics] Demograficheskaia statistika. Izd.2-oe, ispr. Moskva, Gos.statisticheskoe izd-vo, 1955. 332 p.(MLRA 8:12)
(Population--Statistics)

SHUSHERIN, P.P., dotsent.

Academician Buniakovskii as demographer. Uch. Zap. Mosk. ekon.-stat. inst. 6:45-55 '55. (MIRA 10:4)
(Buniakovskiy, Viktor IAkovlevich, 1804-1889)

SHUSHERINA, N. P.

Levina, R. Y., Kleimenova, L. S., and Shusherina, N. P. "The Synthesis of Olefinic and Paraffinic Hydrocarbons of Forked Structure. IV. On the Use of Mesityl Oxide as Starting Material for the Synthesis of Hydrocarbons of Isostructure." (p. 121)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 1

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

Action of hydrazine hydrate on dianisylideneacetone and the decomposition of the pyrazoline base from them into a cyclopropane derivative. M. I. Ushakov, S. P. Shusherina, and A. D. Chinaeva. *J. Gen. Chem.* (U.S.S.R.) 17, 1678–83(1947)(in Russian).—Dianisylideneacetone, (p-MeOC$_6$H$_4$CH:CH)$_2$CO (5 g.), 50 cc. EtOH, and 3.24 g. 78% N$_2$H$_4$.H$_2$O agitated 40 min. at 65–70° gave, on cooling, 67% of a *pyrazoline deriv.*, C$_{19}$H$_{20}$O$_2$N$_2$, m. 130–1° (from EtOH); *Ag salt*, white crystals, darkening in the air or on heating (excess alc. leads to sepn. of metallic Ag); *HCl salt*, decomp. 173–4° (from EtOH); *nitroso deriv.*, m. 142° (from EtOH). When 16 g. pyrazoline deriv. was heated at 15–16 mm. to 140°, N evolution began and was finally completed after 2 hrs. at 200–30°; the product in Et$_2$O was treated with HCl to remove traces of the unreacted base and the residue on distn. gave 9 g. greenish oil, b$_1$ 180–90°, solidifying on standing, m. 44–5° (from EtOH), d_4^{20} 1.0813, n_D^{20} 1.5676; the material decolorizes KMnO$_4$ in CHCl$_3$, gives with Br a green color turning to violet; on the basis of MR calcns. and chem. behavior the product is given the structure of *1-(p-methoxyphenyl)-2-[2-(p-methoxyphenyl)cyclopropyl]ethylene* (I). With KMnO$_4$ in dil. Me$_2$CO it gave anisic acid and a solid, m. 112–13° (from EtOAc). Hydrogenation in EtOH over Pt black gave a product (II), C$_{19}$H$_{22}$O$_2$, m. 70–1° (from EtOH), assigned the structure of the *ethane analog* of I. II (0.5 g.), 2.5 g. pyridine, and 0.5 g. Na heated 4 hrs. to 170–90° in a N atm., cooled, treated with pyridine, then with pyridine-H$_2$O, extd. with Et$_2$O, and the aq. soln. acidified with 20% H$_2$SO$_4$ and extd. with Et$_2$O gave 66% *1-(p-hydroxyphenyl)-2-[2-(p-hydroxyphenyl)cyclopropyl]ethane*, m. 172–3° (from benzene); this (0.1 g.) in 2.5 cc. pyridine with 2.5 g. Ac$_2$O yielded, after standing 2 days, the *di-Ac deriv.*, m. 121–2° (from MeOH). The formation of the cyclopropane deriv. is explained by an intermediate RCH:CH$\dot{\text{C}}$HCH$_2$CHR, with an allylic system which can shift its double bond to give R$\dot{\text{C}}$HCH:CHCH$_2$$\dot{\text{C}}$HR; the former structure can yield the cyclopropyl deriv. on cyclization, as was the case in this instance, while the 2nd form gives rise to a 5-membered ring, as with the Kizhner compd. (*C.A.* 10, 1338).

G. M. Kosolapoff

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SHUSHERINA, N. P.

R. Ia. Levina, A. A. Feinzil'berg and N. P. Shusherina, Synthesis of the isostructure of olefin and paraffin hydrocarbons. V. 2, 4-di-menthyl-penta-diene-1, 3 in the synthesis of hydrocarbons with a quarternary carbon atom. P. 1775

The method of synthesis of 2, 4-di-menthyl-pent-diene-1,3 was perfected which increased its yield to 62.5% of the theoretical.

The Zelinskii Lab. of Organic Chem. of the Moscow State University, Holder of the Lenin Order, October 8, 1947

SO: Journal of General Chemistry (USSR) 28, (80) No. 10 (1948):

CA

13

Synthesis of hydrocarbons. XVI. Synthesis of isononane (2,3,4-trimethylhexane). R. Ya. Levina, N. P. Shusherina, and E. G. Treshchova. *Vestnik Moskov. Univ.*, 5, No. 9, 37-41(1950); *Ser. Fiz.-Mat. i Estestven. Nauk* No. 6; *cf. C.A.* **46**, 8786, 1954e, 1955a.—MeEtCO (430 g.) satd. at room temp. with HCl (140 g.), kept 48 hrs., and treated with 400 ml. H_2O gave 300 g. EtCMeClCOMe, b_{750} 124-6°, which, boiled 4 hrs. with 100 g. pyridine, filtered, and washed with aq. NaOH gave 61% mixed EtCMe:CMeCOMe and MeCH:CMeCHMeCOMe, b_{750} 150.5-60°, n_D^{20} 1.4410, d_4^{20} 0.[illegible]. The mixt. with MeMgI (cf. above ref.) gave mixed 2,3,4-trimethyl-3- and 4-hexen-3-[illegible], n_D^{20} 1.[illegible], d_4^{20} 0.[illegible], which on dehydration by distn. with iodine gave 65% (based on initial ketone) mixed isomeric 2,3,4-trimethylhexadienes, b_{750} 130.7-33.5°, n_D^{20} 1.4451, d_4^{20} 0.7649. Hydrogenation of the mixt. over Pt-C at 170° gave *2,3,4-trimethylhexane*, which after distn. over Na b_{750} 137.6-7.8°, n_D^{20} 1.4138, d_4^{20} 0.7347 (cf. Fenske, *et al.*, *C.A.* 42, 2180e). The structure is confirmed by the Raman spectrum which checks perfectly the data of Fenske, above, insofar as the most prominent lines are concerned. However, the new substance has a richer spectrum when resolved by a better instrument (slit width is 250% narrower). The complete Raman spectrum is (in cm.$^{-1}$): 274 (0.2), 333 (2.5), 357 (0.1), 401 (0.4), 434 (1), 466 (4), 471 (1), 516 (0.3), 570 (1), 588 (1), 676 (0), 735 (1.5), 746 (2.5), 764 (1.5), 769 (1.5), 779 (1.5), 806 (1.5), 822 (1.8), 875 (3.5), 893 (0.3), 915 (3.5), 958 (4), 978 (1), 998 (1.8), 1031 (2), 1056 (1), 1085 (0.8), 1107 (0.5), 1165 (4), 1183 (1.5), 1258 (0.1), 1270 (0.3), 1292 (2), 1315 (0.5), 1325 (1.5), 1355 (2), 1382 (1), 1448 (10), 1463 (10), 2850 (2.5), 2861 (2.5), 2877 (6), 2916 (3.5), 2943 (3.5), 2968 (4), and 2992 (2). Thus the structure of "homomesitones" from the alkali-catalyzed condensation of MeEtCO is established.

