ARBUZOV, S.Ya., prof.

Protective effect of certain pharmacological preparations in radiation injuries. Vest.AMN SSSR 13 no.6:10-22 '58 (MIRA 11:7)

1. Otdel radiobiologii Instituta eksperimental'noy meditsiny AMN SSSR.

(RADIATION PROTECTION,
chem.technics, review (Rus))

ARBUZOV, S.Ya.

Data on comparative pharmacological characteristics of ethanol phenatine derivatives. Farm. i toks. 21 no.2:25-28 Mr-Ap '58
(MIRA 11:6)

1. Kafedra farmakologii i farmatsii (nach. - prof. S.Ya. Arbuzov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
(ANALEPTICS,
beta-phenylosopropylamine nicotinic acid phosphate deriv. (Rus))
(NICOTINIC ACID, rel. cpds.
same)

ARBUZOV, S.Ya., MUKHIN, Ye.A.

Scientific activity of Prof. A.I. Kuznetsov; on the 60th anniversary of his birth. Farm. i toks. 21 no.2:91-94 Mr-Ap '58 (MIRA 11:6)
(KUZNETSOV, ANATOLII IVANOVICH)

ARBUSOV, S. YA.

"Comparative Data On The Evolutionary Pharmacology Of Modern Stimulations Of The Central Nervous System."

report submitted for the 21st International Congress of Physiological Sciences, Buenos Aires, 9-15 Aug 1959.

KHARAUZOV, N.A., prof., glavnyy red.; MIKHAYLOV, V.P., prof., zamestitel' glavnogo red.; BIRYUKOV, D.A., prof., otv.red.; AVETIKYAN, B.G., doktor biol.nauk, red.; ANICHKOV, N.N., akademik, red.; ANICHKOV, S.V., prof., red.; ARBUZOV, S.Ya., prof., red.; VESELKIN, P.N., prof., red.; VOYNO-YASENETSKIY, M.V., prof., red.; DANILOV, I.V., kand.biol.nauk, red.; ZHABOTINSKIY, Yu.M., prof., red.; ZHINKIN, L.N., prof., red.; IL'IN, V.S., red.: IOFFE, V.I., prof., red.; KARASIK, V.M., prof., red.; KUPALOV, P.S., prof., red.; MANINA, A.A., kand.med.nauk, red.; NEYFAKH, S.A., doktor biol.nauk, red.: RIKKL', A.V., prof., red.; SVETLOV, P.G., prof., red.; SMORODINTSEV, A.A., prof., red.; CHISTOVICH, G.N., doktor med.nauk, red.; BESEDIN, I.K., tekhn. red.

[Yearbook of the Institute of Experimental Medicine of the Academy of Medical Sciences of the U.S.S.R. for 1958] Ezhegodnik za 1958 god. Leningrad, 1959. 538 p. (MIRA 14:1)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut eksperimental'noy meditsiny. 2. Chleny-korrespondenty Akademii meditsinskikh nauk SSSR (for Biryukov, Veselkin, Il'in, Ioffe, Karasik, Svetlov, Smorodintsev). 3. Deystvitel'nyye chleny Akademii meditsinskikh nauk SSSR (for Anichkov, S.V., Kupalov).

(MEDICINE, EXPERIMENTAL)

ARBUZOV, Sergey Yakovlevich, prof.; VINOGRADOV, V.M., red.; SHEVCHENKO, F.Ya., tekhn.red.

[Awakening and antinarcotic action of stimulators of the nervous system] Probuzhdaiushchee i antinarkoticheskoe deistvie stimuliatorov nervnoi sistemy. Leningrad, Gos.izd-vo med.lit-ry, Leningr.otd-nie, 1960. 268 p.
(STIMULANTS) (NERVOUS SYSTEM) (MIRA 13:7)

ARBUZOV, S.Ya.; STASHKOV, A.M.; KOROTKOVA, V.P.

Effect of ionizing radiations and certain chemical protective agents on physical endurance in animals. Farm. i tcks. 23 no. 5:459-464 S-0 '60.
(MIRA 13:12)

1. Otdel radiobiologii (zav. - prof. S.Ya. Arbuzov) Institut eksperimental'noy meditsiny AMN SSSR.
(RADIATION—PHYSIOLOGICAL EFFECT)
(RADIATION PROTECTION)

ARBUZOV, S.Ya.; BAZANOV, V.A.; NEKACHALOVA, I.Ya.; PATALOVA, V.N.;
PETELINA, V.V.; SHAMOVA, E.K.

Distribution of sulfur mercamine in the organs and tissues of irradiated and non-irradiated animals. Med.rad. no.5:62-66 '61.
(MIRA 14:11)

1. Iz otdela radiobiologii (zav. - prof. S.Ya. Arbuzov) Instituta eksperimental'noy meditsiny AMN SSSR.
(ETHYLAMINE) (RADIATION PROTECTION)

ARBUZOV, S.Ya.; STASHKOV, A.M.; KOROTKOVA, V.P.

Comparative data on the protective and therapeutic effect of the derivatives of diamides of imidazoledicarboxylic acids in radiation injury. Radiobiologiia 1 no.3:385-393 '61. (MIRA 14:10)

(IMIDAZOLEDICARBOXYLIC ACID)
(RADIATION PROTECTION)

ARBUZOV, S. Ya.

Problems in pharmacological protection from radiation injuries.
Vest. AMN SSSR 17 no.3:58-74 '62. (MIRA 15:4)
(RADIATION PROTECTION) (NERVOUS SYSTEM, SYMPATHETIC)
(PHARMACOLOGY)

ARBUZOV, S.Ya.

Effect of some new stimulants (phenatine and its derivatives, pyridoxyphen) ont he cardiovascular and nervous system. Uch. zap. Inst. farm. i khimioter. AMN SSSR 3: 206 - 217'63.
(MIRA 16:9)

1. Chair of Pharmacology and Pharmacy of the S.M.Kirov Military-Medical Academy, Leningrad.
(STIMULANTS) (CARDIOVASCULAR SYSTEM)
(NERVOUS SYSTEM)

ARBUZOV, S.Ya., prof.

Role of the central nervous system in restorative and compensatory processes following the action of radiation-protective agents. Sborn.ved.prac.lek.fak.Karlov.Univ.(Hrad.Kral.) 6 no.1:57-75 '63.

1. Kafedra farmakologii i farmatsii (zav. kafedroy: prof. S.Ya. Arbuzov) Voyenno-meditsinskogo ordena Lenina akademii im. S.M. Kirova i Otdel radiobiologii Instituta eksperimental'noy meditsiny AMN SSSR (zav. professor S.Ja.Arbuzov).

ARBUZOV, S.Ya.; GENERALOV, V.I.

Effect of some isothiuronium pyridoxine derivatives on blood circulation and some functions of the nervous system. Farm. i toks. 26 no.5:518-525 S-O '63. (MIRA 17:8)

1. Kafedra farmakologii i farmatsii (zav. - prof. S.Ya. Arbuzov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova.

PETROVA, L.A.; BEL'TSOVA, N.N.; ARBUZOV, S. Ya.

Alkylation of β-phenylisopropylamine by pyridoxine bromohydrins. Zhur. ob. khim. 34 no.7:2390-2392 Jl '64
(MIRA 17:8)

1. Institut eksperimental'noy meditsiny AMN SSSR, Leningrad.

ARBUZOV, S.Ya.; SMIRNOVA, S.M.

Sympatholytic and hypotensive effects of pyridoxiphen. Farm. i toks. 27 no.4:420-423 Jl-Ag '64. (MIRA 17:11)

1. Kafedra farmakologii i farmatsii (zav. - prof. S. Ya. Arbuzov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova, Leningrad.

ARBUZOV, S.Ya., prof.; FROLOV, S.F., kand. med. nauk

Development of antidote therapy in cyanide poisoning; a review of literature. Voen.-med. zhur. no.6:29-33 '64. (MIRA 18:5)

ARBUZOV, S.Ya., prof.

Nikolai Pavlovich Kravkov, 1865-1924; on the centenary of his birth. Voen.-med. zhur. no.3:91-92 '65. (MIRA 18:11)

ARBUZOV, S.Ya., prof.

Nikolai Pavlovich Kravkov, 1865-1924; on the centenary of his birth. Apt. delo 14 no.6:3-6 N-D '65. (MIRA 18:12)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni S.M. Kirova, Leningrad.

ARBUZOV, S.Ya.; GENERALOV, V.I.

Pharmacological characteristics of 5-isothiuronium pyridoxine and 4,5-diisothiuronium pyridoxine. Farm. i toks. 28 no.6:686-689 N-D '65.
(MIRA 19:1)

1. Kafedra farmakologii i farmatsii (zav. - prof. S.Ya.Arbuzov) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova, Leningrad.

L 20692-66 EWT(m)

ACC NR: AP6007768 SOURCE CODE: UR/0205/66/006/001/0149/0150

AUTHOR: Arbuzov, S. Ya.; Novoselova, G. S.; Frolov, S. F.; Shmuskovich, N. N. 30 13

ORG: Military Medical Academy im. S. M. Kirov, Leningrad (Voyenno-meditsinskaya akademiya)

19

TITLE: The radiation protection effect of apilac in an experiment on animals

SOURCE: Radiobiologiya, v. 6, no. 1, 1966, 149-150

TOPIC TAGS: irradiation resistance, irradiation damage, x ray irradiation, radiation protection, cystamine, apilac

ABSTRACT: The radiation protection effect of apilac (a substance secreted by bees) was studied in experiments on white mice, white rats, and rabbits. The animals were subjected to x rays in lethal and sublethal doses (700—800 rad). Apilac was injected intraperitoneally in the mice and subcutaneously in the rats and rabbits in doses described as nontoxic for animals and humans alike. The effectiveness of apilac was measured in terms of survival, weight, mean longevity, clinical course of radiation sickness, quantitative changes in peripheral blood, and the relative

UDC: 628.58; 577.391 2

Card 1/2

L 20697-66

0

ACC NR: AP6007768

weight of the animals surviving the irradiation. It was found that a single injection of apilac had no protective effect. When apilac was injected prior to and seven days after irradiation, the number of survivors was higher. On the 30th day after irradiation, 40% of the mice treated with apilac were still alive while the untreated control group had all perished. Sixty percent of the mice treated with cystamine were still alive during the same time span. A combination of cystamine and apilac was found to be less effective than apilac alone. Complete data on the effect of apilac, cystamine, and a combination of the two on mice, rats, and rabbits are presented in tabular form. It is concluded that apilac has a pronounced protective effect on mice, rats, and rabbits that have been exposed to lethal and sublethal x-ray dosages. Orig. art. has: 1 table. [14]

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 4223

Card 2/2 BK

ACC NR: AP6034256 (N) SOURCE CODE: UR/0390/66/029/005/0521/0522

AUTHOR: Arbuzov, S. Ya. (Department head; Professor); Aleksandrova, A. Ye.; Smirnova, S. M.

ORG: Department of Pharmacology and Pharmacy, Military Medical Order of Lenin Academy im. S. M. Kirov, Leningrad (Kafedra farmakologii i farmatsii Voyenno-meditsinskoy ordena Lenina akademii)

TITLE: The effect of pyridoxiphen on the central nervous system

SOURCE: Farmakologiya i toksikologiya, v. 29, no. 5, 1966, 521-522

TOPIC TAGS: central nervous system, hematoencephalitic barrier, drug effect, animal experiment, ADRENOLYTIC DRUG

ABSTRACT: The effect of a new adrenolytic agent, pyridoxiphen (a condensation product of phenamine and pyridoxine), on the central nervous system was studied. Experiments showed that pyridoxiphen did not disrupt conditioned reflexes in rats or change spontaneous bioelectricity in rabbit brains. In addition, pyridoxiphen did not decrease the group toxicity of phenamine in mice. It was concluded that, like most adrenolytic agents, pyridoxiphen does not have a central adrenolytic effect. Apparently this substance is also incapable of overcoming the blood-brain barrier. [JS]

SUB CODE: 06/ SUBM DATE: 06Apr65/ ORIG REF: 004/ OTH REF: 002 [WA-50; CBE No. 14]

Card 1/1 UDC: 615.717-092:612.82

ARBUZOV, V.A.

Ca

9

Experiments on two-layered sintering together in the Makeev sintering works. A. I. Machkovskii and V. A. Arbuzov.—*Ural. Met.* 1937, No. 5, 3-8; *Chem. Zentr.* 1938, I, 3520.—Expts. carried out on a plant scale on the 2-layered sintering of Fe ores showed that under the same conditions the output of the plant was less with 2-layered sintering than with the 1-layered process. The quality of the agglomerate was also essentially lower. M. G. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Arbuzov, V.P.

Operating Experience of the [illegible] Sinter Plant

ARBUZOV, V.A.

Drying and preparing samples of ore and concentrates for chemical analysis. Zav.lab. 22 no.5:599-601 '56. (MLRA 9:8)

1. Kerchenskaya rudoispytatel'naya stantsiya.
(Iron ores--Sampling and estimation)

Arbuzov, Vladimir, Antonovich

NIKITIN, Aleksey Ivanovich; ARBUZOV, Vladimir Antonovich; BAZANOV, F.M., red.;
YABLONSKAYA, L.V., red.izd-va; EVENSON, I.M., tekhn.red.

[Sintering iron ores] Aglomeratsiia zheleznykh rud. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 195 p. (MIRA 11:4)

(Sintering)

ONOPRIYENKO, V.P., kand.tekhn.nauk; LEBEDEV, A.Ye., kand.tekhn.nauk;
SOLDATKIN, A.I., kand.tekhn.nauk; LOZOVOY, P.R., inzh.; PETRUKHIN,
B.A., inzh.; ARBUZOV, V.A., inzh.; Prinimali uchastiye: FURMAN,
D.M.; KONOPLYA, M.V.; KOTOV, A.I.

Pilot-plant production of sinter with a basicity of 1.2 from Kerch ore concentrates. Biul. TSIICHM no.10:17-22 '60.
(MIRA 15:4)

1. Ukrainskiy institut metallov (for Furman, Konoplya). 2. Kamyshburunskiy kombinat (for Kotov).
(Sintering) (Kerch Peninsula--Iron ores)

ARBUZOV, V.A.; LOGUNOV, A.A.; TAVKHELIDZE, A.N.; FAUSTOV, R.N.; FILIPPOV, A.T.

A quasi-optical model and the asymptotic behavior of the scattering amplitude. Zhur. eksp. i teor. fiz. 44 no.4:1409-1411 Ap '63.
(MIRA 16:4)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Nuclear optical models) (Scattering (Physics))

ARBUZOV, V.A., akademik; DIANOVA, E.N.; VINOGRADOVA, V.S.; SHAMSUTDINOVA, A.K.

Reactions of tri-(α-cyanoisopropyl) phosphite, ethyl-di-tert-(β,β,β-trichlorobutyl) phosphite, and tri-(β,β,β-trichloroethyl) phosphite with chloral. Dokl. AN SSSR 160 no.1:99-102 Ja '65. (MIRA 18:2)

1. Khimicheskiy institut im. A.M. Butlerova pri Kazanskom gosudarstvennom universitete im. V.I. Ul'yanova-Lenina.

LEBEDEV, A.Ye.; ANTONOV, V.K.; TATSIYENKO, P.A.; ARBUZOV, V.A.; NEVOYSA, G.G.;
Prinimali uchastiye: ZAPARENKO, V.Ye.; KARPOVETS, B.S.

Experience in the sintering of raw (unconcentrated) "tobacco" ore. Sbor.trud. UNIIM no.11:18-26 '65.

(MIRA 18:11)

L 20773-66 EWP(j)/EWT(m) RM

ACC NR: AP6012034 SOURCE CODE: UR/0020/65/160/001/0099/0102

AUTHOR: Arbuzov, V. A. (Academician); Dianova, E. N.; Vinogradova, V. S.; Shamsut~~dinova, A. K.~~

32
B

ORG: Chemical Institute im. A. M. Butlerov, Kazan' State University im. V. I. Ul'yanov-Lenin (Khimicheskiy institut pri Kazanskom gosudarstvennom universitete)

TITLE: Reactions of tri-(alpha-cyanoisorpropyl) phosphite, ethyl-di-tert-(beta,beta, beta-trichlorobutyl) phosphite, and tri-(beta,beta,beta-trichloreoethyl) phosphite with chloral

SOURCE: AN SSSR. Doklady, v. 160, no. 1, 1965, 99-102

TOPIC TAGS: organic phosphorous compound, chlorine compound, ester, chemical reaction

ABSTRACT: Tri-(alpha-cyanoisopropyl) phosphite was found to react with chloral at room temperature, forming the di-alpha-cyanoisopropyl ester of alpha-hydroxy-(beta,beta,beta-trichloreothyl)-phosphinic acid, splitting off methacrylonitrile. The reaction between chloral and tri-ter-(beta,beta,beta-trichlorobutyl) phosphite produced di-ter-(beta,beta,beta-trichlorobutyl)-phosphorous acid, which in turn reacted with chloral to give the di-ter-(beta,beta,beta-trichlorobutyl) ester of alpha-hydroxy-beta,beta,beta-trichloreothylphosphinic acid. The reaction of chloral with mixed di-ter-(beta,beta,beta-trichlorobutyl)-ethyl phosphite produced the di-ter-(beta,beta,beta-trichlorobutyl) ester of alpha-hydroxy-beta,beta, beta-trichloreoethylphosphinic acid and di-ter-(beta,beta,beta-trichlorobutyl)-(beta,beta,-dichlorovinyl) phosphate. Another complete phosphite with electronegative groups in the ester radicals, tri-(beta,beta,beta-trichloroethyl)

Card 1/2

L 20773-66

ACC NR: AP6012034

phosphite, reacted with chloral at room temperature to give the di-beta,beta,beta-trichloroethyl ester of alpha-hydroxy-beta,beta,beta-trichloroethylphosphinic acid. The reaction mechanisms and infrared spectra of the reaction products are discussed. Orig. art. has: 4 figures. [JPRS]

SUB CODE: 07 / SUBM DATE: 11Jun64 / ORIG REF: 005 / OTH REF: 003

Card 2/2

ARBUZOV, V.N.

[redacted]

Strangulation of the pregnant tube in inguinal hernia. Khirurgiia no.2:69 F '55. (MIRA 8:5)

1. Khirurgicheskoye otdelenye Belovodskoy rayonnoy bol'nitsy Voroshilovgradskoy oblasti.
(HERNIA, INGUINAL, in pregnancy,
strangulation of pregn. tube)
(PREGNANCY, complications,
hernia, inguinal, strangulation of pregn.tube)

ARBUZOV, V.N. (Lugansk, ul. Alekseyeva, d.3, kv.33)

Stomach resection with an invaginate in retrograde intussusception of the jejunum. Klin.khir. no.9:84-85 S '62. (MIRA 16:5)

1. Kafedra gospital'noy khirurgii (zav. - dotsent N.N. Zemskov) Luganskogo meditsinskogo instituta.
(STOMACH—SURGERY) (JEJUNUM—INTUSSUSCEPTION)

ARBUZOV, V. N.

ARBUZOV, V. N. -- "Certain Problems of Stabilityof Right-Angle Blades Beyond Proportional Limit." Sub 24 Dec 52, Moscow Order of Lenin Aviation Inst imeni Sergo Ordzhonikidze (Dissertation for the Degree of Candidatein Technical Sciences)

SO: Vechernaya Moskva, January-December 1952

ARBUZOV, V.N.

Stability of rectangular freely supported plates shearing beyond the elastic strength. Izv. vys. ucheb. zav.; av. tekh. no.2:44-52 '58. (MIRA 11:6)

1. Moskovskiy aviatsionnyy institut, Kafedra soprotivleniya materialov.

(Elastic plates and shells)

SOV/147-58-4-6/15

AUTHOR: Arbuzov, V. N.

TITLE: The Stability of Compressed Rectangular Plates with Various Boundary Conditions Beyond the Limit of Proportionality (Ustoychivost' szhatykh pryamougol'nykh plastinok s razlichnymi granichnymi usloviyami za predelom proportsional'nosti)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya tekhnika, 1958, Nr 4, pp 36-50 (USSR)

ABSTRACT: The stability is considered of compressed rectangular plates under the following boundary conditions:
1. all the sides of the plate are fixed;
2. the longer sides y = 0 and y = 2b are freely supported while the shorter sides x = -a and x = a are fixed;
3. the sides x = -a, x = a and y = 0 are freely supported while the side y = 2b is free;
4. the sides x = -a and x = a are freely supported, the side y = 0 is fixed and the side y = 2b is free.
It is assumed that there is ~~an~~ axial stressed state. The difficulties attending the determination of the critical stresses in a plate beyond the limit of proportionality in an analytic form are due to the presence in the formulae of various mechanical parameters depending on

Card 1/2

SOV/147-58-4-6/15

The Stability of Compressed Rectangular Plates with Various Boundary Conditions Beyond the Limit of Proportionality

the required critical stress. For this reason the author introduces numerical tables from which the essential critical stress curves can be prepared. Minayev (Ref 1) has obtained formulae for the critical stresses by solving Bleykh's differential equation but the solution does not express the real stable state of the plate because of approximate relations which have been used. Stowell (Ref 2) has also derived a solution but this is considered to be unrealistic due to an incorrect choice of Poisson's coefficient. The author of this paper bases his solution on Il'yushin's equation which he solves by Galerkin's method.
There are 4 figures, 7 tables and 4 references, 3 of which are Soviet, 1 English.

ASSOCIATION: Kafedra soprotivleniya materialov (Chair of Strength of Materials) Moskovskiy aviatsionnyy institut (Moscow Institute of Aeronautical Engineering)

SUBMITTED: January 13, 1958

Card 2/2

UNKSOV, Ye.P., doktor tekhn.nauk, prof., red.; ARBUZOV, V.N., kand.tekhn. nauk, red.; MODEL', B.I., tekhn.red.

[Investigating the strength of materials used for the manufacture of turbine blades] Issledovanie prochnosti materialov lopatok turbin. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1961. 165 p. (Moscow. TSentral'nyi nauchno-issledovatel'skii institut tekhnologii i mashinostroeniia. Trudy, vol.103) (MIRA 15:1)

(Blades—Testing)
(Strength of materials)

SHCHEDROV, Viktor Sergeyevich; ARBUZOV, V.N., kand. tekhn. nauk, retsenzent; YAMINSKIY, V.V., kand. tekhn. nauk, red.; NIKITIN, A.G., red. izd-va; EL'KIND, V.D., tekhn. red.

[Fundamentals of the mechanics of a flexible string] Osnovy mekhaniki gibkoi niti. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 170 p. (MIRA 14:6)
(Elastic rods and wires)

TARABASOV, Nikolay Danilovich, doktor tekhn. nauk, prof.; CHERNYSHEV, N.A., kand. tekhn. nauk, retsenzent; ARBUZOV, V.N., kand. tekhn. nauk, red.; SAVEL'YEV, Ye.Ya., red. izd-va; EL'KIND, V.D., tekhn. red.

[Calculating wringing fits in the manufacture of machinery] Raschety napriazhennykh posadok v mashinostroenii. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 266 p. (MIRA 14:6)
(Strains and stresses) (Machinery—Design and construction)

KOZHESHNIK, Yaroslav [Kozesnik, Jaroslav], prof., inzh. doktor; GOL'DENBERG, G.M., inzh.[translator]; ARBUZOV, V.N., kand. tekhn. nauk, red.; BYSTRITSKAYA, V.V., red. izd-va; MODEL', B.I., tekhn. red.