G. M. Kosolapoff

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Synthesis of hydrocarbons. XII. The hydrobromides of diene hydrocarbons in the synthesis of olefines and paraffins (alkanes) hydrocarbons with a quaternary carbon atom. R. Ya. Levina and N. P. Shusherina (*J. gen. Chem. USSR*, 1950, **20**, 868—875 [U.S. transl., 903—909]).—Condensation of COMeEt produces 3-methylhept-3-en-5-one which reacts with MeMgI to give 3 : 5-dimethylhept-3-en-5-ol, and this on dehydration affords a mixture of isomeric dienes. These react with HBr to give a single hydrobromide that reacts with Grignard reagents to give 3 : 5-dimethyl-5-alkylhept-3-enes, and regenerates some of the diene mixture. The olefines are hydrogenated to alkanes.

Treatment of COMeEt with CaC_2 in a Soxhlet apparatus and distillation of the excess ketone affords CMeEt:CH·COEt, b.p. 165—167° (lit., 164—165°), d_4^{20} 0·8600 (lit. d_4^{20} 0·8606), n_D^{20} 1·4470 (lit. $n_D^{21·4}$ 1·4480), which is treated with MeMgI in Et_2O (heat 7 hr.) and the product decomposed with ice, affording, after distillation, 3 : 5-*dimethylhept-3-en-5-ol*, $C_9H_{18}O$ (I), b.p. 176—177°/750 mm., d_4^{20} 0·8531, n_D^{20} 1·4525. Simple heating of I dehydrates it and distillation of the product affords fractions containing chiefly 3 : 5-*dimethylhepta*-2 : 4-*diene*, C_9H_{16} (II), b.p. 137—138°, d_4^{20} 0·7600, n_D^{20} 1·4467, and 4-*methyl-2-ethylhexa*-1 : 3-*diene*, C_9H_{16} (III), b.p. 140—141°, d_4^{20} 0·7604, n_D^{20} 1·4600, neither of which interact with $(:CH·CO)_2O$. Treatment of II and III, together or separately, with gaseous HBr affords 5-*bromo*-3 : 5-*dimethylhept-3-ene*, $C_9H_{17}Br$ (IV), b.p. 63—63·5°/7 mm., d_4^{20} 1·1210, n_D^{20} 1·4704 (the two other structurally possible compounds are not homologues of allyl bromide and would not show the same mobility of the halogen atom), which is treated with MeMgI in Et_2O (~—40°, 2·5 hr., and heat 5 hr.) and poured onto ice to decompose the product, forming II and III (10% together), and 3 : 5 : 5-trimethylhept-3-ene, $C_{10}H_{20}$ (V) (31%), b.p. 151—152°/764 mm., d_4^{20} 0·7t38, n_D^{20} 1·4350; the latter on oxidation with $KMnO_4$ in $COMe_2$ affords $CMe_2Et·CO_2H$, b.p. 186—187° (lit., 186—187°) [*p*-phenylphenacyl ester, m.p. 83° (lit., 86°)]. Hydrogenation of V on $Ni-Al_2O_3$ at 160—170° affords 3 : 3 : 5-trimethylheptane, $C_{10}H_{22}$, b.p. 153·8—153·7°/750 mm. (lit., 155·2°/767 mm., 155·8°), n_D^{20} 1·4176 (lit., 1·4218, 1·4170), d_4^{20} 0·7440 (lit., 0·7516, 0·7480). The Raman spectrum is consistent with the structure claimed. Action of EtMgBr on IV affords II, III, and 3 : 5-*dimethyl-5-ethylhept-3-ene*, $C_{11}H_{22}$ (31%), b.p. 173—173·3°/740 mm., d_4^{20} 0·7771, n_D^{20} 1·4408; the latter on hydrogenation ($Ni-Al_2O_3$) affords 3 : 5-*dimethyl-5-ethylheptane*, $C_{11}H_{24}$, b.p. 179—179·5°/740 mm., d_4^{20} 0·7628, n_D^{20} 1·4283, having a Raman spectrum consistent with the structure claimed.

E. J. H. Birch.

SHUSHERINA, N. P.

"Investigations in the Synthesis of Isoalkanes." Sub 18 May 51, Moscow Order of Lenin State U imeni M. V. Lomonosov.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

LEVINA, R.Ya.; SHUSHERINA, N.P.; TRESHCHOVA, E.G.

Synthesis of hydrocarbons. XXX. Synthesis of 3,5-dimethylheptane. Vestnik Moskov. Univ. 7, No.2, Ser. Fiz. Mat. i Estestven. Nauk No.1, 105-8 '52. (MLRA 5:7)
(CA 47 no.13:6333 '53)

1. Moskovskiy universitet.

SHUSHERINA, N. P.

USSR/Chemistry - Hydrocarbons Feb 52

"Synthesis of Hydrocarbons. XVII. Homomesitones in the Synthesis of Isoparaffinic Hydrocarbons," R. Ya. Levina, N. P. Shusherina, Ye. G. Treshchova, V. M. Tatevskiy, Lab of Org Chem imeni Acad N. D. Zelinskiy, Moscow State U

"Zhur Obshch Khim" Vol XXII, No 2, pp 199-208

Developed method to synthesize difficulty obtainable isoparaffins 3,5-dimethylheptane (I), 3-methyl-5-ethylheptane (II), 3-methyl-5-ethyloctane (III), 3-methyl-5-ethylnonane (IV), 2,3,4-trimethylhexane (V), 3,4,5-trimethylheptane (VI), none

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USSR/Chemistry - Hydrocarbons (Contd) Feb 52

described in the literature. Synthesized I-IV by reaction of mixt of "homomesitones" 3-methylheptene-3-one-5 and 3-methylheptene-2-one-5 (products of condensation of methylethylketone with CaC_2) with org Mg compds, then dehydration of products (unsatd tert alcs) and catalytic hydrogenation of resulting diene hydrocarbons. V and VI were synthesized in same way with exception that "homomesitones" in this case were 3,4-dimethylhexene-3-one-5 and 3,4-dimethylhexene-2-one-5 (products of condensation of methylethylketone with HCl).

209T14

SHUSHERINA, N.P.

USSR/Chemistry - Hydrocarbons, Fuels Apr 52

"Synthesis of Hydrocarbons. XXI. Hydrobromides of Diene Hydrocarbons in the Synthesis of Olefin and Paraffin Hydrocarbons With a Quaternary Carbon Atom," R. Ya. Levina, N. P. Shusherina, Moscow State U, Lab of Org Chem imeni N D. Zelinskiy

"Zhur Obshch Khim" Vol XXII, No 4, pp 577-585

The reaction between tertiary alkyl magnesium halides and unsatd tertiary bromides was used for the synthesis of high-mol alkenes. Two dodecenes and 2 tridecenes were synthesized and hydrogenated into the corresponding dodecanes and tridecanes. A total of 11 compds, not previously described in literature, was synthesized. 224T32

[illegible]

Lactones.

Cyanethylated ketones in the synthesis of unsaturated δ-lactones. Dokl. AN SSSR 86, No. 1, 1952.

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

SHUSHERINA, N.P.