[Dynamics of machinery; selected works] Dinamika mashin; izbrannye stat'i. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1961. 423 p. (MIRA 15:1)
(Machinery) (Mechanical movements)

ACCESSION NR: AT3003031 S/2942/63/000/001/0128/0146

AUTHOR: Arbuzov, V. N. (Candidate of technical sciences)

TITLE: Calculation of wall beams based on limit conditions

SOURCE: Moscow. Aviatsionnyy institut. Voprosy prochnosti i ustoychivosti elementov tonkostennykh konstruktsiy, no. 1, 1963, 128-146

TOPIC TAGS: wall beam, diagonal stress, Wagner theory, beam force, strut force, rivet stress, wall shear modulus

ABSTRACT: Based on the "Wagner" theory which treats the "ideal" field of diagonal stresses in wall beams after shear instability has occurred in the wall (see Fig. 1 on the Enclosure), working equations were derived for calculating beam specifications for other than the "ideal" case. The "Wagner" equations for the diagonal stress σ_1, (see Fig. 1 on the Enclosure), the beam forces s_{pv} and s_{pn}, compression forces in the struts, stresses in the rivets, bending moments along the beam, angle of diagonal stresses, and equivalent shear modulus of the wall were modified for the case of a real wall beam. The complete set of equations is given below (the equations for the ideal case are given on the left, the modified equations on

Card 1/~~6~~ 4

ACCESSION NR: AT3003031

the right, normal nomenclature except as noted):

Diagonal Stress

$$\sigma_1 = \frac{2\tau}{\sin 2\alpha} \qquad \Big| \qquad \sigma_1 = (1-k)\tau + \frac{2k\tau}{\sin 2\alpha}$$

Forces

$$\begin{matrix} S_{pv} \\ S_{pn} \end{matrix} = \frac{M}{h} \pm \frac{P}{2}\,\mathrm{ctg}\,\alpha \qquad \Big| \qquad \begin{matrix} S_{pv} \\ S_{pn} \end{matrix} = \frac{M}{h} \pm k\frac{P}{2}\,\mathrm{ctg}\,\alpha$$

Compression forces in struts

$$S_{st} = -\tau\delta l\,\mathrm{tg}\,\alpha \qquad \Big| \qquad S_{st} = -k\tau\delta l\,\mathrm{tg}\,\alpha$$

Compression stresses in struts

$$\sigma_{st} = -\frac{\tau\delta l\,\mathrm{tg}\,\alpha}{F^{pr}_{st}} \qquad \Big| \qquad \sigma_{cr} = -\frac{k\tau\,\mathrm{tg}\,\alpha}{(F^{pr}_{st}/\delta l) + 0,5(1-k)}$$

Rivet forces

$$p = \frac{\tau\delta t}{\cos\alpha} \qquad \Big| \qquad p \approx \tau\delta t(1 + 0,414k)$$

Local bending of span

$$M_{max} = \frac{C_2}{12}\tau\delta t^2\,\mathrm{tg}^2\alpha \qquad \Big| \qquad M_{max} = \frac{C_2}{12}k\tau\delta t^2\,\mathrm{tg}^2\alpha$$

Card 2/4 L

ACCESSION NR: AT3003031

Angle α

$\operatorname{tg}\alpha=\sqrt[4]{\frac{1}{1+(\delta l/F_{st}^{\alpha})}}$	$\operatorname{tg}^2\alpha=\frac{1}{1+\frac{k\operatorname{tg}\alpha}{\left[\frac{F_{st}^{\alpha'}}{\delta l}+0{,}5(1-k)\right]\times\left[(1-k)+\frac{2k}{\sin 2\alpha}\right]}}$

Equivalent shear modulus of wall

$G_{pr}=\frac{2}{3}G\frac{1}{\sin^2 2\alpha}$	$G'_{pr}=\frac{G}{(1-k)+\frac{3}{2}k\sin^2\alpha}$

Notes

$$k=\operatorname{th}\left[0{,}5\operatorname{lg}\left(\frac{\tau}{\tau_{cr}}\right)\right];\quad \tau=\frac{P}{h\delta};\quad C_2-\text{on Fig. 2}$$

Card 3/6 4

ACCESSION NR: AT3003031

C_2 is given in Fig. 2 on the Enclosure. Orig. art. has: 15 figures, 43 formulas, and 1 table.

ASSOCIATION: Moscow. Aviatsionny*y institut (Moscow Aviation Institute)

SUBMITTED: 00

DATE ACQ: 27Jun63

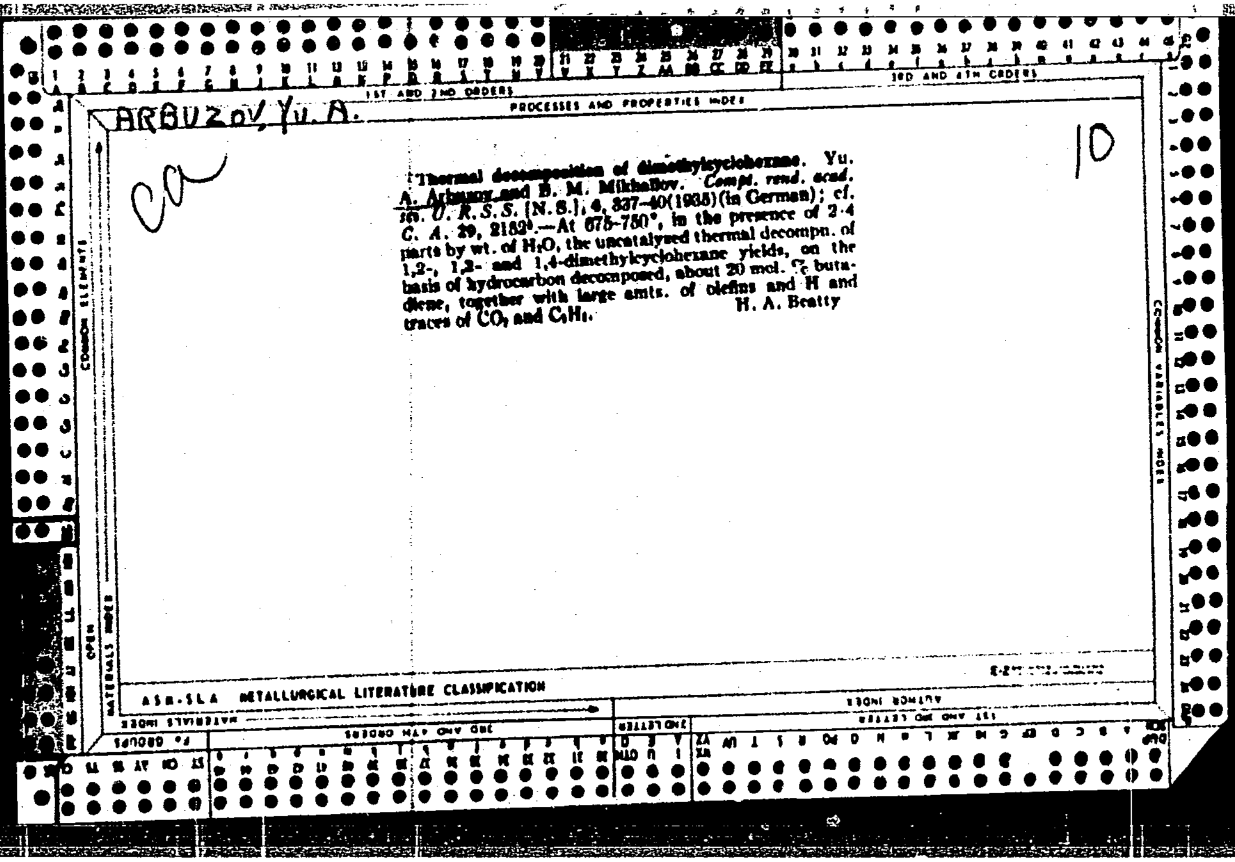
ENCL: 02

SUB CODE: AP

NO REF SOV: 009

OTHER: 005

Card 4/6



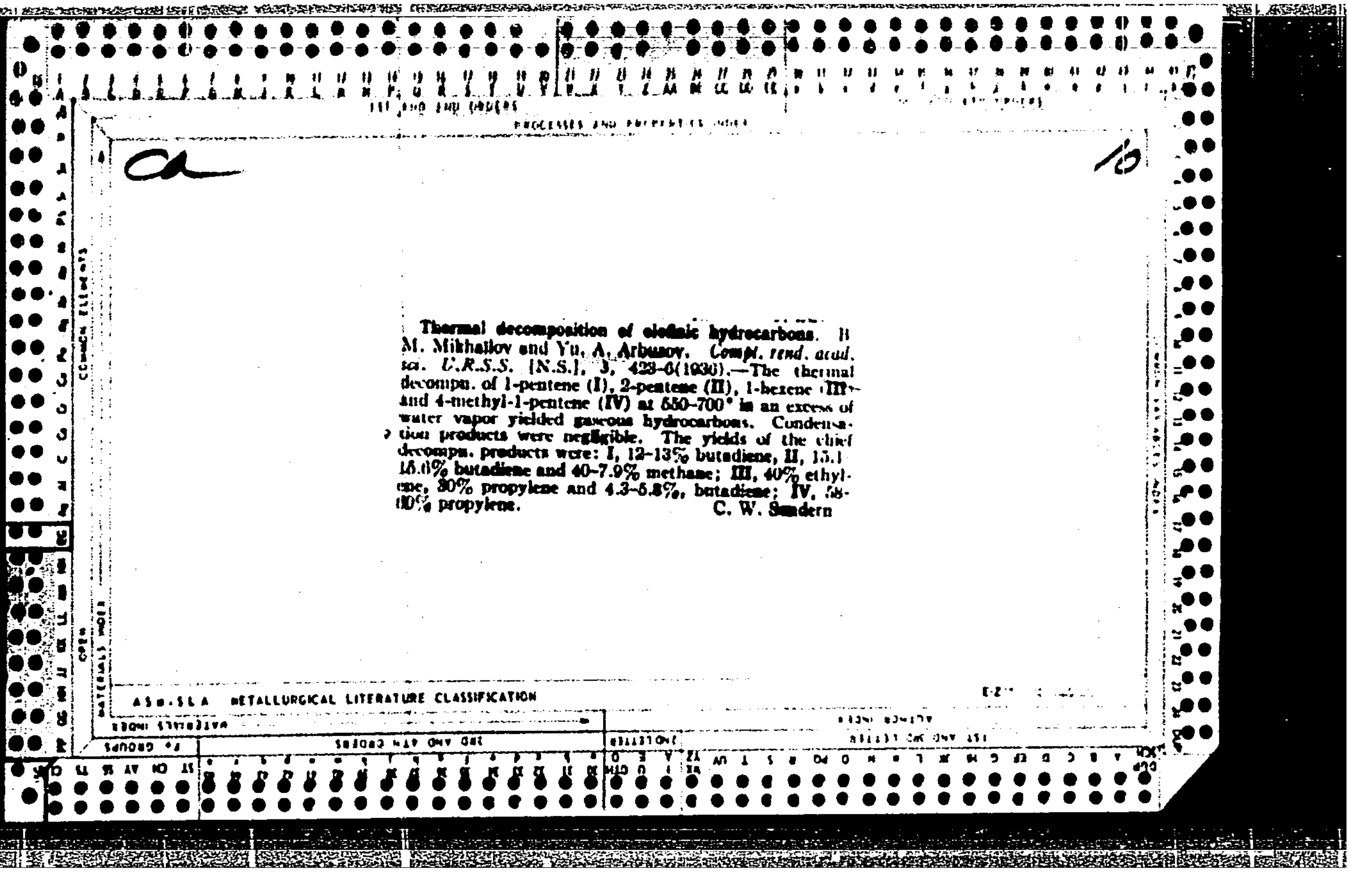
ARBUZOV, YU. A.

CA

10

Thermal decomposition of dimethylcyclohexane. Yu.
A. Arbuzov and B. M. Mikhailov. *Compt. rend. acad.*
sci. U. R. S. S. [N. S.], 4, 837-40(1935)(in German); cf.
C. A. 29, 2152^9.—At 675-750°, in the presence of 2·4
parts by wt. of H_2O, the uncatalyzed thermal decompn. of
1,2-, 1,2- and 1,4-dimethylcyclohexane yields, on the
basis of hydrocarbon decomposed, about 20 mol. % buta-
diene, together with large amts. of olefins and H and
traces of CO_2 and C_2H_2.