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

Synthesis of hydrocarbons. XXXVIII. Synthesis of alkenes and alkanes with two quaternary carbon atoms. R. Ya. Levina, N. P. Shusherina, N. I. Volchinskaya, and M. Yu. Lur'e [redacted]. *Zhur. Obshchei Khim.* 23, 400-3(1953); cf. *C.A.* 47, 12210*d*; 48, 2679*h*.—Me_3CCl (70 g.) in 1 vol. Et_2O was slowly added to 18 g. Mg under Et_2O (Mg activated with 1.8 ml. $BrCH_2CH_2Br$), and the mixt. refluxed with stirring 2 hrs., cooled to −40°, treated over 0.5 hr. with 72 g. HBr adduct (I) of Me_2C:$CHCMe$:CH_2 in 1 vol. Et_2O, stirred 3 hrs. at −30° and 2 hrs. at room temp., left overnight, stirred with heating 8 hrs., and decompd. with ice-NH_4Cl; the org. layer yielded 17% *2,2,3,3,5-pentamethyl-4-hexene*, which, after purification over Na, b_{760} 170-70.2°, n_D^{20} 1.4470, d_{20} 0.7830; the higher-boiling material yielded 17% *2,4-dimethyl-1,3-pentadiene dimer*, b_{760} 217-18°. Hydrogenation of the olefin over Ni-Al_2O_3 at 160-70° gave *2,2,3,3,5-pentamethylhexane*, b_{760} 172.8-3.5°, n_D^{20} 1.4302, d_{20} 0.7673. Similarly Me_3CMgCl with I gave 14% *2,2,3,5-tetramethyl-3-ethyl-4-heptene* (II), b_{760} 210.5-11.5°, n_D^{20} 1.4574, d_{20} 0.8012, and 55% *3,5-dimethyl-3-heptene*, b_{760} 180.5-1.0°, n_D^{20} 1.4222, d_{20} 0.7353. II was hydrogenated to *2,2,3,5-tetramethyl-3-ethylheptane*, b_{760} 214.5-15.0°, n_D^{20} 1.4440, d_{20} 0.7891. G. M. K.

SHUSHERINA, N. P. Oct 53

USSR/Chemistry - Hydrocarbons

"Raman Spectra of Hydrocarbons of Different Types. IV. Raman Spectra of Some Branched Alkanes Containing Tertiary Carbon Atoms, "Ye. G. Treshchova, V. M. Tatayevskiy, A. A. Faynzil'berg, N. P. Shusherina, R. Ya. Levina, Moscow State U im M. V. Lomonosov

Zhur Fiz Khim, Vol 27, No 10, pp 1564-71

Detd the Raman spectra of 2,3-dimethylhexane, 2,3-dimethylheptane, 2,3-dimethylocatane, 2,3,6-trimethylheptane, 3,5-dimethylheptane, 3-methyl-5-ethyloctane, 3,5-dimethylheptane, and 5-methyl-5 ethyloctane. From the data obtained, drew conclusions on the frequencies which correspond to definite types of branching.

272T15

SHUSHERINA, N. P.

USSR/ Chemistry Synthesis methods

Card : 1/1 Pub. 151 - 27/33

Authors : Levina, R. Ya., Shusherina, N. P., and Lurye, M. Yu.

Title : Cyanethylated ketones in the synthesis of unsaturated delta-lactones Part 2.- Synthesis and properties of unsaturated delta lactones obtained from gamma-acetylvaleronitrile

Periodical : Zhur. ob. khim. 24/8, 1439 - 1444, August 1954

Abstract : A new method for the synthesis of unsaturated delta-lactones, by using cyanethylated ketones in the role of basic substances, is described. The position of the double bond in the synthesized lactones was determined by means of the bromination reaction. Some new derivatives of gamma-acetylvaleric acid and their chemical properties, are listed. Nine references: 4 USA; 4 USSR and 1 French (1902 - 1953).

Institution : State University, Moscow

Submitted : February 16, 1954

Shusherina, N. P.

Synthesis of hydrocarbons. XLV. Synthesis of cyclohexene and cyclohexane hydrocarbons with a quaternary carbon atom, based on 1,3-dimethyl-1,3-cyclohexadiene. R. Ya. Levina, N. P. Shusherina, Khn Dyal Gir, and E. G. Treshchova. J. Gen. [illegible] U.S.S.R. 24, 1537-42(1954) (Engl. translation).—See C.A. 49, 11571f. L. Synthesis of 1,1'-bicyclopentenyl. R. Ya. Levina, V. R. Skvarchenko, and O. Yu. Okhlobystin. Ibid. 25, 1411-13(1955).—See C.A. 50, 4797a. B. M. R.

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SHUSHERINA, N.P.

USSR/Chemistry - Synthesis

Card 1/1 : Pub. 151 - 13/42

Authors : Levina, R. Ya.; Shusherina, N. P.; Dyay Gir, Kim.; and Treshchova, E. G.

Title : Synthesis of hydrocarbons Part 45.- Synthesis of cyclohexene and cyclohexane hydrocarbons with quaternary carbon atom on a 1,3-dimethylcyclohexadiene-1,3 base

Periodical : Zhur. ob. khim. 24/9, 1551-1557, Sep 1954

Abstract : The development of a new method of synthesizing cyclohexene hydrocarbons with two alkyl groups and one carbon atom - 1,3-dimethyl-1-alkylcyclohexene-2 (alkyl - CH_3, C_2H_5, C_3H_7), is announced. The new method consists of three stages, which are explained. The structure of the synthesized cyclohexene hydrocarbons was established by their physical properties, by the combined light diffusion spectra of one of the hydrocarbons and by their stability in conditions of irreversible catalysis. The latter factor confirms the presence of a quaternary carbon atom in the cycle. Eight references: 4-USSR; 1-USA; 2-German and 1-French (1894-1952). Tables.

Institution : State University, Moscow

Submitted : March 26, 1954

Shusherina, N.P.

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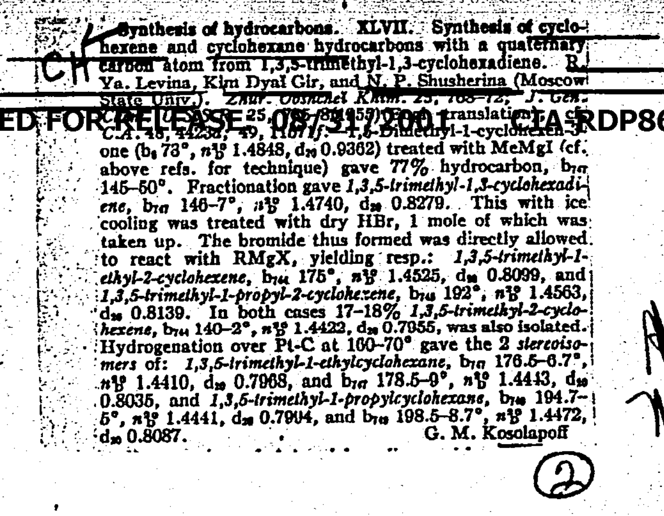
Chem

Unsaturated δ-lactones from monocyanoethylated cyclic ketones. N. P. Shusherina, R. Ya. Levina, M. Yu. Lur'e, and V. I. Zdanovich. *Vestnik Moskov Univ.* 10, No. 10, *Ser. Fiz.-Mat. i Estestven. Nauk* No. 7, 123–5(1955).—Cyclohexanone with $CH_2:CHCN$ (Ia) gave 47% α-(β-cyanoethyl)cyclohexanone (Ib), l, 146–7°, n_D^{20} 1.4697, d_{20} 1.0215, MR_D 41.23. Ib was converted by boiling with dil. acid to the corresponding ketone (85%), b. 60–1°; this heated with Ac_2O gave 83% Δ^9-hexahydrocoumarin, b_3 117–18°, d_{20} 1.1166, n_D^{20} 1.5050, MR_D 40.42. β-Tetralone with Ia in dioxane contg. KOH gave 40% *α-(β-cyanoethyl)-β-tetralone* (I), b_4 187–8°, b_{10} 202–4°, n_D^{20} 1.5635, d_{20} 1.1367, MR_D 56.97, EM_D 0.75. The distn. residue from I was *α,α-bis(β-cyanoethyl)-β-tetralone*, m. 96° (from C_6H_6), and boiled with HCl-AcOH gave 78% *5,6-benzo-Δ^9-tetrahydrocoumarin*, m. 99–100° (from EtOH), and b_3 187–8°. α-Tetralone, Ia, and KOH in dioxane gave 30% β-(β-cyanoethyl)-α-tetralone (II), b_3 203–5°, m. 59–60°. Boiling II with concd. HCl-AcOH gave 82% β-(β-carboxyethyl)-α-tetralone, m. 107–8°, 70% 7,8-benzo-Δ^9-tetrahydrocoumarin. Similarly cyclopentanone and Ia gave α-cyclopentylidenecyclopentanone, b_{14} 125–6°, n_D^{20} 1.5108, d_{20} 1.0175, and 25.5% α-(β-cyanoethyl)cyclopentanone (III), b_{10-11} 125–6°, n_D^{20} 1.4720, d_{20} 1.0402, MR_D 36.88. Hydrolysis of III with HCl gave up to 70% α-(β-carboxyethyl)cyclopentanone (IV), b_{16} 175–76°, n_D^{20} 1.4775, d_{20} 1.1432, MR_D, 38.66; semicarbazone, m. 215–16° (decompn.). Heating IV with Ac_2O yielded 74% 5,6-cyclopenteno-3,4-dihydro-α-pyrone, b_{13} 118–19°, n_D^{20} 1.4900, d_{20} 1.1272, MR_D 36.00. F. S. Boig

Chem Gen. Chem

AID P - 1568

Subject :	USSR/Chemistry
Card 1/1	Pub. 119 - 3/5
Author :	R. Ya. Levina and N. P. Shusherina (Moscow)
Title :	Methods for the synthesis of paraffins (alkanes)
Periodical :	Usp. khim., 24, no.2, 181-219, 1955
Abstract :	Methods for production of alkanes by: catalytic hydrogenation and hydropolymerization of unsaturated hydrocarbons; preparation of alkanes from halides, alcohols, aldehydes, ketones, and acids, and by alkylation of organic magnesium compounds with alkyl halides are reviewed. 315 references: (127 ref.1867-1953)
Institution:	None
Submitted :	No date



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Synthesis of hydrocarbons. XLVII. Synthesis of cyclohexene and cyclohexane hydrocarbons with a quaternary carbon atom from 1,3,5-trimethyl-1,3-cyclohexadiene. R. Ya. Levina, Kim Dyal Gir, and N. P. Shusherina (Moscow State Univ.). *Zhur. Obshchei Khim.* 25, 768-72; *J. Gen. Chem. U.S.S.R.* 25, 735-8(1955)(Engl. translation); cf. *C.A.* 48, 4423d; 49, 11017f.—1,5-Dimethyl-1-cyclohexen-3-one (b_6 73°, n_D^{20} 1.4848, d_{20} 0.9362) treated with MeMgI (cf. above refs. for technique) gave 77% hydrocarbon, b_{767} 145-50°. Fractionation gave *1,3,5-trimethyl-1,3-cyclohexadiene*, b_{767} 146-7°, n_D^{20} 1.4740, d_{20} 0.8279. This with ice cooling was treated with dry HBr, 1 mole of which was taken up. The bromide thus formed was directly allowed to react with RMgX, yielding resp.: *1,3,5-trimethyl-1-ethyl-2-cyclohexene*, b_{744} 175°, n_D^{20} 1.4525, d_{20} 0.8099, and *1,3,5-trimethyl-1-propyl-2-cyclohexene*, b_{748} 192°, n_D^{20} 1.4563, d_{20} 0.8139. In both cases 17-18% *1,3,5-trimethyl-2-cyclohexene*, b_{744} 140-2°, n_D^{20} 1.4422, d_{20} 0.7955, was also isolated. Hydrogenation over Pt-C at 160-70° gave the 2 *stereoisomers* of: *1,3,5-trimethyl-1-ethylcyclohexane*, b_{767} 176.5-6.7°, n_D^{20} 1.4410, d_{20} 0.7968, and b_{767} 178.5-9°, n_D^{20} 1.4443, d_{20} 0.8035, and *1,3,5-trimethyl-1-propylcyclohexane*, b_{748} 194.7-5°, n_D^{20} 1.4441, d_{20} 0.7904, and b_{748} 198.5-8.7°, n_D^{20} 1.4472, d_{20} 0.8087.

G. M. Kosolapoff

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SHUSHERINA, N.P.

USSR/Organic Chemistry - Synthetic Organic Chemistry E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4358

Author : Shusherina, N.P., Levina, R.Ya., Lur'ye, M.Yu.

Title : Cyanoethylated Ketones in the Synthesis of Unsaturated Delta-Lactones. V. Synthesis and Properties of Unsaturated Delta-Lactones from Monocyanoethylated Acetone and Cyclohexanone.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 3, 750-755.

Abstract : By hydrolysis of monocyanoethylated cyclohexanone (I) and acetoacetic ester (II) (in the latter case there takes place concurrently with hydrolysis a decarboxylation) were prepared cyclohexanone-2-beta-propionic (III) and gamma-acetylbutyric (IV) acids, lactonization of which results, respectively, in delta^{9,10}-hexahydrocoumarine (V) and 6-methyl-3,4-dihydro-alpha-pyrone (VI). Structure of I and VI is established by their conversion, respectively, to III and IV (hydrolysis), their esters

Card 1/4

Moscow State Univ.

of V and VI over PtO_2 (~ 20°) were obtained beta-cyclohexylpropionic (VII) and capreic (VIII) acids. To 5 mole cyclohexanone and 2 ml 40% solution of NaOH in CH_3OH is added, with stirring, at a temperature < 40°, 1 mole acrylonitrile (IX); obtained I, yield 47%, BP 146-147°/6 [illegible] $n^{20}D$ 1.[illegible]690, d^{20}_4 [illegible]15. Mixture of 24.5 g I, 40 ml concentrated HCl and 20 ml water boiled 2 hours, III extracted with ether, yield 85.5%, BP 180-181°/10 mm, MP 60-61° (from benzene); semicarbazide, MP 184° (decomposes; from aqueous alcohol). Mixture of 10 g III and 18 g $(CH_3CO)_2O$ heated 4 hours; obtained V, yield 83%, BP 117-118°/5 mm, $n^{20}D$ 1.5050, d^{20}_4 1.1166. On heating with 10% solution of NaOH (0.5 hours) V is quantitatively converted to III. Solution of 5 g V in 50 ml absolute alcohol saturated with gaseous HCl, poured into water, extracted with ether; obtained ethyl ester of III, BP 134-135°/7 mm,

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USSR/Organic Chemistry - Synthetic Organic Chemistry E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4358

$n^{20}D$ 1.4626, d_4^{20} 1.0350; semicarbazide, MP 105-106° (from aqueous alcohol). By shaking V with NH_4OH there is obtained the amide of III, MP 163-164°(decomposes; from water). Hydrogenation of 0.08 mole V over PtO_2 in absolute alcohol gives VII, yield 66%, BP 112-113°/4 mm, $n^{20}D$ 1.4654, d_4^{20} 1.0104; amide, MP 119-120°; phenylhydrazide, MP 155-156° (from aqueous alcohol). To a solution of C_2H_5ONa (from 0.5 g Na and 100 ml alcohol) added 1 mole aceto-acetic ester and 0.8 mole IX (stirring, temperature $< 40°$), alcohol driven off, neutralized with CH_3COOH and extracted with ether; obtained II, yield 47%, BP 155-156°/10 mm, $n^{20}D$ 1.4480, d_4^{20} 1.0690, and dicyanethyl-derivative, yield 25 g, MP 82-83° (from alcohol). Mixture of 30 g II, 17 ml water and 17 ml concentrated H_2SO_4 and 50 ml CH_3COOH, boiled 5-7 hours, diluted with water and extracted with ether for 10 hours; obtained IV, yield 57%, BP 152-154°/10 mm, $n^{20}D$ 1.4462, d_4^{20}

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mm; 82-83°/15 mm, $n^{20}D$ 1.4050, d_4^{20} 1.0782; on using CH_3COCl in lieu of $(CH_3CO)_2O$ the yield is 67%. VI, analogously to the above described procedure for V, is converted to IV (semicarbazide, MP 173°), its ethyl ester, BP 104-105°/12 mm, $n^{20}D$ 1.4275, d_4^{20} 0.9971; semicarba[illegible] 110°; amide, MP 112-113° (from chloroform), and VIII, yield 69.7%, BP 105-107°/15 mm, $n^{20}D$ 1.4190; phenylhydrazide, MP 100° (from aqueous alcohol). Hydrogenation of 15 g VI over Ni/Al_2O_3 at 180-200°, gives 6-methyl tetrahydro-alpha-pyrone, yield 7 g, BP 114-116°/23 mm, $n^{20}D$ 1.4425, d_4^{20} 1.0162.