H. A. Beatty

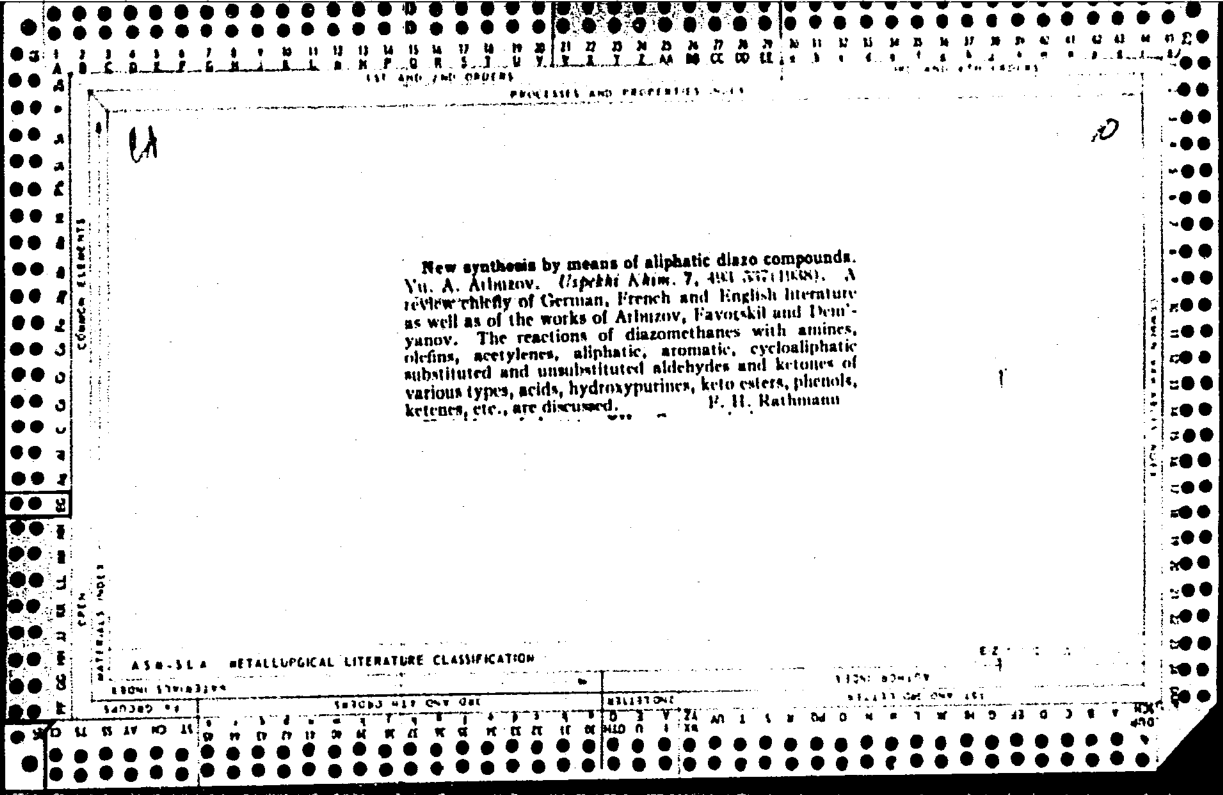


Ca

10

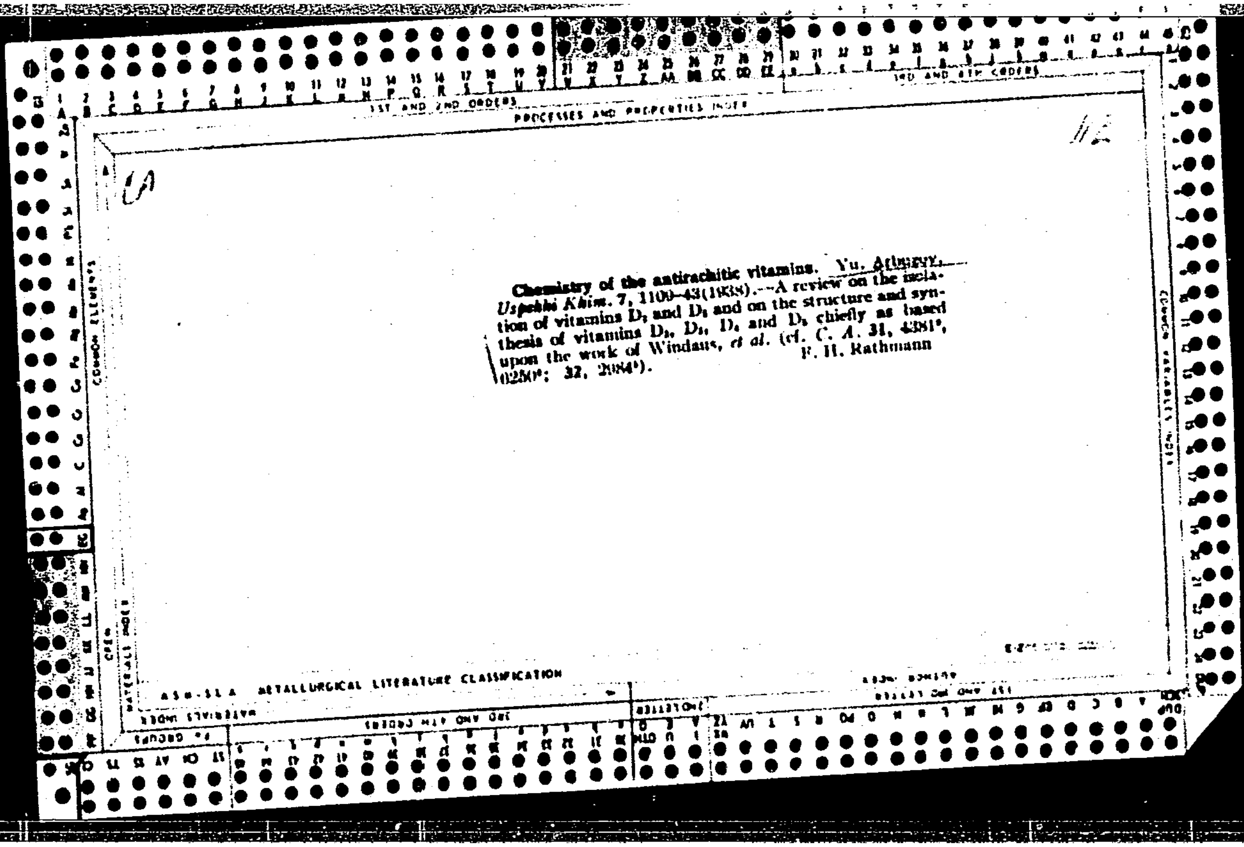
Thermal decomposition of olefinic hydrocarbons. B. M. Mikhailov and Yu. A. Arbuzov. *Compt. rend. acad. sci. U.R.S.S.* [N.S.], 3, 423-6(1930).—The thermal decompn. of 1-pentene (I), 2-pentene (II), 1-hexene (III) and 4-methyl-1-pentene (IV) at 650-700° in an excess of water vapor yielded gaseous hydrocarbons. Condensation products were negligible. The yields of the chief decompn. products were: I, 12-13% butadiene, II, 15.1 15.0% butadiene and 40-7.9% methane; III, 40% ethylene, 30% propylene and 4.3-6.8%, butadiene; IV, 58-60% propylene.

C. W. Sundern



10

New synthesis by means of aliphatic diazo compounds. Yu. A. Arbuzov. *Uspekhi Khim.* 7, 491-537(1938). A review chiefly of German, French and English literature as well as of the works of Arbuzov, Favorskii and Dem'yanov. The reactions of diazomethanes with amines, olefins, acetylenes, aliphatic, aromatic, cycloaliphatic substituted and unsubstituted aldehydes and ketones of various types, acids, hydroxypurines, keto esters, phenols, ketenes, etc., are discussed. P. H. Rathmann



1ST AND 2ND ORDERS

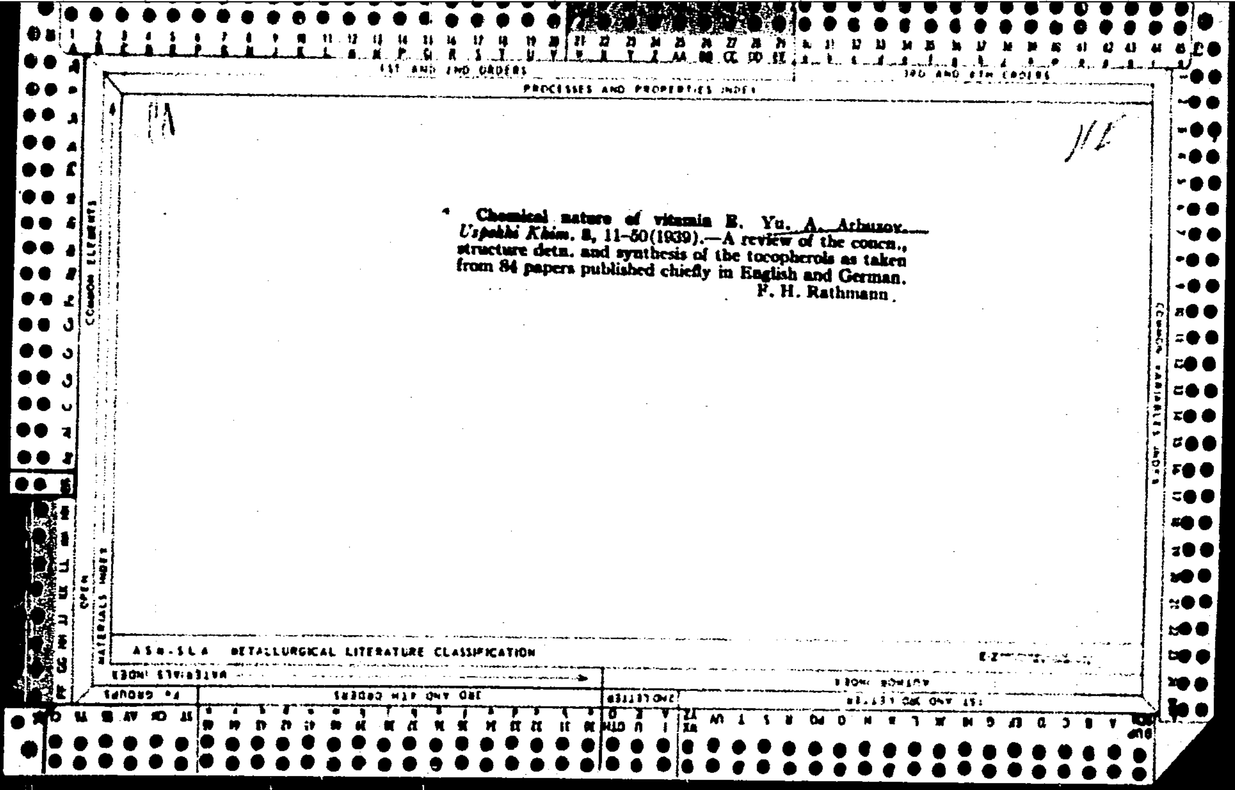
PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

Chemistry of the antirachitic vitamins. Yu. Arbuzov. *Uspekhi Khim.* 7, 1100-43(1938).—A review on the isolation of vitamins D_2 and D_3 and on the structure and synthesis of vitamins D_2, D_3, D_4 and D_5 chiefly as based upon the work of Windaus, *et al.* (cf. *C. A.* 31, 4381^e, 6250^e; 32, 2084^e). F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



11A

11E

Chemical nature of vitamin E. Yu. A. Arbuzov. *Uspekhi Khim.* 8, 11-50(1939).—A review of the concn., structure detn. and synthesis of the tocopherols as taken from 84 papers published chiefly in English and German.

F. H. Rathmann

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

10

Contact conversion of the six-membered ring into the five-membered one. N. D. Zelinskii and Yu. A. Arbuzov. *Compt. rend. acad. sci. U. R. S. S.* 23, 794-8(1939)(in English).—When cyclohexene was passed over com. Al_2O_3 or over silica gel at 450°, methylcyclopentene was formed. Methylcyclohexene was similarly converted into dimethylcyclopentene. In each case the unsatd. product was hydrogenated to the corresponding cycloalkane over platinized charcoal or silica gel. When the cycloalkane was passed over platinized charcoal or silica gel at 275° the ring was broken to form the open-chain hydrocarbon. Cr_2O_3 at 450° dehydrogenated cyclohexene and methylcylohexene to benzene and toluene, resp., whereas cyclohexane and cyclopentene were essentially unchanged.

Wm. E. Trout, Jr.