Preceding communication, see RZhKhim, 1956, 68258.

Card 4/4

SHUSHERINA, N. P.

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15

Cyanoethylated ketones in the synthesis of unsaturated δ-lactones. V. Synthesis and properties of unsaturated δ-lactones from monocyanoethylated derivatives of acetone and cyclohexanone. N. P. Shusherina, R. Ya. Levina, and M. Yu. Lur'e. *J. Gen. Chem. U.S.S.R.* 26, 801-5 (1956)(English translation).—See *C.A.* 50, 14700i. B. M. R. e

Chem

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SHUSHERINA, N.P.

3 6

Chem

Cyanoethylated ketones in the synthesis of unsaturated δ-lactones. VII. Isomeric benzotetrahydrocoumarins. N. P. Shusherina, R. Ya. Levina, and V. I. Zdanovich (State Univ., Moscow). *Zhur. Obshchei Khim.* 26, 2847-51(1956); cf. *C.A.* 51, 1949*b*.—$CH_2:CHCN$ (26.5 g.) added at 40° to 43 g. 2-oxotetrahydronaphthalene in 235 ml. dioxane and 2 ml. 30% KOH in MeOH and the mixt. allowed to stand overnight gave 35% *1-(β-cyanoethyl)-2-oxotetrahydronaphthalene*, b_4 187-8°; b_{10} 202-4°, n_D^{20} 1.5635, d_{20} 1.1367, which, refluxed 5 hrs. with HCl-$AcOH$-H_2O yielded 88% *5,6-benzo-3,4,7,8-tetrahydrocoumarin*, b_3 192-5°, m. 99-100° (from EtOH). This lactone (5 g.) heated with 10 ml. 20% NaOH 0.5 hr. gave a soln. which on acidification yielded an oil identical with the original lactone. The lactone with NH_4OH-EtOH in the cold gave an oil solidifying to the unsatd. lactam, *5,6-benzo-3,4,7,8-tetrahydro-α-quinolone*, m. 176-7° (from EtOAc). The lactone heated with concd. NH_4OH formed a soln. which on cooling gave *1-(β-carbamoylethyl)-2-oxotetrahydronaphthalene*, m. 189-90° (from EtOAc). With cold alc. HCl the lactone gave *1-(β-carbethoxyethyl)-2-oxotetrahydronaphthalene*, b_4 162.5°, n_D^{20} 1.5394, d_{20} 1.1333 (*semicarbazone*, m. 158-9°). Cyanoethylation of 1-oxotetrahydronaphthalene as above but with 3 ml. basic catalyst gave 30% *2-(β-cyanoethyl)-1-oxotetrahydronaphthalene*, b_3 204-6°, m. 58-60° (from petr. ether), which, refluxed 8 hrs. with HCl-$AcOH$-H_2O, yielded 82.5% *2-(β-carboxyethyl)-1-oxotetrahydronaphthalene*, m. 107° (cf. Ansell and Hey, *C.A.* 45, 13365*f*). This refluxed 5 hrs. with Ac_2O gave 83% *7,8-benzo-3,4,5,6-tetrahydrocoumarin*, m. 74.5-5.0° (from ligroine). The lactone in 20% KOH refluxed 10 min., cooled, and acidified gave the original oxo acid, m. 106-7°; with alc. HCl it gave *2-(β-carbethoxyethyl)-1-oxotetrahydronaphthalene*, b_4 182-3°, n_D^{20} 1.5330, d_{20} 1.1206 (*semicarbazone*, m. 157-8°); with aq. alc. NH_4OH it reacted vigorously and on cooling gave *2-(β-carbamoylethyl)-1-oxotetrahydronaphthalene*, m. 147-8°. G. M. K.

Shusherina, N.P.

Chem

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Cyanoethylated ketones in the synthesis of unsaturated lactones. δ-Lactones with a hemicyclic double bond. R. Ya. Levina, N. P. Shusherina, M. Yu. Lur'ye, and N. D. Orlova. *Proc. Acad. Sci. U.S.S.R., Sect. Chem.* 106, 61-4 (1956)(Engl. translation).—See *C.A.* 50, 13887*a*.

B. M. R.

Shusherina, N.P.

USSR/ Chemistry - Synthesis

Card 1/1 Pub. 22 - 28/54

Authors : Levina, R. Ya.; Shusherina, N. P.; Lurye, M. Yu.; Orlova, N. D.

Title : Cyanethylated ketones in the synthesis of unsaturated lactones. Delta lactones with semicyclic double bond

Periodical : Dok. AN SSSR 106/2, 279-282, Jan 11, 1956

Abstract : The synthesis of delta-lactones with semicyclic double bond from basic ketones (diisopropyl- and methylisopropyl ketone) is described. The lactones obtained were found to have a definite semicyclic bond inasmuch as their formation was due mainly to the ketoenol regrouping of the keto acids, the enol forms of which are formed only as result of the isopropyl group and methyl group, respectively. The chem. properties of synthesized lactones are described. Eight references: 4 USSR, 2 USA and 2 French (1899-1955).

Institution : Moscow State University im. M. V. Lomonosov

Presented by: Academician B. A. Kazanskiy, July 16, 1955

SHUSHERINA, N.P.; SYR'YE, M.Yu.; LEVINA, R.YA.

Cyano ethylated ketones in the synthesis of unsaturated δ-lactones. A new method of α-pyrone synthesis. Dokl. AN SSSR 109 no.1:117-119 Jl-Ag '56. (MLRA 9:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Predstavleno akademikom A.N. Nesmeyanovym.
(Pyranone)

SHUSHERINA, N.P.; LEVINA, R.Ya.; LUR'YE, M.Yu.

Chemistry of δ-lactones. Vest. Mosk. un. Ser. mat., mekh., astron. fiz., khim. 12 no. 6:173-198 '57. (MIRA 11:10)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.

(Lactones)

SHUSHERINA, N.P.; LUR'YE, M.Yu.; LEVINA, R.Ya.

δ-lactones. Part 10: 9,10-dibromoctahydrocoumarin and its reactions. Zhur, ob. khim. 27 no.8:2250-2255 Ag '57. (MIRA 10:9)

1. Moskovskiy gosudarstvennyy universitet.
(Lactones) (Coumarin)

SHUSHERINA, N.P.; LEVINA, R.Ya.; KONDRAT'YEVA, L.B.

δ -lactones. Part 11: 9,10-dibromohexahydrocoumarin and its reactions. Zhur. ob. khim. 27 no.8:2255-2260 Ag '57. (MLRA 10:9)

1. Moskovskiy gosudarstvennyy universitet.
(Coumarin) (Lactones)

[illegible]

PA - 2762

AUTHOR: LEVINA,P., SHUSHERINA,N.P., LUR'YE,M.YU.

TITLE: δ-Lactones. Transformation of the Dibromides of Unsaturated δ-Lactones into Bromine Substituted δ-Ketone Acids and their Ethers.
(δ-laktony. Prevrashcheniye dibromidov nepredel'nykh δ-laktonov v bromozameshchennyye δ-ketonkisloty i ikh efiry, Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 4, pp 820 - 823 (U.S.S.R.)

Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: In their previous report the authors for the first time described the reaction between the dibromide of unsaturated δ-lactones, i.e. 5,6-dibrom-5,6-dimethyltetrahydro- α-pyron and water, namely, the binding with water with opening of the lactone cycle and separating of a molecule of hydrogen bromide. This leads to the formation of γ-brom-γ-acetyl valeric acid with quantitatively correct yield. The structure of this acid was checked by counter-analysis, i.e. bromizing of the γ-acetyl valeric acid by dioxand-ibromide. In the present work it is shown that reaction between the dibromides of the unsaturated lactones and water may serve as a general method of preparing a γ - or ε-bromine-substitute δ-ketone acid. In this way the following preparations, which have hitherto not been described in publications were produced: 4-bromine hexanon-5-carbonic acid, 6-bromine-4,4-dimethylhexanon-5-carbonic acid, 6-bromine-4,6,6-trimethylheptanon-5-carbonic acid, and 2-bromine-2-(β carboxyethyl) -cyclopentanon. Structure formulae are given. In the course of their

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PA - 2762

δ-Lactones. Transformation of the Dibromides of Unsaturated δ-Lactones into Bromine Substituted δ-~~Ketone~~ Acids and their Ethers.

further investigation of the reactivity of dibromine lactons they first studied their reaction with ethan[illegible] alcohol is effected by the opening of the lactone cycle, the separating of a molecule from hydrogen bromide, and ethyl ethers of γ - or ε-substituted δ-keton acids. By means of this reaction the ethyl ehters hitherto not described in publications of the above mentioned bromine-ketone acides were obtained. Also in this case structure was checked by means of a counter-synthesis of one of them: ehter XI was obtained by the action of dioxandibromide on ethyl ether of γ-acetyl butiric acid. In the experimental part each single reaction together with conditions and results was described.
(6 groups of chemical formulae, 2 tables, 5 citations from Slav publicatians)

ASSOCIATION: Moscow State University "M.V.LOMONOSOV"
PRESENTED BY: A.N.NESMEYANOV, Member of the Academy
SUBMITTED: 23.11.1956
AVAILABLE: Library of Congress

Card 2/2

AUTHOR SHUSHERINA N.P., LUR'YE M.Yu., LEVINA R.Ya. 20-5-39/67

TITLE δ-Laktones. Production of Acylated Butyrolactones from γ-Bromine δ-ketone acids.
(δ-laktony. Poluchenie atsiilirovannykh butirolaktonov iz γ-brom-δ-ketonokislot -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 5, pp 1084-1087 (U.S.S.R.)
Received 7/1957 Reviewed 8/1957

ABSTRACT In previous papers the author described the preparative method of production by interaction of dibromides of unsaturated δ-lactones with water. The present paper shows that the γ-bromine and δ-ketone acids obtained in this way go over into butyroactones under the effect of a cold saturated solution of sodium acetate, which are acylated in position 5. Five different lactones were obtained from the corresponding acids, so that the reaction mentioned may serve as a preparative method for the production of acylated butyrolactones-. In allcases (with the exception of case I: 5-acetylbutyrolactiones) also the formation of isomeric saturated 6-membered lactones (VII) can be presumed if the reaction had developed by the intermediate formation of unsaturated ketone acids. This, however, does not apply as it was shown that the unsaturated ketone acid (VII), which was synthetized particularly for this purpose, is not changed underthe influence of a saturated aqueous solution of sodium acetate. The substances I-V cannot be titrated with aqueous and alcoholic solutions of alkalies, they do not discolor

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5(3)

AUTHORS: Shusherina, N.P., Levina, R.Ya., ~~Dmitriyeva, N.D.~~ SOV/55-58-5-29/34

TITLE: δ-Lactones. XV. 5.6-Cycloalkanopyridones -2 (δ-laktony. XV. 5,6-tsikloalkanopiridony -2)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya **matematiki, mekhaniki, astronomii, fiziki, khimii** , 1958,Nr 5,pp 191 - 192 (USSR)

ABSTRACT: From corresponding α-pyrones there were obtained 5.6-cyclopentanopyridone -2 not described in the literature, and 5.6-cyclohexanopyridone -2 (5,6,7,8 - tetrahydroquinolone -2). It was stated that 5.6-cyclohexano-α-pyrone cold or heated with secondary amines does not react.
There are 4 references, 1 of which is Soviet, 1 American, and 2 are German.

ASSOCIATION: Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: December 31, 1957

Card 1/1

79-28-5-54/69

AUTHORS: Lur'ye, M. Yu., Trubnikov, I. S., Shusherina, N. P., Levina, R. Ya

TITLE: δ-Lactones (δ-Laktony). XII. Synthesis and Properties of 6-Phenyl-3,4-Dihydro-α-Pyrone (Sintez i svoystva 6-fenil-3,4-digrido-α-pirona)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1351 - 1355 (USSR)

ABSTRACT: In previous publications a synthesis of unsaturated δ-lactones (3,4-dihydro-α-pyrones) from monocyano-ethylated aliphatic and alicyclic ketones (Reference 1-4) was described. In the present paper the unsaturated lactone, 6-phenyl-3,4-dihydro-α-pyrone (formula III), was synthetized this way (see scheme 1). From references, it is known that the cyano-ethylation of acetophenone either leads to the tricyano-ethylated derivative (Reference 5) or to the mixture of monocyano-ethylated (13%) and dicyano-ethylated acetophenone (Reference 6). The authors succeeded in finding conditions on which this treatment makes it possible to synthetize the γ-benzoylbutyro-

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79-28-5-54/69

δ-Lactones. XII. Synthesis and Properties of 6-Phenyl-3,4-Dihydro-α-Pyrone

-nitrile(I)(28-35%) only. The hydrolysis of nitrile (I) in γ-benzoylbutyric acid (II) and its conversion to lactone (III) occurred with respective yields of 100 and 75%. It was further shown that on the action of an equimolar amount of bromine on the lactone (III) a liquid dibromide (IV) forms which, similar to the earlier described dibromolactone (IV), converts on the treatment with water to the γ-bromo-γ-benzoylbutyric acid (VI) in a yield of 86.5%. In the vacuum distillation in a dry air current the dibromolactone converts to the 6-phenyl-α-pyrone(phenylcoumalin,V) on which occasion the initial product, the unsaturated δ-lactone (III), is reforming, however. Thus in the distillation of dibromolactone (IV) the cleavage of two molecules of hydrogen bromide leads to the formation of a-pyrone (V), while the cleavage of bromine causes the formation of the initial lactone (scheme 2). There are 14 references, 6 of which are Soviet.

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79-28-5-54/69

δ-Lactones. XII. Synthesis and Properties of 6-Phenyl-3,4-Dihydro-α-Pyrone

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: April 15, 1957

Card 3/3

SOV/79-29-2-9/71

AUTHORS: Shusherina, N. P., Levina, R. Ya., Sidenko, Z. S.