Moscow State U. - Lab. Org. Chem. im. Zelinskiy

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

10

Catalytic isomerization of cycloheptene. N. D. Zelinskii and Yu. A. Arbuzov. *Doklady Akad. Nauk S. S. S. R.* 45, 19-21(1944).—Cycloheptene was twice passed, at a rate of 5 g./hr., through a 50-cm. layer of silica gel in a 15-mm. tube heated to 400°. The main fraction (b. 98-105°, n_D^{20} 1.4383) was hydrogenated with a platinized charcoal catalyst at 150° to produce a satd. hydrocarbon mixt. (n_D^{20} 1.4180) which was dehydrogenated with the same catalyst at 300°. The resulting hydrocarbon mixt. (n_D^{20} 1.4334) contained a large amt. of toluene, which was removed by reaction with H_2SO_4. The residual mixt. (I) (b_{744} 92.5-97.5°, n_D^{20} 1.4132, d_4^{20} 0.7500) was probably mostly 1,2-dimethylcyclopentane. This surmise was supported by hydrogenating I, under conditions favoring opening the ring, to produce a hydrocarbon mixt. (b_{744} 83-91°, n_D^{20} 1.3911, d_4^{20} 0.6922), thought to be mostly 2,3-dimethylpentane and 3-methylhexane. J. W. Perry

COMMON ELEMENTS

COMMON VARIABLES INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

ARBUZOV, YU. A.

Oxidation of cyclohexene by selenious acid and a new method of preparation of 1,3-cyclohexadiene. Yu. A. Arbuzov, N. D. Zelinskii, and N. I. Shuikin (Inst. Org. Chem., Acad. Sci., U.S.S.R.). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* **1945**, 103-6.—Two methods for the oxidation of cyclohexene are given: (1) The cyclohexene (b. 83-4°) is oxidized with selenious acid at 85-90° in Ac$_2$O; two substances are formed: 3-cyclohexen-1-ol acetate (I) (yield 48-53%), b_9 57-9°, n_D^{20} 1.461, and the diacetate (II) of cyclohexenediol, b_6 112-15°, n_D^{20} 1.471. In one of the expts. I and II with the following consts. were obtained. I, b_9 58-9°, d_4^{20} 1.0000, n_D^{20} 1.4600, n_D^{25} 1.4588, MR$_D$ 38.00, a colorless mobile liquid with a pleasant fruity odor. II, b_6 113-15°, d_4^{20} 1.1225, n_D^{20} 1.4710, MR$_D$ 49.35, light yellow, rather mobile liquid with unpleasant odor. The cyclohexene is also oxidized with SeO$_2$ at 80-90° in a mixt. of Ac$_2$O and glacial AcOH to give I (32% yield), b_9 45-7°, n_D^{20} 1.458. For the prepn. of 1,3-cyclohexadiene (III) the 3-cyclohexen-1-ol acetate formed is treated with a freshly melted and finely powd. KHSO$_4$ at 150-60°. III (68-74% yield), b. 80.5-1°, n_D^{20} 1.475. In one of the expts. III was obtained with the following consts.: b_{760} 80.5-1.0°, d_4^{20} 0.8411, n_D^{20} 1.4750, MR$_D$ 82. Maleic anhydride (2.94 g.), added to 2.40 g. of III in 7.5 cc. of pure benzene, gave 5.17 g. of addn. product, probably 3,6-endoethylene-Δ^4-tetrahydrophthalic anhydride, crystg. from petroleum heptane in bright needles, b. 145-6°. G. Lebedeff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

16

Contact reactions of 1,3- and 1,4-cyclohexadiene. N. D. Zelinskii, Yu. A. Arbuzov, and M. I. Batuev. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1945, 186-91. 1,3-Cyclohexadiene is passed over BeO at 400°. Raman spectrum analysis of the product shows the presence of 64% C_6H_6, 28% methylcyclopentenes, 7% methylcyclopentane, traces of cyclohexane, and unchanged cyclohexadiene. Methylcyclopentane, b_{745} 70-80°, d_4^{20} 0.7734, n_D^{20} 1.4245, was isolated by treatment of one fraction with CrO_3, followed by hydrogenation over Pt-C. 1,4-Cyclohexadiene similarly yields a product contg. 82% C_6H_6, 12% methylcyclopentenes, and 6% methylcyclopentane. A reaction mechanism to account for the C_5-ring compds., involving cyclohexene as intermediate, is advanced.

M. F. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

10

Contact isomerization of 1-octene and investigation of the isomerization products by the combination scattering method. N. D. Zelinskii, Yu. A. Arbuzov, and M. I. Batuev. *Doklady Akad. Nauk S.S.S.R.* 46, 165-8 (1945); *Compt. rend. acad. sci. U.R.S.S.* 46, 150-3 (1945)(in English).—1-Octene (b_{760} 121-2°, d_4^{20} 0.7166, n_D^{20} 1.4110) was passed over BeO at 480° at a rate of 5 g./hr. The inner diam. of the reaction tube was 15 mm. and the length of the BeO layer was 25 cm. The isomerizate, whose phys. consts. indicated that it consisted mainly of isomeric methylheptenes, was hydrogenated. The Raman spectrum of the mixt. so obtained served to identify 4-, 2-, and 3-methylheptanes, together with octane (cf. *C.A.* 37, 5315⁹; 38, 1428¹). Similar results were obtained on passing 1-octene at a rate of 4 g./hr. through a silica gel layer of 50 cm. length in a tube of 15 mm. inner diam. heated to 400°. J. W. Perry

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

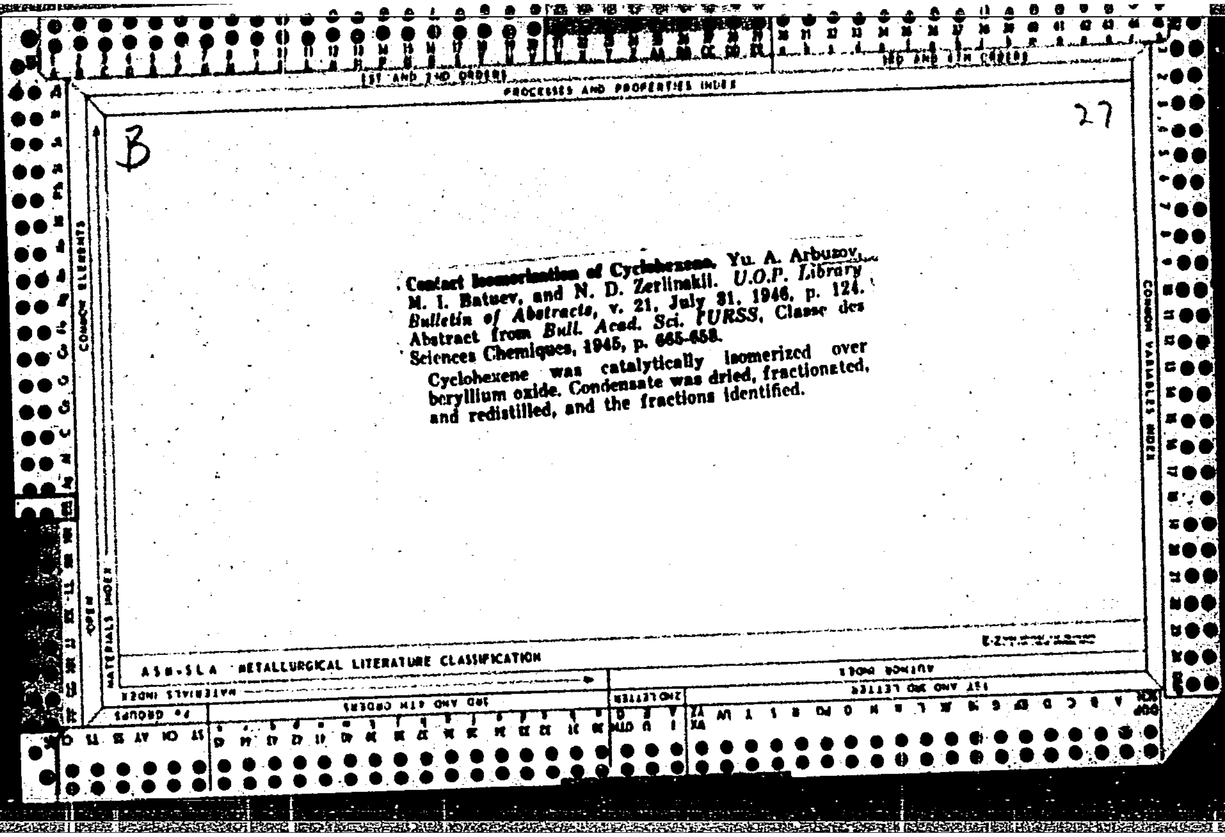
10

Reaction of diene hydrocarbons with nitroso compounds. Addition of 1,3-butadiene to nitrosobenzene. Yu. A. Arbuzov. *Doklady Akad. Nauk S.S.S.R.* 60, 993-6(1948); cf. *C.A.* 42, 7290h.—1,3-Butadiene and PhNO add to form *2-phenyl-3,6-dihydrooxazine* (I), whose structure is confirmed by formation of *4-anilino-2-buten-1-ol* (II) on reduction by Zn-AcOH. PhNO (10.7 g.) and 10.7 g. 1,3-butadiene kept 24 hrs. in a sealed vessel at 5-10° gave 60.9% I, m. 50-1° (from EtOH); the yield rises to 91.2% on 7 days' standing with ice-cooling, or to 90% if the components in EtOH are allowed to stand 24 hrs. with ice-cooling and the product then distd. ($b_{0.5}$ 107-8°). Reduction by Zn-AcOH gave 85.1% II, b_4 151-2°, d_4^{20} 1.0816, n_D^{20} 1.5867; treatment with Ac_2O at 100° 3 hrs. gave 93% of the *di-Ac deriv.*, b_1 160-1°, d_4^{20} 1.1053, n_D^{20} 1.5271. This (2.47 g.) in 100 ml. Me_2CO with 4.7 g. $KMnO_4$ in Me_2CO gave 62.2% *N-acetyl-N-phenylglycine*, m. 194-5° (from water), thus giving a final structure confirmation. G. M. Kosolapoff

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



B

27

Contact Isomerization of Cyclohexene. Yu. A. Arbuzov, M. I. Batuev, and N. D. Zerlinskii. *U.O.P. Library Bulletin of Abstracts*, v. 21, July 31, 1946, p. 124. Abstract from *Bull. Acad. Sci. URSS*, Classe des Sciences Chemiques, 1945, p. 665-658.

Cyclohexene was catalytically isomerized over beryllium oxide. Condensate was dried, fractionated, and redistilled, and the fractions identified.

USSR/Chemistry - 1,3-Butadiene May 1948
Chemistry - Nitroso Compounds

"The Reactions of Diene Hydrocarbons With Nitroso Compounds: The Addition of 1,3-Butadiene to Nitrosobenzine," Yu.A. Arbuzov, Inst of Org Chem, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR, Nov Ser" Vol LX, No 6

Bases on theoretical data two systems whereby 1,3-butadiene can be added to nitrosobenzine. Describes various experiments conducted: 1) addition of 1,3-butadiene to nitrosobenzine 2-phenyl-3,6-dehydro-orthcoaine; 2) reduction of 2-phenyl-3,6-dehydro-

[redacted] 67T27

USSR/Chemistry - 1,3-Butadiene (Contd) May 1948

orthocaine by 4-phenylaminobutene-2-ol-1; 3) acetylization of 4-phenylaminobutene-2-ol-1; 4) oxidization of diacetyl produced IV in N-acetyl-N-phenylglycine. Submitted by Academician A.N. Nesmeyanov 27 Mar 1948.

[redacted] 67T27

ARBUZOV, YU. A

PA76T9

ARBUZOV, YU. A.

USSR/Chemistry - Nitroso Compounds Jun 1948
Chemistry - Olefins

"The Reaction of Diene Hydrocarbons With Nitroso Compounds," Yu. A. Arbuzov, N. L. Fedyukina, 4 pp

"Dok Ak Nauk SSSR" Vol LX, No 7

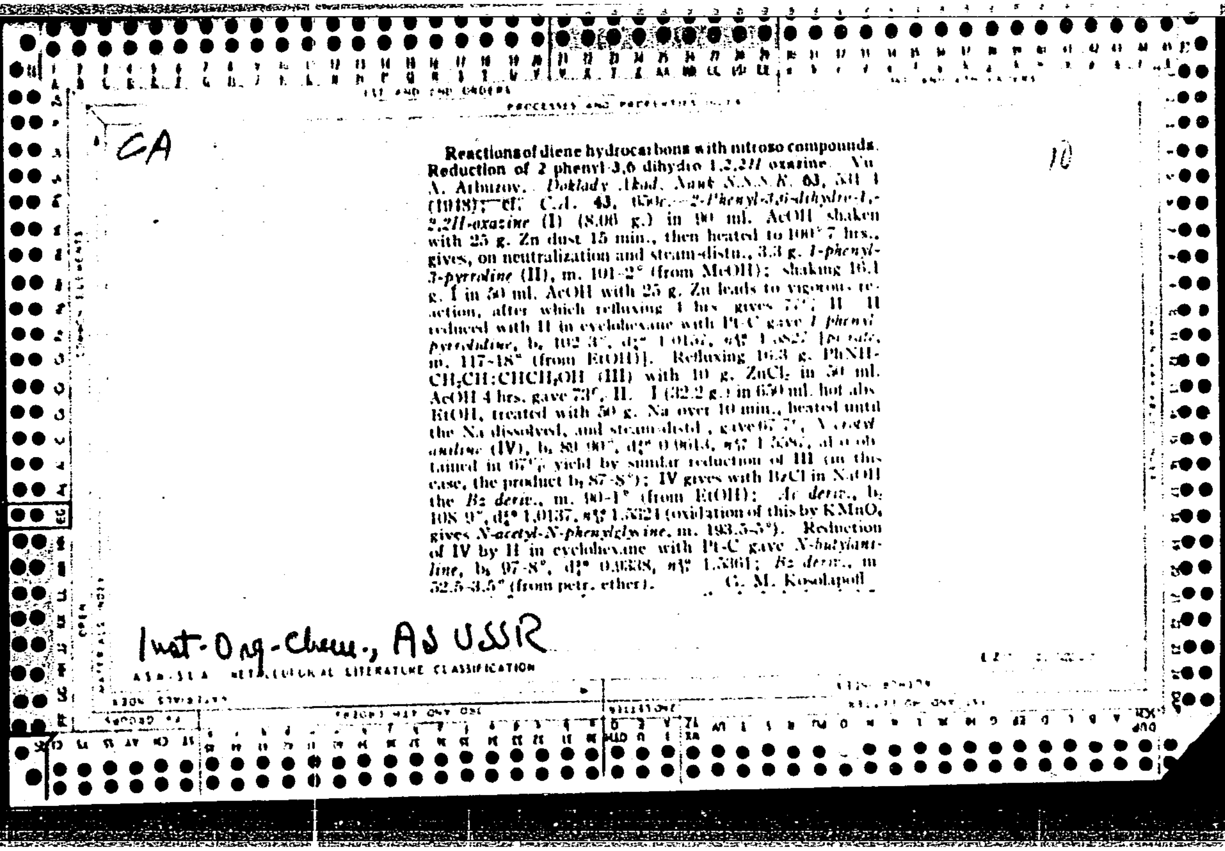
Describes the addition of 1,3-butadiene to isomeric nitrosotoluene, and the addition of 1,3-pentadiene and 2,4-hexadiene to nitrosobenzene. Submitted Mar 1948.

7679

ARBUZOV, Yu. A.

Reaction of diene hydrocarbons with nitroso compounds. Addition of 1,3-butadiene to isomeric nitrosotoluenes. Addition of 1,3-pentadiene and 2,4-hexadiene to nitrosobenzene. Yu. A. Arbuzov and N. L. Fedyukina. Doklady Akad. Nauk S.S.S.R. 60, 1173-6 (1948); cf. ibid. 69, No. 6(1948). o-ONC_6H_4Me (16.1 g.) and 60 g. $(CH:CH_2)_2$ kept in an ampul 24 hrs. at 5-10° gave 16.7 g. *2-o-tolyl-3,6-dihydro-1,2,2H-oxazine*, $b_{2.5}$ 97-7.5°, d_4^{20} 1.0713, n_D^{20} 1.5611; a 70% yield was obtained when Et_2O was used as a solvent. m-ONC_6H_4Me (18.3 .) and 29 g. $(CH:CH_2)_2$ in 24 hrs. at 0-5° gave 50.7% of the *2-m-tolyl isomer*, $b_{2.5}$ 115-16°, d_4^{20} 1.0715, n_D^{20} 1.5659; use of Et_2O as solvent gave a 77% yield, $b_{1.5}$ 99.5-100°. Similarly, p-ONC_6H_4Me gave 57.1% of the *2-p-tolyl isomer*, m. 46-7° (from MeOH); the yield was raised to 81.4% by using $CHCl_3$ as solvent. PhNO (32.1 g.) in 300 ml. Et_2O, cooled with ice and treated with 12.5 g. 1,3-pentadiene, gave after 24 hrs. (isolated by steam distn.) 38.1% *2-phenyl-3(or 6)-methyl-3,6-dihydro-1,2,2H-oxazine*, $b_{1.5}$ 94°, d_4^{20} 1.065, n_D^{20} 1.5589. A similar reaction with 2,4-hexadiene gave 30.9% of the *3,6-dimethyl homolog*, b_2 94°, d_4^{20} 1.0852, n_D^{20} 1.5460.

G. M. Kosolapoff



PROCESSES AND PROPERTIES INDEX

CA

10

Reactions of diene hydrocarbons with nitroso compounds. Reduction of 2-phenyl-3,6-dihydro-1,2,2H-oxazine. Yu. A. Arbuzov. *Doklady Akad. Nauk S.S.S.R.* 63, 531-4 (1948); cf. C.A. 43, 650c.—*2-Phenyl-3,6-dihydro-1,2,2H-oxazine* (I) (8.06 g.) in 90 ml. AcOH shaken with 25 g. Zn dust 15 min., then heated to 100° 7 hrs., gives, on neutralization and steam-distn., 3.3 g. *1-phenyl-3-pyrroline* (II), m. 101-2° (from MeOH); shaking 16.1 g. I in 50 ml. AcOH with 25 g. Zn leads to vigorous reaction, after which refluxing 4 hrs. gives 77% II. II reduced with H in cyclohexane with Pt-C gave *1-phenylpyrrolidine*, b_4 102-3°, d_4^{20} 1.0157, n_D^{20} 1.5827 [picrate, m. 117-18° (from EtOH)]. Refluxing 16.3 g. PhNH-$CH_2CH{:}CHCH_2OH$ (III) with 10 g. $ZnCl_2$ in 50 ml. AcOH 4 hrs. gave 73% II. I (32.2 g.) in 650 ml. hot abs. EtOH, treated with 50 g. Na over 10 min., heated until the Na dissolved, and steam-distd., gave 67.7% *N-crotylaniline* (IV), b_8 89-90°, d_4^{20} 0.9614, n_D^{20} 1.5686, also obtained in 67% yield by similar reduction of III (in this case, the product b_8 87-8°); IV gives with BzCl in NaOH the *Bz deriv.*, m. 90-1° (from EtOH); *Ac deriv.*, b_2 108-9°, d_4^{20} 1.0137, n_D^{20} 1.5324 (oxidation of this by $KMnO_4$ gives *N-acetyl-N-phenylglycine*, m. 193.5-5°). Reduction of IV by H in cyclohexane with Pt-C gave *N-butylaniline*, b_4 97-8°, d_4^{20} 0.9338, n_D^{20} 1.5361; *Bz deriv.*, m. 52.5-3.5° (from petr. ether). G. M. Kosolapoff

Inst. Org. Chem., AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ARBUZOV, YU. A.

PA 55/49T14

USSR/Chemistry - Dienes Dec 48
Chemistry - Nitroso Compounds

"Reactions of Diene Hydrocarbons With Nitroso Compounds: Reduction of 2-Phenyl-3, 6-Dihydro-orthoxazine," Yu. A. Arbuzov, Inst of Org Chem, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXIII, No 5

Data cited from a previous article shows that, in reducing 2-phenyl-3, 6-dihydroorthoxazine by sodium and alcohol, 4-phenyl-aminobutene-2-ol-1 is formed. This is further reduced to crotylanylene. Submitted by Acad A. N. Nesmeyanov 22 Jun 48.

55/49T14

CA

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Structural formula of diene-nitroso compound addition products. A. I. Finkel'shtein, Yu. A. Arbuzov, and P. P. Shorygin (Karpov Phys.-Chem. Inst., Moscow). Zhur. Fiz. Khim. 24, 802-6(1950). The addn. of conjugated dienes to aromatic nitroso compds. produces derivs. of 3,6-dihydroorthoxazine (I), e.g., butadiene + PhNO → 1-phenyl-3,6-dihydro-1,2(2H)-oxazine, $PhN.O.CH_2.CH:CH.CH_2$. The combination dispersion spectra of C:C in 5- and 6-membered heterocycles were detd. The intensity of the 1600 cm.$^{-1}$ band vibration of the C_6H_6 ring may be used as an indicator of the valence state of the N atom connected to this ring. The detn. of the intensity of the characteristic C:C band indicated that in all cases studied there was a rough constancy in the intensity value. The dipole moment of I was 1.02 ± 0.03 D. Paul W. Howerton

ARBUZOV, Yu. A., MASTRYUKOVA, T. A.

"Addition of cyclohexadiene-1, 3 to nitrobenzene." Uch. zap. Mosk. un. no. 132, 1950.

SO: MLRA, October, 1952

ARBUZOV, Yu.A.; FEDYUKINA, N.L.; SHAVYRINA, V.V.:

Dienes

Interaction of di-(cyclohexene-1-yi-1), 2, 3-dimethyl-butadiene-1, 3 and 1-phenyl-butadiene-1, 3 with nitroso compounds. Uch. zap. Mosk. un., No. 132, 1950.

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

CA

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Reaction of diene hydrocarbons with nitroso compounds. 2-o-Tolyl-3,6-dihydro-1,2-oxazine and 2-m-tolyl-3,6-dihydro-2-oxazine. Yu. A. Arbuzov (M. V. Lomonosov State Univ., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1951, 459-61.—Butadiene (100 g.) and 72.7 g. o-ONC_6H_4Me in $CHCl_3$ after 2 days at near 0° gave 96 g. *2-o-tolyl-3,6-dihydro-1,2-oxazine* (I), b_4 88.5-9.0°, d_4^{20} 1.0730, n_D^{20} 1.5635, which with Zn dust and AcOH gave 82.5% *4-o-tolylamino-2-buten-1-ol* (II), b_4 151-2°, d_4^{20} 1.0625, n_D^{20} 1.5703, yielding with Ac_2O after 3 hrs. at 100° 94% *di-Ac deriv.*, b_4 175.5-6.0°, d_4^{20} 1.0887, n_D^{20} 1.5243, which with Me_2CO-$KMnO_4$ readily gave 58.5% *N-acetyl-N-o-tolylglycine* (III), m. 211-13° (from H_2O). If the reduction of the oxazine above is done at reflux, 47% *1-o-tolyl-2,5-dihydropyrrole*, $b_{7.5}$ 90.5-1.5°, d_4^{20} 1.0320, n_D^{20} 1.5842, is obtained. II in refluxing abs. EtOH with Na metal gave 57.5% *1-o-tolylamino-2-butene*, b_4 89-90°, d_4^{20} 0.9514, n_D^{20} 1.5533, which with hot Ac_2O gave the *Ac deriv.*, $C_{13}H_{17}ON$, b_4 114-14.5°, d_4^{20} 1.0010, n_D^{20} 1.5297, yielding with $KMnO_4$ the above glycine deriv. Similarly butadiene with m-ONC_6H_4Me gave 86.3% *m-tolyl isomer* of I, b_4 104.5-5.0°, d_4^{20} 1.0713, n_D^{20} 1.5678, which at room temp. with Zn dust in AcOH yields 82.3% *m-tolylamino isomer* of II, b_4 147-8°, d_4^{20} 1.0546, n_D^{20} 1.5773, whose *di-Ac deriv.*, b_4 155-6°, d_4^{20} 1.0820, n_D^{20} 1.5292, with $KMnO_4$ in Me_2CO gives 55% *m-tolyl isomer* of III, m. 145-6° (from dil. EtOH).