TITLE: δ-Lactones (δ-Laktony). XIII. Synthesis of 6-Methyl-5-alkyl-3,4-dihydro-α-pyrones (XIII. Sintez 6-metil-5-alkil-3,4-digidro-α-pironov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 398-402 (USSR)

ABSTRACT: In their previous reports the authors had described a new synthesis of unsaturated δ-lactones (δ-enollactones), being brought about by the monocyanoethylation of the ketones, by hydrolysis of the forming nitriles in the δ-keto acids, and by the lactonization of the latter. δ-enallactones of different structure were obtained in this way: 5,6cycloalkano-3,4-dihydro-α-pyrone (Refs 1-3), 5-alkyl-6-alkylidenetetrahydro-α-pyrone (Ref 4) and low 6-methyl and 5,6-dimethyl-3,4-dihydro-α-pyrone (Refs 2,5). In the work under review, the following hitherto unknown 6-methyl-5-alkyl-3,4-dihydro-α-pyrones were synthesized correspondingly: 6-methyl-5-ethyl-(VII),6-methyl-5-propyl-(VIII) and 6-methyl-5-butyl-3,4-dihydro-α-pyrone (IX) (Scheme 1). The initial ketones (methylpropyl, methylbutyl and methylamyl ketone) were cyanoethylated according to reference 5 γ-acetyl capro-

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δ-Lactones. XIII. Synthesis of 6-Methyl-5-alkyl-3,4-dihydro-α-pyrones

nitrile (I) and γ-acetyl caprylonitrile (III) (monocyancethylated methylpropyl and methylamyl ketones) were obtained in 41% and 50% yield, as compared to 14 and 18% from publications. Their hydrolysis with diluted hydrochloric acid led to γ-acetylcaprone, "γ-acetyleneanto" and γ-acetyl caprylic acid (96, 93 and 91% yield). By heating the synthesized δ-keto acids with acetyl chloride or acetic acid anhydride, unsaturated δ-lactones were obtained: pyrones (VII), (VIII), (IX) (60%, 92% and 82%). By the action of alcohol (in the presence of HCl) and aqueous ammonia the lactone cycle of dialkyldihydro-α-pyrones was easily opened, under formation of esters (X, XI and XII) and, correspondingly, of amides (XIII, XIV, XV) of δ-keto acids (Scheme 2). On standing, amides separate one molecule of water and are transformed into the unsaturated lactams (XVI, XVII and XVIII) (Scheme 3). The facility by which these amides dehydrate presupposes a ring-chain tautomerism in them, in which they can react as in the amide and also in the oxylactam form (Refs 6,7) (Scheme 4) (Refs 6,7). Constants, yields and analyses of the compounds synthesized are given in the table. There are 3 tables and 11 references, 7 of which are Soviet.

SOV/79-29-2-9/71

δ-Lactones. XIII. Synthesis of 6-Methyl-5-alkyl-3,4-dihydro-α-pyrones

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 24, 1957

Card 3/3

SOV/79-29-2-10/71

AUTHORS: Shusherina, N. P., Levina, R. Ya., Sidenko, Z. S., Lur'ye, M. Yu.

TITLE: δ-Lactones (δ-Laktony). XIV. Synthesis of 6-Methyl-5-alkyl-α-pyrones (Sintez 6-metil-5-alkil-α-pironov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 403-407 (USSR)

ABSTRACT: The authors found earlier that on distilling 5,6-dibromosubstituted bi and tricyclic δ-lactones, the corresponding α-pyrones are formed (Scheme 1). δ-lactones are obtained by the bromination of δ-enollactones, which in their turn are formed by condensation from polymethylene cycles in the position 5,6. In the work under review this method was used for the synthesis of 5,6-dialkyl-α-pyrones. It is shown that on distilling 5,6-dibromo-6-methyl-5-alkyl-tetrahydro-α-pyrones (V-VIII), formed in connection with the bromination of 6-methyl-5-alkyl-3,4-dihydro-α-pyrones (I-IV) (Ref 3), the corresponding α-pyrones are obtained in yields of 10-17%. The low yield is explained by the circumstance that besides the dehydrobromination of dibromides (V-VIII) they also undergo debromination which fact leads to the formation of the unsaturated initial δ-lactones (I-IV) (in yields of 50-60%) (Scheme 2). The yield in α-pyrones can be increased to

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25-46% by an appropriate pre-heating of the dibromo-lactones at 130-140° in vacuum and by a further fractionated distillation of the δ-lactones forming therefrom (excepting the compound (IX) which is separated from lactone (I) by freezing). The following difficultly accessible and hitherto unknown 5,6-dialkyl-substituted α-pyrones were obtained in this way: 5,6-dimethyl, 6-methyl-5-ethyl, 6-methyl-5-propyl and 6-methyl-5-butyl-α-pyrone (IX, X, XI, XII) in yields of 27, 25, 38 and 46%, correspondingly. There are 1 table and 7 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 24, 1957

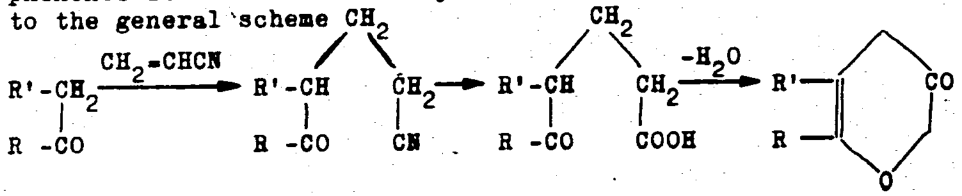
5(3) SOV/79-29-4-4/77

AUTHORS: Shusherina, N. P., Trubnikov, I. S., Levina, R. Ya.

TITLE: δ-Lactones (δ-Laktony). XVI. Synthesis of Aryl-substituted δ-Enol Lactones (XVI. Sintez arilzameshchennykh δ-enollaktonov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1062-1064 (USSR)

ABSTRACT: The authors previously described the synthesis of the 6-phenyl-3,4-dihydro-α-pyrone from monocyanoethylated acetophenone (Ref 1). In the present paper the synthesis of some other aryl-substituted δ-enol lactones from monocyanoethylated methyl-n-tolyl-, methyl-benzyl ketones and monocyanoethylated propiophenones is described. The synthesis was carried out according to the general scheme



(I - III) (IV - VI) (VII - IX),

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SOV/79-29-4-4/77

δ-Lactones. XVI. Synthesis of Aryl-substituted δ-Enol Lactones

where in (I,IV,VII): $R=n\text{-}CH_3C_6H_4, R'=H$;
in (II,V,VIII): $R=CH_3, R'=C_6H_5$;
in (III,VI,IX): $R=C_6H_5, R'=CH_3$.

The monocyanoethylation of the methyl-n-tolyl ketone was performed according to a method devised previously by the authors for the cyanoethylation of acetophenone (Ref 1). Methyl-benzyl ketone and propiophenone were caused to react with acryl nitrile under conditions used in the monocyanoethylation of ketones (Refs 2,3). The hydrolysis of the δ-ketonitriles (I-III) obtained and the lactonization of the δ-keto acids (IV-VI) obtained gave three isomeric aryl-substituted δ-enol lactones, namely: 6-(n-tolyl)-3,4-dihydro-α-pyrone (VII); 6-methyl-5-phenyl-3,4-dihydro-α-pyrone (VIII), and 5-methyl-6-phenyl-3,4-dihydro-α-pyrone (IX). There are 6 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: March 4, 1958

Card 2/2

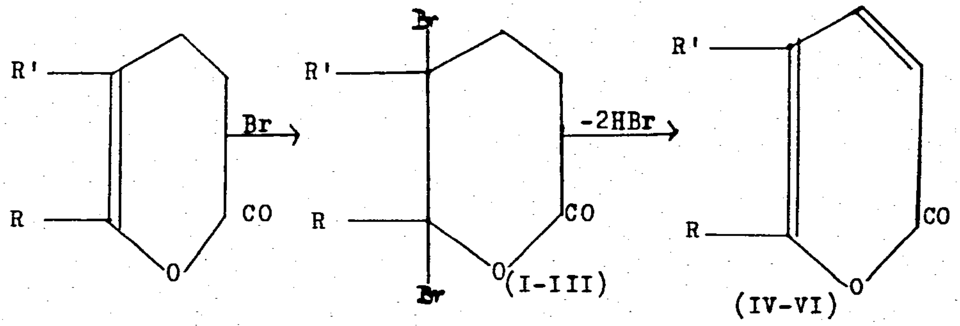
5(3)