G. M. Kosolapoff

1952

CA

10

Reaction of diene hydrocarbons with nitroso compounds. Catalytic reduction of 2-phenyl-3,6-dihydro-1,2(2H)-oxazine and 4-phenylamino-2-buten-1-ol. Yu. A. Arbuzov. *Doklady Akad. Nauk S.S.S.R.* **76**, 681-4(1951); cf. C.A. 43, 6585.—Passing 110 g. (CH:CH$_2$)$_2$ into 107.1 g. recooled PhNO in 1 l. CHCl$_3$, letting stand overnight, and distg. gave 154 g. *2-phenyl-3,6-dihydro-1,2(2H)-oxazine*, b$_4$ 108-9°, m. 50-1° (from MeOH). 32.2 g. of this, hydrogenated in cyclohexane over 3 g. Pt-C at room temp. took up 4600 ml. H$_2$ and gave 25.4 g. *tetrahydro compd.*, b$_4$ 101-3°, d_4^{20} 1.0593, n_D^{20} 1.5550. This (16.3 g.) in 200 ml. AcOH was treated in 4 portions with 40 g. Zn dust with shaking, 200 ml. H$_2$O and 200 g. NaOH added, the mixt. steam-distd. and the filtered distn. residue extd. with C$_6$H$_6$; the ext. yielded 7.7 g. *4-phenylamino-1-butanol* (I), b$_4$ 154-5°, d_4^{20} 1.0408, n_D^{20} 1.5630; *acid oxalate*, decomp. 124.5-5.0° (from MeOH). Hydrogenation of PhNHCH$_2$CH:CHCH$_2$OH in Et$_2$O at room temp. over Pt-C yielded BuOH, PhNH$_2$, *PhNHBu*, b$_4$ 95-6°, d_4^{20} 0.9391, n_D^{20} 1.5383 (*Bz deriv.*, m. 49-51°), and 17% I, identical with the above, b$_4$ 147-8°, d_4^{20} 1.0401, n_D^{20} 1.5638.
G. M. Kosolapoff

C.A

10

Reactions of diene hydrocarbons with nitroso compounds. 2-*p*-Tolyl-3,6-dihydro-1,2(2*H*)-oxazine. Yu. A. Arbuzov. *Doklady Akad. Nauk S.S.S.R.* 78, 59-62(1951).—Letting 72.7 g. *p*-MeC_6H_4NO, 75 g. butadiene, and 600 ml. $CHCl_3$ stand overnight at 0° gave 94.2 g. *2-p-tolyl-3,6-dihydro-1,2(2H)-oxazine* (I), b_6 112-13°, m. 47-8° (from EtOH). I shaken 0.5 hr. with AcOH-Zn dust, neutralized, and steam-distd., gave 78% *4-p-tolylamino-2-buten-1-ol* (IA), b_5 158-9°, d_4^{20} 1.0553, n_D^{20} 1.5761; *di-Bz deriv.*, m. 130-1° (from EtOH); *di-Ac deriv.*, b_3 167-8°, d_4^{20} 1.0855, n_D^{20} 1.5260. The latter (2.61 g.) in 100 ml. Me_2CO treated with 4.7 g. $KMnO_4$ in Me_2CO over 2.75 hrs. yielded 55.6% *N-acetyl-N-p-tolylglycine*, m. 173-6° (crude), m. (pure) 175.5-7.0° (from H_2O). Shaking 17.5 g. I with 25 g. Zn dust in 50 ml. AcOH and refluxing 5 hrs. gave 68.6% *1-p-tolyl-2,5-dihydropyrrole* (II), m. 92-3° (from MeOH); the same forms in 71.4% yield by refluxing IA with $ZnCl_2$ and AcOH 5 hrs. II with $KMnO_4$-Me_2CO or HCl-$FeCl_3$ gave 46-83% *1-p-tolylpyrrole*, m. 82-3°. I (35 g.) in 650 ml. abs. EtOH refluxed with 50 g. Na over 10 min. gave after the usual treatment 69% *1-p-tolylamino-2-butene*, b_6 96-7°, n_D^{20} 1.5505, d_4^{20} 0.9458; *Bz deriv.*, b_4 168-70°, d_4^{20} 1.0597, n_D^{20} 1.5781; *Ac deriv.*, b_4 120-20.5°, d_4^{20} 1.0001, n_D^{20} 1.5292. G. M. Kosolapoff

ARBUZOV, Yu. A.

3

① Chem

Reactions of diene hydrocarbons with nitroso compounds. I. Addition of 1,3-butadiene to nitrosobenzene. Yu. A. Arbuzov. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 339-45(Engl. translation).—See *C.A.* 47, 3317*b*.

H. L. H.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

ARBUZOV, Yu. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

4

Chem

Reactions of diene hydrocarbons with nitroso compounds: Reaction of 1,3-butadiene, 2,3-dimethyl-1,3-butadiene, and 1,3-cyclohexadiene with 1-chloro-1-nitrosocyclohexane. Yu. A. Arbuzov and A. Markovskaya. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 355-8 (Engl. translation).—See *C.A.* 47, 3310*h*. H. L. H.

ARBUZOV, YU. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

2

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The reactions of dienic hydrocarbons with nitroso compounds. Addition of 1,3-butadiene to nitrosobenzene. II. Yu. A. Arbuzov. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 523-9 (Engl. translation).—See *C.A.* 47, 4874i.
H. L. H.

14

ARBUZOV, Yu A.

3

② Chem

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

Reduction of 1-phenylpyrrole. Yu. A. Arbuzov and M. M. Garburg. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 531-6(Engl. translation).—See *C.A.* 47, 4876*f*.

H. L. H.

ARBUZOV, YU. A.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

(4) Chem

The reactions of dienic hydrocarbons with nitroso compounds. Addition of 2,3-dimethyl-1,3-butadiene, 1-phenyl-1,3-butadiene, and bi-1-cyclohexen-1-yl to aromatic nitroso compounds. Yu. A. Arbuzov, N. L. Fedyukina, V. V. Shavyrina, and R. I. Shepeleva. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 539-42 (Engl. translation).—See *C.A.* 47, 4342*f*. H. L. H.

ARBUZOV, Yu. A.

3

① Chem

Chemical [illegible]t.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

Reactions of diene hydrocarbons with nitroso compounds. Addition of 1,3-butadiene to *p*-nitrosotoluene. Yu. A. Arbuzov. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 607-11(Engl. translation).—See *C.A.* 47, 10493*h*.

H. L. H.

NF

ARBUZOV, YU.A.

4

(2) Chem

Reactions of diene hydrocarbons with nitroso compounds. Addition of 1,3-cyclohexadiene to nitrosobenzene. Yu. A. Arbuzov and T. A. Mastryukova, *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 613-16(Engl. translation). —See *C.A.* 47, 10493*b*. H. L. H.

ARBUZOV, Yu. A.

1

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Organic Chemistry

③ Chem

Synthesis of 1-aryl-3-hydroxypyrrolidines. Yu. A. Arbuzov and I. I. Khmel'nitskii. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1952, 695-6 (Engl. translation).—See *C.A.* 47, 5927*c*. H. L. H.

ARBUZOV, YU. A.: KHMEL'NITSKIY, L.I.

Pyrrolidines

Synthesis of 1-aryl-3-hydroxypyrrolidines. Isv. AN SSSR. Otd. Khim. nauk, No.4, 1952.

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

ARBUZOV, Yu. A.

USSR/Chemistry - Diene Syntheses May/Jun 52
Nitroso Compounds

"The Reaction Between Diene Hydrocarbons and Nitroso Compounds. Addition of Butadiene-1,3 to Nitrosobenzene. Part 2; Yu.A. Arbuzov; Inst of Org Chem, Acad Sci USSR

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 547-555

In energetic reduction of 2-phenyl-3, 6-dihydro-orthoxazine with zinc powder and acetic acid 1-phenyl-2,5-dihydropyrrol is formed. The reduction of 2-phenyl-3,6-dihydroorthoxazine with sodium

220T21

and alc results in formation of N crotylaniline. The intermediate product in these reactions is 4-phenylaminobutene-2-ol-1.

220T21

ARBUZOV, Yu. A.

USSR/Chemistry - Pyrrole Derivatives May/Jun 52

"Reduction of 1-Phenylpyrrole," Yu.A. Arbuzov, M.M. Garburg, Inst of Org Chem, Acad Sci USSR; Moscow State U imeni M.V. Lomonosov

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 556-563

Reduction of 1-phenylpyrrole was studied, using zinc powder and hydrochloric acid at 60-75°, zinc powder, hydrochloric acid and acetic acid at 40-50 and at 50-65°. Under those conditions, 4 hydrogen atoms are added, resulting in the formation

220T22

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of 1-phenylpyrrolidine and N-crotylaniline. The reduction mechanism is explained by the intermediate formation of 1-phenyl-2,3-dihydropyrrole.

220T22

ARBUZOV, Yu. A.

USSR/Chemistry - Diene Syntheses May/Jun 52
Nitroso Compounds

"The Reaction Between Diene Hydrocarbons and Nitroso Compounds. Addition of 2,3-Dimethylbutadiene-1,3, 1-Phenylbutadiene-1,3, and Di-(Cyclohexene-1-yl-1) to Aromatic Nitroso Compounds," Yu.A. Arbuzov N.L. Fedyukina, V.V. Shavyrina, R.I. Shepeleva, Inst of Org Chem, Acad Sci USSR; Moscow State U imeni M.V. Lomonosov

"Iz Ak Nauk, Otdel Khim Nauk" No 3, pp 566-569

Studied the reactions of 2,3-dimethylbutadiene-1,3, trans-1-phenylbutadiene-1,3 and di-(cyclohexene-1-yl-1) with aromatic nitroso compds. Obtained

220T23

the addn products of 2,3-dimethylbutadiene-1,3 with nitrosobenzene and p-nitrosotoluene, of trans-1-phenylbutadiene-1,3 with nitrosobenzene, o-nitrosotoluene and p-nitrosotoluene, and of di-(cyclohexene-1-yl-1) with nitrosobenzene and p-nitrosotoluene.

220T23

ARBUZOV, Yu.A.

Reaction of diene hydrocarbons with nitroso compounds. Addition of 1,3-butadiene to p-nitrosotoluene. Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk '52, 658-64. (MLRA 5:9)
(CA 47 no.20:10493 '53)

1. M.V.Lomonosov State Univ., Moscow.

ARBUZOV, Yu.A.; MASTRYUKOVA, T.A.

Reactions of dienehydrocarbons with nitroso compounds. Addition of 1,3-cyclohexadiene to nitrosobenzene. Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk '52, 665-70.
(CA 47 no.20:10493 '53) (MLRA 5:9)

1. M.V.Lomonosov State Univ., Moscow.

[illegible] AcOH gave [illegible]

[illegible] gave [illegible]-methyl-3-cyclohexene, b. 73.5° [illegible] 1.4681 [illegible] 0.842 (semicarbazone [illegible]

ARBUZOV, Yu. A.; DYATKIN, B.L.; SHEVELEV, S.A.

Some reactions of 1, 4-dichlorobutanone-2. Dokl. AN SSSR 112 no.2: 261-263 Ja '57. (MLRA 10:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova. Predstavleno akademikom A. N. Nesmeyanovym.
(Butanone)

ARBUZOV, Yu. A.

AUTHORS: Arbuzov, Yu. A., and Pisha, T. A. 20-1-19/44

TITLE: Reactions of Diene Hydrocarbons With Nitroso Compounds. The Addition of Pentadiene-1,3 to Nitrosobenzene (Reaktsii diyenovykh uglevodorodov s nitrozosoyedineniyami. Prisoyedineniye pentadiyena-1,3 k nitrozobenzolu).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 1, pp. 71-73 (USSR).

ABSTRACT: It was already proved earlier that conjugate diene-hydrocarbons react with aromatic nitroso-compounds according to the diene-synthesis-scheme under formation of derivatives of 3,6-dehydro-1,2-oxazine. It is the purpose of this paper to clear up the structure of the reaction products, as mentioned in the sub-title. The reaction of the diene synthesis, in which conjugate unsymmetrically built dienes participate, was already earlier studied in a number of examples. In some cases either o-isomers or their mixtures with m-isomers respectively develop in which the former are strongly predominant. In other cases p-isomers develop. These data are in good agreement with the ionic mechanism of the diene-synthesis-reaction in which the transfer of an electron from diene to the dienophile takes place under formation of a ion complex. The second stage is the regrouping of this complex under formation of a stable adduct. In a number of

Card 1/3

Reactions of Diene Hydrocarbons With Nitroso Compounds. 20-1-19/44
The Addition of Pentadiene-1,3 to Nitrosobenzene.

papers, however, data were obtained which contradict the abovementioned mechanism: o-isomers were predominantly or exclusively obtained. The problem of the reaction mechanism, as mentioned in the title, was hitherto never discussed. In case that the reaction mentioned in the sub-title took place according to the ion-mechanism, a 6-substituted polymer Ia, possibly with an admixture of the 3-substituted polymer Ib, should develop. Transpentadiene-1,3 was produced from croton aldehyde and bromo-methylmagnesium pentene 2-ol-4 and dehydrated over magnesium sulfate at 300°C. Further the authors produced the above-mentioned addition product from a mixture of nitrosobenzene, chloroform and pentadiene-1,3. The production specifications and the constants of the substances produced in this connection are given. The yield of the latter addition product amounted to 72% of the theoretically possible yield. By its reduction with zinc dust and glacial acetic acid, amino alcohol $C_{11}H_{15}ON$ was produced with a 71% yield as compared to theory. This alcohol was acetylated with acetic anhydride and finally N-acetyl-N-phenylglycine IVa was obtained. From the above-mentioned data follows that the addition product under review consists of a mixture of 2-phenyl-6-methyl-3,6-dehydro-1,2-oxazine Ia and of 2-phenyl-3methyl-3,6-dehydro

Card 2/3

Reactions of Diene Hydrocarbons With Nitroso Compounds. 20-1-19/44
The Addition of Pentadiene-1,3 to Nitrosobenzene.

-1,2-oxazine 1b with a predominance of the latter isomer. This result contradicts the conception on the ionic reaction-mechanism of the diene synthesis and is in agreement with the assumption of a radical mechanism of this reaction.
There are 26 references, 14 of which are Slavic.

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

PRESENTED: By A. N. Nesmeyanov, Academician.

SUBMITTED: April 12, 1957.

AVAILABLE: Library of Congress.

Card 3/3

AUTHOR: Arbuzov, Yu. A. and Ovchinnikov, Yu. A. 20-117-5 24/54

TITLE: The Synthesis of 3-Oxypyrrolidine and 3-Oxythiophane (Sintez 3-oksipirrolidinov i 3-oksitiofana)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 5, pp. 813-816 (USSR)

ABSTRACT: At present many compounds are known which contain a pyrrolidine ring. The series of the functional derivatives of the pyrrolidine remains, however, only to a small extent known up to now. After a short reference review and a criticism of the known methods of the mentioned synthesis the authors have decided to use for this purpose 1,4-dichlorine butanol which can be produced easily and with high yields. In the heating of 1,4-dichlorine butanol with equimolecular quantities of primary amines in a medium of absolute alcohol in presence of potash N-substituted 3-oxypyrrolidine are formed with high yields. Thus 1-phenyl-, 1-p-tolyl-, 1-p-anisyl-, 1-n-butyl-, and 1-benzyl-3-oxypyrrolidine were produced. By catalytic debenzylation of the 1-benzyl-3-oxypyrrolidine in presence of palladiumoxide the authors obtained 3-oxypyrrolidine with a high yield which up to 1957 was not known. By condensation of 1,4-dichlorine butanol with sodium

Card 1/2

SOV/62-58-6-34/37

AUTHORS: Shemyakin, M. M., Kolosov, M. N., Arbuzov, Yu. A., Onopriyenko, V. V., Shatenshteyn, G. A.

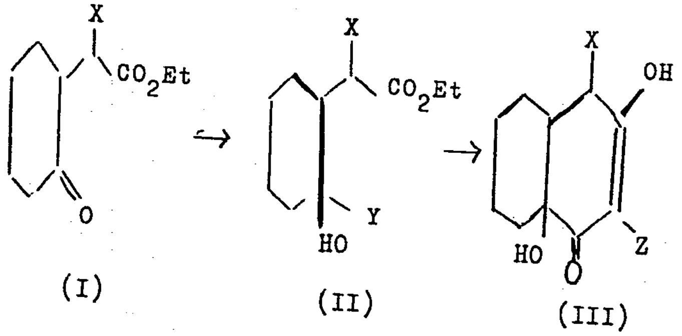
TITLE: The Course Taken by the Synthesis of Ring A of Tetracyclic Compounds (Put' sinteza kol'tsa A tetratsiklinov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 794-795 (USSR)

ABSTRACT: Already in 1957 the authors of this report described the synthesis of tricyclic compounds in which 2 rings, with respect to their structure, resemble rings D and C of tetracyclinic compounds. The third ring, which corresponds to ring B, contains a binary compound or a potential carbonyl group. At present the authors are studying the possibility of synthetizing ring A and describe this synthesis. The group CHX . CO_2 is introduced into the initial ketone, ketone ester is ethylated, ethynyl carbinol (formula III) $Y{=}C{\equiv}CH$ is hydrated in the neutral medium and oxy-ketoester (formula II;$Y{=}Ac$) is cyclized into an oxy-diketone (formula III; $Z{=}H$). (Formula III; $Z{=}CONHR$). The scheme has the following form:

Card 1/3

The Course Taken by the Synthesis of Ring A of Tetracyclic Compounds SOV/62-58-6-34/37



There are 2 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR i Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR.(Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR and Institute of Biological and **Medico-c**hemistry of the Academy of Medical Sciences of the USSR)

Card 2/~~3~~2

5 (3)

AUTHORS: Shemyakin, M. M., Kolosov, M. N., Arbuzov, Yu. A., Karapetyan, M. G., Chaman, Ye. S., Onishchenko, A. A.

SOV/79-29-6-13/72

TITLE: Investigations in the Field of Tetracyclines (Issledovaniya v oblasti tetratsiklinov). IV. Investigation of Different Syntheses of the Tricyclic System DCB of the Tetracyclines (IV. Izucheniye putey sinteza tritsiklicheskoy sistemy DCB tetratsiklinov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6, pp 1831 - 1842 (USSR)

ABSTRACT: The structure of the well-known tetracyclines (I) has a specific characteristic which indicates the ways and methods necessary for carrying out the complete synthesis of compounds of this type. On the basis of certain theoretical considerations the authors tried to synthesize such ketols of the hydroanthracene series of type (III) and (IV) in which two rings had to be similar with respect to structure and spatial arrangement to the rings D and C of the tetracyclines. The third ring had to offer the structural conditions for the subsequent building-up of the ring A and for the introduction of the necessary func-

Card 1/3

tional groups of the ring B of the tetracyclines. The adopted method of synthesizing these compounds consisted in the condensation of the 1,4-naphthoquinones with butadiene or its derivatives and the transformation of the resultant adducts (II) into the ketols (III) which, on their part, can easily be hydrolyzed to give the oxy-diketones (IV). The first step, the diene synthesis, takes place readily by heating naphthoquinone with the diene. By condensation of the 5-methoxy-naphtho-quinone with 2-methoxy-butadiene two isomeric adducts - (II d) and (II e) in the ratio 4 : 1 - are formed. The second step, the selective transformation of the C_9-keto group of the adducts (II) into the tertiary methyl carbinol grouping meets with some difficulties, it was however possible to carry out the reaction by means of magnesium methyl halide. The third step of the synthesis of the compounds (IV), the hydrolysis of the enol-methoxyl up to the keto group is only possible when using dilute acids. The synthesis of the tricyclines (XV) was thus performed on the basis of naphthoquinones, in which two rings are analogous with the rings D and C of the natural tet-

Investigations in the Field of Tetracyclines.
IV. Investigation of Different Syntheses of the
Tricyclic System DCB of the Tetracyclines

SOV/79-29-6-13/72

racyclines with respect to structure and spatial arrangement. The presence of the reactive double bond, the enol grouping or the carbonyl group in the third ring of the compounds (XV) offers further possibilities for the introduction of substituents and for the building up of the fourth ring of the tetracyclines. There are 12 references, 4 of which are Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR i Institut organicheskoy khimii Akademii nauk SSSR (Institute of Biological and Medical Chemistry of the Academy of Medical Sciences, USSR, and Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: June 9, 1958

Card 3/3

5(3)

SOV/79-29-9-11/76

AUTHORS: Arbuzov, Yu. A., Vatsuro, K. V., Volkov, Yu. P.

TITLE: Synthesis of 1-Methoxy Penten-4-on-3 and Diene Synthesis With It

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2857 - 2860 (USSR)

ABSTRACT: I. N. Nazarov and I. V. Torgov (Ref 1) obtained 1-methoxy penten-4-on-3 on heating 1,5-dimethoxy pentanone-3 in vacuum in the presence of p-toluene sulfonic acid. In the investigation under review, the synthesis was made in a different way: by addition of chloro methyl ether to butadiene-1,3 under the action of $ZnCl_2$ (Ref 2), the authors obtained a mixture of isomeric methoxy chloropentenes (I) and (II). The catalytic isomerization of the primary chloride (I) under the action of $ZnCl_2$ (Ref 3) resulted in the separation of the secondary chloride (II) (60% yield); its saponification with sodium carbonate solution (Ref 4) yielded a mixture of isomeric methoxy pentenols (III) and (IV), from which pure alcohols were obtained on fractionation. 1-methoxy pen-

Card 1/2

Synthesis of 1-Methoxy Penten-4-on-3 and Diene Synthesis SOV/79-29-[illegible]/76
With It

ten-4-on-3 (V) resulted from the oxidation of compound (IV). The manganese dioxide first used as oxidation agent gave a 67% yield of ketone (V) which was still mixed with the initial alcohol. When using chromic anhydrides the yields amounted to 35-50% only, but the ketone was obtained in pure state, with a glass-like residue always remaining in the distillation flask, which is safely to be regarded as a polymer of the ketone. To prevent this, and to increase the pure product yield, the ketone was extracted with chloroform, and hydroquinone was added when drying the chloroform solution and when distilling the ketone. The yield of pure ketone amounted to 64%. A higher yield (94%) was obtained by oxidizing the alcohol with the pyridine complex of CrO_3. The condensation of the ketone (V) with cyclopentadiene resulted in compound (VI) (yield 76%); the reaction of the same ketone (V) with cyclohexadiene-1,3 yielded compound (VII) (yield 72%). There are 8 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: September 15, 1958

Card 2/2

5(3)

SOV/20-128-1-30/58

AUTHORS: Shemyakin, M. M., Academician, Kolosov, M. N., Arbuzov, Yu. A., Hsieh Yü-yüan, Sheng Huai-yü, Sklobovskiy, K. A., Karapetyan, M. G., Gurevich, A. I.

TITLE: Intermediate Stages in the Synthesis of Tetracyclines

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 1, pp 113-116 (USSR)

ABSTRACT: In 1956 the authors synthesized tricyclic ketols of kind (I) (Ref 1). They are similar to tetracyclines (III) as far as the structure of two rings is concerned. In the third ring they have a reactive double linkage in position 2,3. The present paper investigates the addition of heterogeneous reagents to the 2,3-double linkage of compounds (I) for introducing active groups into their molecules. The active groups are necessary for establishing a γ-grouping (II) in the B-ring and for a further extension of the A-ring of tetracyclines by a method previously elaborated. Investigations have shown that compounds (I) with typical electrophilic reagents such as Hal_2, RCO_3H and HOHal react readily. Thus, corresponding halogen derivatives, epoxides, hydrine halides, and halogen

Card 1/2

SOV/20-128-1-30/58

Intermediate Stages in the Synthesis of Tetracyclines

ketones with good yields are formed. Constants and analytical results of synthesized compounds are given in table 1. The synthesis of tricyclic ketols with active groups in the B-ring made by the authors provides the possibility of building up the A-ring of tetracyclines. There are 1 table and 3 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR).
Institut biologicheskoy i meditsinskoy khimii AMN SSSR (Institute of Biological and Medical Chemistry, AMN USSR)

SUBMITTED: June 4, 1958

Card 2/2

5 (3)

AUTHORS: Shemyakin, M. M., Academician, Kolosov, M. N., Arbuzov, Yu. A., Berlin, Yu. A.

SOV/20-128-4-30/65

TITLE: Investigation of the Methods of Ring Synthesis of A-Tetracyclines - Method of Introducing the N,N-Dimethylglycine Residue Into the Cyclohexanone Ring

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 4, pp 744 - 747 (USSR)

ABSTRACT: For a further utilization of the tricyclic oxydiketones of type (I), described by them, in the synthesis of tetracyclines (II), the authors developed a general method of transformation of cyclohexanones (III) via keto-ester (IVa) into compounds (V). The (Va) have a characteristic oxydiketone-carboxamide system of the A-ring of tetracyclines (Ref 2). To build up the A-ring itself in a similar way (this ring having a Me_2N-group in position 4 (Vb)), the method of introducing the N,N-dimethylglycine residue into the cyclohexanone ring (III) had first to be developed, and the reactivity of dimethyl-amino-keto esters of type (IVb) had to be investigated. The present paper deals with

Card 1/3