AUTHORS: Shusherina, N. P., Levina, R. Ya., Trubnikov, I. S.   SOV/79-29-9-28/76

TITLE: δ-Lactones.
XVII. Synthesis of the Aryl- and Alkylaryl-α-pyrones

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2942-2945 (USSR)

ABSTRACT: The present investigation employs the method of synthesizing α-pyrones previously developed and described (Refs 1-4) also for the synthesis of aryl- and alkylaryl-α-pyrones:



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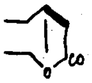
δ-Lactones. SOV/79-29-9-28/76
XVII. Synthesis of the Aryl- and Alkylaryl-α-pyrones

where (I and IV) R= p-$CH_3C_6H_4$, R'=H;
(II and V) R= C_6H_5, R'=CH_3;
(III and VI) R= CH_3, R'=C_6H_5.

(Abstracter's note:

is probably a misprint, compare also with structural formula, middle of p 2943)

This is the way of synthesizing hitherto not described isomeric α-pyrones which differ by the position of the methyl group: 6-p-tolyl-α-pyrone (IV), 5-methyl-6-phenyl-α-pyrone (V), 6-methyl-5-phenyl-α-pyrone (VI). The structure of these α-pyrones was confirmed by the formation of the double adducts (VII-IX) with maleic anhydride (Scheme 2). The yields of α-pyrones vary from 12 to 60%, according to the presence and the character of the substitutes in the 5- and 6-position, which corresponds fully to the transformation mechanism of the dibromides of the δ-enol lactones into the α-pyrones (Ref 5) as previously suggested by the authors; the subsequent separation of two molecules HBr from the dibromo lactones (in distillation) proceeds in such a way that the bromine atom of 5-position participates

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δ-Lactones. SOV/79-29-9-28/76
XVII. Synthesis of the Aryl- and Alkylaryl-α-pyrones

in the formation of the first molecule HBr (Scheme 3) so that the mobility of this bromine atom in 5-position exerts a great influence upon the yields of α-pyrones. This is the reason for the difference between the yields of α-pyrone from dibromide (I) (12%) and the yield of α-pyrone from dibromide (II) (35%). A 60% α-pyrone (VI) yield results from the distillation of dibromide (III) where the =C-Br-group is in 5-position. There are 7 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 14, 1958

Card 3/3

5(3) SOV/20-126-3-36/69

AUTHORS: Shusherina, N. P., Levina, R. Ya., Dmitriyeva, N. D.

TITLE: δ-Lactones (δ-laktony). 3-Bromopyrones-2 (3-brompirony-2)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 589 - 590 (USSR)

ABSTRACT: As is known (Refs 1-4), the bromination of the pyrones-2 leads to a formation of 3-substituted pyrones. The authors produced a number of 3-bromopyrones-2 (not described in publications) from 5,6-dialkyl-pyrones-2 and from 5,6-cycloalcane-pyrones-2. They were synthesized by the method (Refs 5,6) previously developed by the authors. The yield amounted to 28-56%. 3-bromine-5,6-dimethylpyrone-2 (I), 3-bromine-5-ethyl-6-methylpyrone-2 (II), 3-bromine-5,6-cyclopentane-pyrone-2 (III) and 3-bromine-5,6-cyclohexane-pyrone-2 (IV) were produced. It was first found out that the 3-bromopyrones-2 - like the pyrones-2 themselves - easily undergo the reaction of the diene synthesis with the maleic acid anhydride. They form double adducts (V-VIII) with a 50-80% yield. These correspond to the addition of 2 molecules of maleic acid anhydride in the bromopyrone molecule (see Scheme). Table 1 shows the constants, yields and analytic

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results of the produced 3-bromopyrones-2 after a recrystallization from alcohol. Table 2 indicates the melting temperatures, yields and analyses of the adducts V-VIII of the 3-bromopyrones-2 with the maleic acid anhydride. There are 2 tables and 6 references, 2 of which are Soviet.

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

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S/079/60/030/006/012/033/XX
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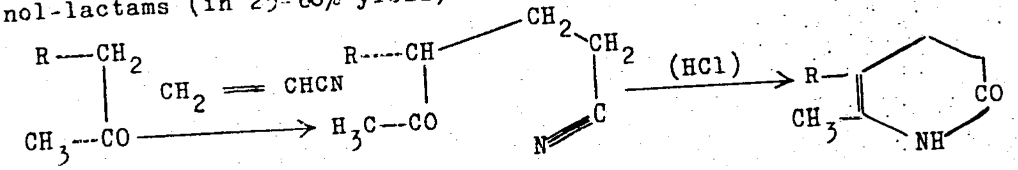
AUTHORS: Shusherina, N. P., Golovin, A. V., and Levina, R. Ya.

TITLE: δ-Lactones and δ-Lactams. XXI. Dibromides of δ-Enol-lactams (5,6-Dibromo-5,6-dialkyl-piperidones-2)

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1762-1769

TEXT: Basing on their previous investigations (Refs. 1-3), the authors of the present work studied the reactions of the dibromides of δ-enol-lactams formed by the cyclization of δ-keto-acid nitriles by means of hydrogen chloride (Ref. 4). The initial substances used in this reaction were methyl ethyl, methyl butyl, methyl isobutyl, and methyl amyl ketones. The reaction was found to be a convenient method of preparing 5,6-dialkyl-δ-enol-lactams (in 25-60% yield) according to the reaction scheme



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where R = CH_3, C_3H_7, i-C_3H_7 and C_4H_9 in substances (I - IV), respectively. The structure of compounds (I - IV) is demonstrated by the good agreement between their constants and the constants of δ-enol-lactams prepared previously in a different manner, i.e., from δ-enol-lactones (Ref. 5). The δ-enol-lactams readily add bromine without heating, forming 5,6-dibromo-piperidones-2 (scheme 2) which split off HBr when standing. It was also possible to split off two hydrogen bromide molecules successively from 5,6-dibromo-piperidones-2. On treatment with water at room temperature, 5,6-dibromo-piperidones-2 split off one molecule of HBr, forming 5-bromo-Δ^6-dihydro-pyridones-2 in 65-80% yields (scheme 3). Reaction (A) is less probable. The structure of the synthesized monobromides was verified by hydrolysis and subsequent distillation; the 5-bromo-5,6-dialkyl-Δ^6-dihydro-pyridones-2 rearrange to form hydrobromides of the corresponding pyridones-2 in 40-50% yields (scheme 6). The structure of the hydrobromides was verified by preparing one of them (IX) by treating the corresponding pyridone with gaseous HBr (scheme 7). Treatment with diethylaniline or water converts 5-bromo-5,6-dialkyl-Δ^6-dihydro-pyridones-2 to

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the 5,6-dialkyl-pyridones (XII - XV) in yields of 10-45%. Diethyl-aniline also converts 5,6-dibromo-5,6-dialkyl-piperidones-2 to the latter compounds in 20-23% yields. There are 4 tables and 9 references: 6 Soviet, 2 US, and 1 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

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SHUSHERINA, N.P.; DMITRIYEVA, N.D.; KOZLOVA, T.F.; LEVINA, R.Ya.

δ-Lactones and δ-lactams. Part 22: Nitration of 5,6-disubstituted 2-prones. Zhur. ob. khim. 30 no.9:2829-2832 S '60. (MIRA 13:9)

1. Moskovskiy gosudarstvennyy universitet.
(Pyranone)